Final Report

LOMPOC AIRPORT
Master Plan Update

Lompoc Airport Master Plan Update

FINAL REPORT

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CHAPTER 1

Introduction

Chapter 1

Introduction

INTRODUCTION

Lompoc Airport is a 208-acre publicly owned facility that serves the aviation needs of the City of Lompoc and surrounding areas of Santa Barbara County. The airport is owned by the City of Lompoc and operated through the City Public Works Department, the Aviation Transportation Division. In order to determine the potential of the airport and specific opportunities for improving facilities, the City sponsored an airport master plan through a planning grant from the FAA Airport Improvement Program (AIP). In March 2009, a contract was awarded to AECOM Technical Services, Inc. of Orange, California to prepare a master plan for Lompoc Airport.

This document comprises the Final Report for the airport master plan that documents the research, analysis, and findings of this study. During the course of this study, an Interim Report was issued which documented the initial elements of the work program including inventory, forecasts of aviation demand, and facility requirements. The Interim Report was a working document and was superseded by the Draft Final Report. The Draft Final Report expanded upon data presented in the Interim Report and included documentation of concept development, the airport layout plans, costs and funding considerations, and an environmental overview. This document – the Final Report – supersedes all previous iterations.

PURPOSE AND SCOPE OF STUDY

The main objective of this study is to prepare an airport master plan to determine the extent, type and schedule of development needed to accommodate future aviation demand at the airport. The recommended development shall be a twenty-year program and presented in the following three planning periods: Phase 1 (2011-2015); Phase 2 (2016-2020); and Phase 3 (2021-2030). The recommended development should satisfy aviation demand, community development, and other transportation modes. Above all else, the plan must be technically sound, practical, and economically feasible. The following objectives shall also serve as a guide in the preparation of the study:

- To provide an effective graphic presentation of the ultimate development of the airport.
- To present the pertinent backup information and data which were essential to the development of the airport master plan.
- To describe the various concepts and alternatives which were considered in the establishment of the proposed plan.

- To provide a concise and descriptive report so that the impact and logic of its recommendations can be clearly understood by the community the airport serves and by those authorities and public agencies that are charged with the approval, promotion, and funding of the improvements proposed in the master plan.

- To ensure reliability and safety of airport operations.

THE PLANNING PROCESS

A transportation planning study, such as this, is accomplished by following some fundamental, sequential steps that are briefly stated as an overview of the work to be accomplished. The initial step involves taking inventories of existing facilities and systems, documenting existing conditions, and coordinating activities with other agencies. Next, an assessment of aviation demand is undertaken and forecasts are prepared and then translated into a listing of required facilities. Once this list is determined it is possible to compare requirements with existing facilities to identify deficiencies. Alternative development concepts that satisfy the deficiencies are then developed and evaluated so that a recommended concept is identified. Once identified, the preferred alternative will then be detailed and examined in terms of a staged development plan.

It should be noted that the airport master plan focuses on the airport and the planning of facilities within its property boundary. The evaluation of off-airport areas is considered to the extent that acquisition of land is required for airport use, or that off-airport areas are impacted by airport noise or height restrictions. The airport master plan is not intended as a comprehensive general development plan for the area surrounding the airport or community. However, it can be coordinated or incorporated into other community development programs.

PLANNING ISSUES

A Technical Advisory Committee (TAC) was established for the project for the purpose of monitoring the progress of work and providing input on the study. The first TAC meeting was held in Lompoc on April 9, 2009 and the purpose of the meeting was to identify planning issues solicit the Committee's "vision" for the airport. Appendix A contains a list of TAC members and the minutes from the first TAC meeting. A summary of the issues identified are provided below.

- Runway Extension. The master plan should explore the feasibility and potential to extend the runway to enhance the airport for business aircraft and research the need for the displaced threshold.
- Skydive Hangar and Helipad Relocation. The Skydive hangar was recently constructed and displaced the helipad (helicopter parking position). The master plan should locate a new helipad.
- Pavement Condition. The existing north apron is in poor condition and the master plan should provide recommendations for addressing pavement issues.
- Floodplain Issues. The Santa Ynez River flood plain limits developable land on the airport. Consideration must be given to floodplain boundaries.
- New Developments. Incorporate new hangar developments into the master plan.
- Instrument Approach. Obstacles affecting instrument approach procedures should be identified and opportunities to reduce minimums explored.
- South Side Parcel. Aviation development of the south side parcel – approximately 13 acres – should be explored.
- Through-the-Fence Access. Through-the-fence users must compensate the airport for direct access rights to the airport. Aside from the pedestrian gate near the hotel there are no through-the-fence operations.
- Administration Building. The existing administration building is over 40 years old and in need of updating. Consideration may be given in the master plan to co-locate the airport administration building with other potential City developments.

- Surrounding Land Uses. Land uses surrounding the airport offer good protection and compatibility. These compatible land uses should remain.
- Blast Protection. Consideration should be given in the master plan to provide blast protection along Highway 1/North 'H' Street. The airport is also experiencing erosion from jet blast.
- North/South Access. Access from the north side of the airport to the south side and vice versa is limited.

A second TAC meeting was held August 27, 2009, and reviewed information contained in the Interim Report. Initial development concepts were also presented during this meeting. A third TAC meeting was held on April 8, 2010 and covered phasing of the proposed projects at Lompoc Airport. Meeting minutes are included in Appendix A.

AIRPORT VISIONING WORKSHOP

As part of the initial TAC meeting a Visioning Survey was conducted of TAC members. Figure 1-1 provides a synopsis of the responses to the Visioning Survey completed by TAC members at the meeting.

The following input was obtained from the TAC with respect to airport role, expected growth in airport activity and the need for services and facilities. The degree of importance reflected below is based on the responses shown in Figure 1-1.

Airport Role

- Business Corporate – Very important
- Personal/Recreational – Very important
- Tourism – Very important
- Emergency/Medical Transport – Very important/somewhat important
- Government (Law) – Somewhat important
- Pilot Training – Somewhat importance

Expected Growth in Activity

- Based aircraft – Moderate growth
- Takeoffs and landings – Moderate growth
- Special Events – Little/moderate growth

Needs for Services & Facilities

- NAVAIDS/Visual Aids – Very important
- FBO services (maintenance, fuel) – Somewhat important
- Tie-downs – Somewhat importance
- Pilot facilities – Somewhat important
- Conventional, bay hangars – Somewhat important
- T-hangars – Somewhat important
- Portable/Shade Hangars – Limited importance
- Longer runway – Limited importance
- Full parallel taxiway – Limited importance

PUBLIC INVOLVEMENT

A public meeting was held on August 27, 2009. This meeting was advertised through the local newspaper. During the meeting information contained in the Interim Report was presented. Additionally, presentations

CITY OF LOMPOC
LOMPOC AIRPORT MASTER PLAN
Lompoc Airport Mission: *"The mission of the Lompoc Airport is to provide an aerial gateway to the Lompoc Valley. The airport will support the requirements of the commercial and recreational user and will promote economic development and assist in expanding tourism."*

LOMPOC AIRPORT VISIONING WORKSHOP

Airport Role (Types of Use)		Future Importance		
		Limited Importance	Somewhat Important	Very Important
Personal / Recreational			1	8
Pilot Training			7	1
Business / Corporate			2	6
Government (Law Enforcement, etc.)		1	5	2
Emergency / Medical Transport			4	4
Tourism		1	3	4

Growth in Airport Activity		Expected Growth		
		Little Growth	Moderate Growth	High Growth
Based Aircraft		2	6	
Takeoffs and Landings		2	6	
Special Events		4	4	

Airport Services and Facilities		Future Needs		
		Limited Importance	Somewhat Important	Very Important
Longer Runway		3	2	2
Full Parallel Taxiway		4	3	2
Navaids / Instr. Approach / Visual Aids			3	4
FBO Services (maintenance, fuel, etc.)			5	1
Pilot Facilities (lounge, flight planning area)		1	6	1
Portable / shade hangars		7	1	
T-hangars (including nested T-hangars)		1	5	2
Conventional, Bay Hangars (Large Hangars)			6	2
Tie-downs		1	6	1

AECOM

Figure 1-1
Airport Visioning Survey Responses

were given to the Lompoc Airport Commission on April 9, 2009, August 27, 2009, and April 8, 2010. Airport Commission meetings are open to the public.

GOALS AND OBJECTIVES

Planning can be defined as a rational process for formulating and meeting desired goals and objectives that properly express the benefits that such a plan will produce for its users. Goals are defined as desired ends relating to the physical, social, or economic context as to how the airport should develop and how it should be operated. It should be pointed out that goals might not entirely be attainable. Objectives, on the other hand, are specific and attainable actions, which lead to the attainment of goals. The goals and objectives serve as a foundation used to guide the planning process. They can also be used to rate the merits of alternative plans. Lompoc Airport's mission statement was taken into consideration when developing these goals. The mission statement reads as follows: "The mission of the Lompoc Airport is to provide an aerial gateway to the Lompoc Valley. The airport will support the requirements of the commercial and recreational user and will promote economic development and assist in expanding tourism."

The following preliminary goals and objectives were developed based on the planning team's master planning experience and the discussion of issues at the first TAC meeting.

GOAL NO. 1 – Function: The airport should accommodate based aircraft owners, recreational users, business aviation, and needs of existing and anticipated tenants.

Objectives:

1. Provide through planning, an orderly and timely development of facilities adequate to meet future air transportation needs.
2. Develop the role of the airport in terms of its specific capabilities and demand.
3. Accommodate those classes of general aviation aircraft operations consistent with the airport role.
4. The plan should be expandable and flexible.

GOAL NO. 2 – Safety: The operation of the airport related to all aspects of air transportation for the users, operators, and general public should be safe.

Objectives:

1. Minimize exposure to risk.
2. Conformance with FAA regulations and airport design standards.
   - FAA Advisory Circular 150/5300-13, Airport Design (latest version).
   - FAR Part 77, Objects Affecting Navigable Airspace which forms the basis for zoning regulations to prevent obstructions to air navigation.

GOAL NO. 3 – Efficiency and Economy: The airport should achieve financial self-sustenance and promote economic development.

Objectives:

1. Maximize best possible use of existing facilities.
2. Make best use of airport property for landside development through application of appropriate airport design standards.
3. Maximize the ability to implement the plan.

4. Consider use of property not needed to accommodate long-term aviation demand for other revenue producing uses.
5. Identify means of local funding requirements, including revenue from possible aviation related and non-aviation uses of airport property.
6. Minimize costs to users, operators, and general public.

GOAL NO. 4 – Environment: The airport should be developed and operated with a minimum of adverse effects on the social and natural environment.

Objectives:

1. Develop new airport facilities and correct deficiencies in existing aviation facilities to conform to Federal and State environmental regulations.
2. Utilize green technologies to the extent practical.

GOAL NO. 5 – Local Compatibility: The airport should be developed in agreement with proposed land use plans.

Objectives:

1. The plan should agree with the goals of the Lompoc General Plan.
2. The plan should provide information for off-airport land use planning and control to facilitate updating of the SBCAG Airport Land Use Plan and the Santa Barbara County Unincorporated Land Use and Development Code and assure compatibility with operations.

CHAPTER 2

Executive Summary

Chapter 2

Executive Summary

INTRODUCTION

The findings, conclusions, and development recommendations of the master plan are highlighted in this executive summary. It should be noted that the development recommendations contained in this report are based upon projected traffic levels and attainment of these levels. It cannot be overemphasized that where development is recommended based upon demand or traffic levels, it is ***actual***, not forecast, demand that dictates the timing of construction. However, for planning purposes, a schedule must be provided and this schedule is based upon the development concept requirements and the forecasts of traffic presented in Chapter 4.

It is also important to point out that the schedule of improvements proposed in this plan is contingent upon the availability of Federal, State, local funds and private investment, and necessary environmental studies and documentation. While improvements will eventually be scheduled for specific years in this master plan, it must be remembered that it is the programming of the Airport Improvement Program by the FAA that will determine the timing of projects eligible for FAA funding assistance. Development projects at Lompoc Airport must be reconciled with the development priorities of other airports in the region. In terms of projects not eligible for FAA monies, the implementation will depend on the availability of local funds and private sources. Thus, the implementation of the recommendations will depend upon FAA programming and funding availability, completion of required environmental studies and any applicable mitigation, as well as the attainment of the projected traffic levels.

The following subsections highlight the forecast of aviation demand and the findings on required facilities along with the sequencing of development recommendations and a summary of capital costs. Details on the various master plan elements can be found in subsequent chapters of this report. Chapter 3 describes the existing airport and conditions. The forecast of aviation demand and the translation of the future demand into a list of required facilities can be found in Chapters 4 and 5, respectively. Development concepts considered in this master plan are presented in Chapter 6. The recommended development concept and airport plans prepared are contained in Chapter 7. Chapter 8 includes the costs of capital improvements and the environmental overview prepared as part of this planning study is contained in Chapter 9. Minutes of the first, second, and third Technical Advisory Committee (TAC) meetings and a listing of the TAC members are included in Appendix A. To assist the reader, a glossary and list of abbreviations used in this report as Appendix B. Appendix C contains a questionnaire that was distributed to owners of based aircraft at the airport. Detailed cost estimate data is included in Appendix D and pertinent Caltrans Airport Compatibility Guidelines can be found in Appendix E.

AIRPORT ROLE

The airport will continue to serve in its present role as a general aviation (GA) airport and significant changes in the GA role is not expected. The airport will continue to primarily serve small, personal use aircraft and helicopters. However, the airport will also be planned to serve an increasing number of business aircraft (turboprops and business jets) in order to allow the airport to serve the City as an asset and stimulate the local economy.

FORECASTS OF AVIATION DEMAND

Aviation demand forecasts are projections of air traffic levels at an airport. In the case of Lompoc Airport, a general aviation airport, the forecasts focus on the number of aircraft based at the airport, and the number of operations (takeoffs and landings). A range of forecasts were prepared reflecting potential activity based on baseline, low, and high growth scenarios.

Historical and projected based aircraft are graphically presented in Figure 2-1. The forecast of based aircraft (by aircraft type) is presented in Table 2-1 for the three scenarios that were developed. A based aircraft is one that is permanently stationed at an airport, usually by some form of agreement between the aircraft owner and the airport management. This forecast value is useful in developing projections of aircraft activity, as well as determining future needs of certain airport elements. As seen, the number of based aircraft is projected to increase from present levels of 70 to 114 in the year 2030 with the Baseline Forecast; the High Growth Forecast projects 152; and the Low Growth Forecast projects 70 based aircraft.

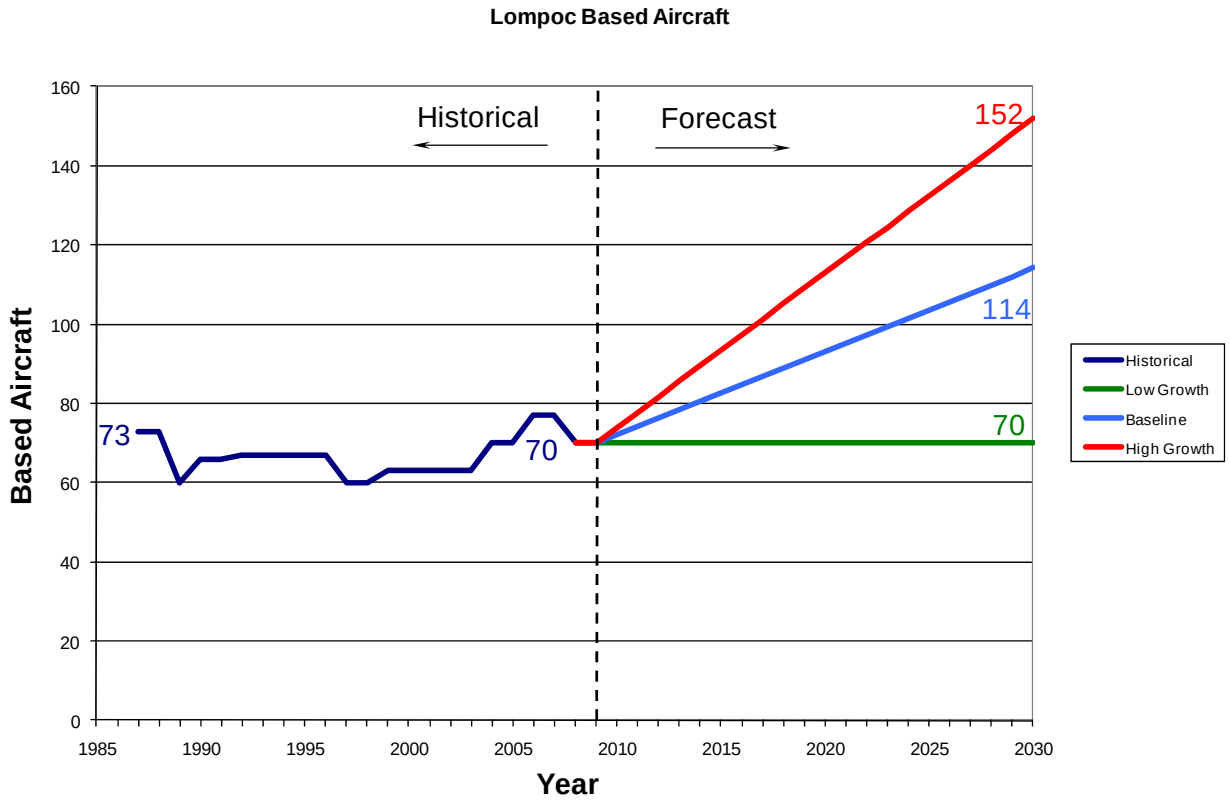


Figure 2-1
Historical and Forecast Based Aircraft

Table 2-1
FORECAST OF BASED AIRCRAFT

Year	Single Engine	Turbine/ Jet	Multi-Engine	Helicopter	Other	Total
2009	68	1	0	1	0	70
Low Growth Forecast						
2015	68	1	0	1	0	70
2020	67	1	1	1	0	70
2030	67	1	1	1	0	70
Baseline Forecast						
2015	80	1	1	1	0	83
2020	89	1	1	1	0	93
2030	107	2	2	2	1	114
High Growth Forecast						
2015	88	1	1	1	2	93
2020	106	1	2	2	3	113
2030	134	2	6	4	6	152

Source: AECOM analysis.

Aircraft operations are projected to increase from present levels of approximately 30,200 to 62,600 by the year 2030 under the Baseline Forecast; 98,800 under the High Growth Forecast; and remain at 30,200 for the Low Growth Forecast. Itinerant operations are projected to be slightly more than local operations, and account for approximately 60 percent of total operations in 2030. Table 2-2 presents the forecast of annual aircraft operations.

Table 2-2
FORECAST AIRCRAFT OPERATIONS

Year	Itinerant	Local	Total
2009	15,200	15,000	30,200
Low Growth Forecast			
2015	15,100	15,100	30,200
2020	15,100	15,100	30,200
2030	15,100	15,100	30,200
Baseline Forecast			
2015	22,850	22,850	45,700
2020	28,100	23,000	51,100
2030	37,600	25,000	62,600
High Growth Forecast			
2015	30,250	30,250	60,500
2020	40,400	33,100	73,500
2030	59,300	39,500	98,800

Source: AECOM analysis.

FACILITY REQUIREMENTS

Chapter 5 presents the projection of facility requirements deemed necessary to accommodate the Baseline Forecast aviation demand through the year 2030. Listed below are the findings and conclusions of the analysis. Facility requirements were also determined for demand levels noted in the High Growth Forecast (HGF). This provides requirements for facilities should higher demand develop at the airport.

Airside

- For this master plan, the airport is designated as airport reference code (ARC) B-II. This is the airport reference code that was reflected on the previous Airport Layout Plan and was found to be appropriate for this master plan. This will ensure that general aviation aircraft that currently use the airport will be provided adequate facilities. For the purposes of this study, the Cessna Citation Jet 2 (Cessna CJ2) was determined to be the critical aircraft.

- Airfield (runway) capacity is sufficient to accommodate forecast operations.

- Extending the runway 660 feet will accommodate 75 percent of large airplanes at a reasonable 60 percent useful load. However, it is noted that due to physical constraints only an extension of approximately 260 feet is practical. This will accommodate 75 percent of large airplanes at approximately 51 percent useful load, an increase of approximately 6 percent. Should the Santa Ynez River flood plains be re-evaluated and flood conditions change, there may be an opportunity to extend Runway 7.

- The runway does not have paved shoulders. Shoulders, 10 feet wide, should be provided at Lompoc Airport.

- The existing runway provides 97.23 percent coverage for a 10.5 knot (12 mph) crosswind and 98.74 percent for a 13 knot (15 mph) crosswind which meets the FAA recommendation of 95 percent wind coverage for an ARC B-II airport. Additional runways for crosswind coverage are not required.

- The existing threshold of Runway 25 is displaced 116 feet. Based on the latest FAA threshold siting criteria, the threshold is not properly located. No displaced threshold is required.

- Airfield signage should be expanded to include holding position signs, runway exit signs, taxiway designation signs, runway distance remaining signs, and location signs.

- Runway safety area (RSA), runway obstacle free zone (OFZ), and runway object free area (ROFA) are all on airport property and free of obstructions.

- Approximately 43 percent of the Runway 7 RPZ and 60 percent of the Runway 25 RPZ are within airport property. Due to the Santa Ynez floodplain, development within the uncontrolled portions of the RPZs is prohibited. However, Highway 1/North ‘H’ Street traverses Runway 25’s RPZ.

Landside

- The existing terminal facilities should be expanded by approximately 1,900 square feet should baseline operations increase as forecast. Approximately 3,700 square feet may be required should High Growth Forecast demand levels materialize. Consideration may be given to developing a new airport terminal adjacent to proposed City Transit offices.

- The existing parking apron is capable of meeting requirements for transient tie-downs in the year 2030. However, transient apron space should be allocated for special event parking, such as the annual Piper Cub Fly In.
- New individual hangars should be provided for based aircraft. For the Baseline Forecast, this translates to 37 additional individual hangars. Furthermore, existing individual hangars that have deteriorated in condition should be replaced by new hangars or rehabilitated. Should based aircraft levels grow according to the High Growth Forecast, 73 additional individual hangars may be needed.
- Conventional hangar space is adequate to meet long-term requirements; however, existing hangars that are in poor condition should be replaced by new hangars or rehabilitated. A nominal amount of additional conventional hangar space would be necessary at High Growth Forecast levels. The master plan should provide adequate space for additional conventional hangars.
- The existing Avgas fuel storage capacity is adequate for the master plan period under the High Growth Forecast scenario. Jet A fuel forecasts show the potential need for a second Jet A fuel storage facility of approximately 10,000 gallons is needed for a 14-day reserve.
- Pavement conditions on the north apron are in poor condition and should be rehabilitated in the short-term.
- At Lompoc, a total of at least seven acres should be reserved for use by a FBO.
- Currently, Lompoc has 1,000 square feet allocated to airport maintenance equipment storage. It is assumed that an additional 1,000 square feet may be needed by 2030.
- Should based aircraft exceed 101 and annual operations exceed 50,000, Lompoc may need to install additional security enhancements, such as access control, a vehicle ID system, and challenge procedures.

Table 2-3 summarizes the landside facility requirements. As previously indicated, these are based on the Baseline Forecast with requirements to satisfy High Growth Forecast demand also presented.

Table 2-3
SUMMARY OF BASELINE FORECAST LANDSIDE FACILITY REQUIREMENTS

					Additional Facilities	
Item	**Existing**	**2015**	**2020**	**2030**	**2030**	**HGF (2030)**
GA Terminal (square feet)	1,165	2,205	2,450	3,087	1,922	3,735
Transient Apron (number of tie-downs)						
Single engine/Multi-engine	44	10	13	16	0*	0*
Turboprops/Business jets	0	0	0	1	0*	0*
Individual hangars (spaces)	73	81	91	110	37	73
Conventional Hangar Space (square feet) (fixed wing)	15,022	6,120	6,120	12,240	0	4,500
Auto Parking (spaces)	74	59	65	82	8	56
Fuel Storage (gallons)						
Avgas	10,000	3,080	3,444	4,200	0	0
Jet A	10,000	3,276	6,524	11,760	1,760	11,924
Oil Recycling Center	1	1	1	2	1	1
Fixed Base Operator (acres)	0.2	7	7	7	6.8	6.8
Airport Maintenance	1,000	1,000	1,000	2,000	1,000	1,000

Notes:* Existing tie-downs are underutilized. Tie-downs could be used as transient or based aircraft tie-downs.
Source: AECOM

CONCEPT DEVELOPMENT

During the course of this master plan an airside concept was developed and three landside concepts were analyzed. Airside development concentrated on accommodating the longest landing length possible while still maintaining FAA design standard requirements. The recommended landside development is a combination of the three landside concepts taken into consideration. The recommended landside concept focuses on providing expanded hangar facilities on the south side of the airport.

The airside and landside concepts were combined to form the basis of the Airport Layout Plan. The Airport Layout Plan (ALP), depicted in Figure 2-2, presents the overall development concept plan for Lompoc Airport as recommended in the master plan. This plan was based on the recommended development concept defined in Chapter 6 and based on input from the City and TAC members. Key recommendations are as follows:

- Runway 25 will be extended 257 feet. This extension will accommodate 75 percent of large airplanes less than 60,000 pounds at approximately 51 percent useful load. The landing threshold on Runway 25 will be displaced 197 feet.
- There will be no changes to instrument approach minimums.
- Existing and future taxiway designations will be from A through H.
- There will not be a designated helicopter landing pad; helicopters will operate on the runway and park in designated areas.
- The AWOS may need to be relocated and potentially a SuperAWOS installed.
- A perimeter road is provided to allow vehicles to transition from one side of the airport to the other and a blast fence installed to protect the perimeter road and Highway 1/North 'H' Street from jet blast, dust, and debris.
- Facilities reflected in the Recommended Landside Development Concept include 101 additional individual hangars; 28,400 additional square feet of conventional hangar space; and expansion of the existing terminal/administration building to 5,000 square feet.

AIRPORT PLANS

The master plan document includes an Airport Layout Plan (ALP) sheet set including the ALP, Airport Airspace Drawing, Inner Portion of the Approach Surface Plan, and Exhibit "A" – Property Map. The ALP is depicted in Figure 2-2. All other drawings are depicted in Chapter 7 – Airport Plans.

The overall development plan including airside and landside improvements is shown on the ALP. The other drawings provide additional supporting details of the recommended plan. Master plan improvements are proposed to occur in three phases. Phase 1 development focuses on rehabilitating George Miller Drive, reconstructing the north apron, installing airfield signs and upgrading the electrical, and constructing box hangars. Phase 2 focuses on the runway/taxiway overlay and extension. The terminal should be expanded and connected to the City Sewer System and additional individual hangars should be constructed. Additional facilities such as the airport café/restaurant, airport maintenance facility, and automobile parking are proposed for Phase 3 development. Should the High Growth Forecast materialize additional hangars (both individual and conventional) may be required. Table 2-4 summarizes all development recommendations which are more fully described in Chapter 7.

The Airport Airspace Drawing shows Federal Aviation Regulations (FAR) Part 77 imaginary surfaces applied to Lompoc Airport and notes obstructions to the associated surfaces. There are a total of 24 obstructions to Lompoc's FAR Part 77 imaginary surfaces. These include roads, power poles, towers, and terrain.

The Inner Portion of the Approach Surface Plan (also known as the runway protection zone plan) depicts the runway protection zones (RPZs) and inner approach surfaces for both Runways 7 and 25. This plan

RUNWAY DATA

DESCRIPTION			RUNWAY 7 - 25 EXISTING	RUNWAY 7 - 25 FUTURE
EFFECTIVE GRADIENT (IN %)			0.2	SAME
MAXIMUM GRADIENT (IN %)			1.0	SAME
WIND COVERAGE % (13 KNOTS)			98.74	SAME
APPROACH VISIBILITY MINIMUMS			VISUAL/1 MILE	SAME
DESIGN AIRCRAFT	MAKE AND MODEL		CITATION 550 (II)	SAME
	WINGSPAN (FEET)		51.7	SAME
	UNDERCARRIAGE WIDTH		12.58	SAME
	APPROACH SPEED (KNOTS)		108	SAME
	MAX. TAKEOFF WEIGHT (LBS)		13,300	SAME
RUNWAY MARKING			NON-PRECISION	SAME
APPROACH CATEGORY (FAR PART 77)		RUNWAY 7	VISUAL	SAME
		RUNWAY 25	NON-PRECISION	SAME
RUNWAY ℄ TO PARALLEL TAXIWAY ℄			240'-250'	SAME
TAXIWAY ℄ TO FIXED OR MOVABLE OBJECT			65.5'	SAME
TAXIWAY OBJECT FREE AREA WIDTH			131'	SAME
TAXIWAY SAFETY AREA WIDTH			79'	SAME
TAXIWAY WINGTIP CLEARANCE			26'	SAME
RUNWAY ELEVATIONS (NAVD 88) (See Note 4)	TOUCHDOWN ZONE (TDZ)		NONE/88'	SAME
	HIGH POINT		88.1'	88.6'
	LOW POINT		78.8'	SAME
	END POINT (RUNWAY 7/25)		78.8'/88.1'	78.8'/88.6'
LINE OF SIGHT REQUIREMENT MET			YES	SAME
RUNWAY LENGTH			4,600'	4,857'
RUNWAY WIDTH			100'	SAME
RUNWAY/TAXIWAY PAVEMENT MATERIAL			ASPHALT	SAME
APPROACH SLOPE			20:1/34:1	SAME
PAVEMENT STRENGTH (S/D/DT) (000 LBS)			170/0	SAME
RUNWAY LIGHTING			MIRL	SAME
NAVIGATIONAL AIDS			GPS	SAME
VISUAL AIDS			VASI	SAME
RUNWAY SAFETY AREA	LENGTH[1]		300'	SAME
	WIDTH		150'	SAME
RUNWAY OBJECT FREE AREA	LENGTH[1]		500'	SAME
	WIDTH		300'	SAME
OBSTACLE FREE ZONE	LENGTH[1]		200'	SAME
	WIDTH		400'	SAME
RUNWAY CENTERLINE TO HOLD LINE			200'	SAME

[1]Length from runway end

WIND COVERAGE

RUNWAY	CROSSWIND COVERAGE ALL WEATHER 10.5 Kts.	13 Kts.	16 Kts.	20 Kts.	IFR 10.5 Kts.	13 Kts.	16 Kts.	20 Kts.
7	76.19%	77.25%	77.84%	77.99%	88.32%	88.43%	88.47%	88.49%
25	41.72%	42.18%	42.54%	42.65%	40.89%	41.01%	41.15%	41.22%
7-25	97.23%	98.74%	99.70%	99.95%	99.47%	99.70%	99.88%	99.98%

Source: National Climatic Data Center Asheville, NC. Based on 73,704 observations (1999 - 2008) taken at Lompoc, CA.

RUNWAY END DATA

RUNWAY		EXISTING	FUTURE
7	LATITUDE	34°39'56.61"N	SAME
	LONGITUDE	120°28'30.54"W	SAME
	ELEVATION[1]	78.8'	SAME
25	LATITUDE	34°39'55.85"N	34°39'55.79"N
	LONGITUDE	120°27'35.48"W	120°27'31.73"W
	ELEVATION[1]	88.1'	88.6'

[1] See Note 5.

LEGEND

DESCRIPTION	EXISTING	FUTURE
AIRPORT BOUNDARY		SAME
AIRFIELD PAVEMENT (RW/TW AND APRON)		
BUILDING RESTRICTION LINE (BRL)		SAME
RUNWAY OBJECT FREE AREA (ROFA)		
RUNWAY SAFETY AREA (RSA)		
OBSTACLE FREE ZONE (OFZ)		
RUNWAY PROTECTION ZONE (RPZ)		
BUILDINGS		
GROUND CONTOURS	65'	SAME
AIRPORT REFERENCE POINT (ARP)		
THRESHOLD SITING SURFACE		
FENCE	X	XX XX XX
ROAD		
ROTATING BEACON		SAME
MONUMENT		SAME
HOLDLINE		SAME
RUNWAY LIGHTS		
LIGHTED WIND SOCK		SAME
WIND SENSOR 500-FOOT RADIUS	NOT SHOWN	

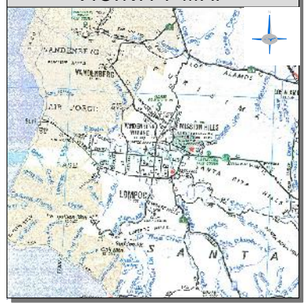
AIRPORT DATA

DESCRIPTION		EXISTING	FUTURE
AIRPORT ELEVATION (MSL)		88.1'	88.6'
AIRPORT REFERENCE POINT (ARP) COORDINATES (NAD 83)	LATITUDE	34°39'56.23"N	34°39'56.20"N
	LONGITUDE	120°28'03.01"W	120°28'01.14" W
NAVAIDS (i.e. ILS, BEACON)		BEACON/GPS	SAME
MEAN MAX. TEMP. OF HOTTEST MONTH		75.2° (September)	SAME
AIRPORT REFERENCE CODE		B-II	SAME
GPS AT AIRPORT		YES	SAME

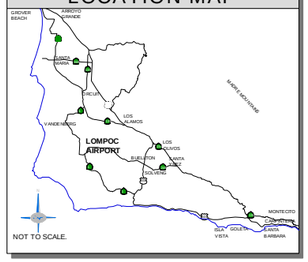
ABBREVIATIONS:

ARP	Airport Reference Point	NPI	Non-Precision Instrument Approach
AWOS	Automated Weather Observing System	OFZ	Obstacle Free Zone
		Pt.	Point
BRL	Building Restriction Line	REIL	Runway End Identifier Light
DT	Displaced Threshold	ROFA	Runway Object Free Area
(E)	Existing	RPZ	Runway Protection Zone
Elev.	Elevation	RSA	Runway Safety Area
Est.	Estimated	RW	Runway
(F)	Future	TDZE	Touchdown Zone Elevation
GPS	Global Positioning System	TOFA	Taxiway Object Free Area
IFR	Instrument Flight Regulations	TSS	Threshold Siting Surface
Lat.	Latitude	TW	Taxiway
Long.	Longitude	VASI	Visual Approach Slope Indicator
MSL	Mean Sea Level		

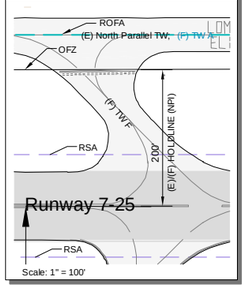
VICINITY MAP



LOCATION MAP

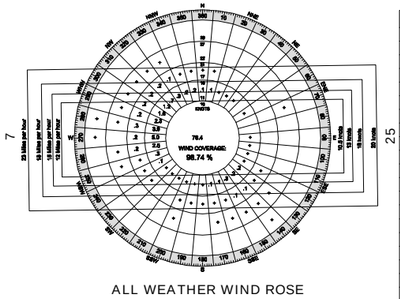


HOLD LINE DETAIL

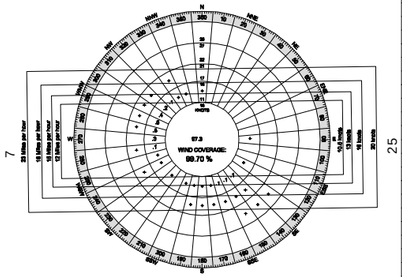


NOTES:

1. California Coordinate System, Zone 5 NAD 83. All elevations are in NAVD 88.
2. There are no Obstacle Free Zone (OFZ) penetrations.
3. Hangar layouts shown are conceptual to depict potential future capacities. Future configurations will be determined based on demand.
4. Existing runway end elevations are from the Runway Extension As-Built drawings. All future elevations are estimated.
5. The City of Lompoc has not been sectioned. The nearest section corner is approximately two (2) miles SE of the Airport.
6. The monuments are protected by a 2" brass cap are secured in a monument well. Additional monuments are shown on Sheet 4.
7. The RPZ areas off airport property are within the 100-year flood zone of the Santa Ynez River. No development is permitted within the flood zone. Additional airport control is not proposed.
8. The winery was evaluated under 2008-AWP-5800-OE.
9. The change to the future end point of Runway 27 (approach end) will require an amendment to the current Instrumental Flight Procedures. The ADO will need to contact the Flight Procedures Office to coordinate the desired publication date and any changes to that date.
10. The flood plain zone line delineates the boundary of the Lower Bench.



ALL WEATHER WIND ROSE



IFR WIND ROSE

BUILDING / FACILITY TABLE

#	DESCRIPTION	TOP ELEVATION
1	HANGAR 700	105'
2	HANGAR 660	98'
3	HANGAR 650	98'
4	HANGAR 640	98'
5	HANGAR 630	98'
6	HANGAR 620	98'
7	HANGAR 610	98'
8	HANGAR 600	100'
9	HANGAR 662	97'
10	HANGAR 652	97'
11	HANGAR 642	97'
12	HANGAR 632	98'
13	HANGAR 622	98'
14	HANGAR 612	98'
15	HANGAR 602	98'
16	BUILDING D	99'
17	BUILDING B	99'
18	BUILDING C	99'
19	BUILDING A	99'
20	HANGAR 434	106'
21	HANGAR 408	106'
22	OIL RECYCLING CENTER	91'
23	F HANGARS	97' - 99'
24	HANGARS 376 AND 378	103'
25	HANGARS 370, 372, 374, 380, 382, AND 384	103'
26	HANGAR 1801	109'
27	TERMINAL/ADMINISTRATIVE BUILDING	98'
28	HANGAR G1	100'
29	HANGAR G2	100'
30	HANGAR G3	100'
31	HANGAR G4	100'
32	T-HANGAR	96' - 99'
33	HANGAR 211	103'
34	HANGAR 361	99'
35	HANGAR 365	101'
36	HANGARS 401, 403, 405, 407, AND 409	98'
37	HANGARS 415, 417, 419, 421, AND 423	98'
38	FUTURE BOX HANGARS	95'* - 100'*
39	FUTURE RESTAURANT	97'*
40	FUTURE CONVENTIONAL HANGARS	102'* - 104'*
41	FUTURE T-HANGARS	95'* - 97'*
42	FUTURE TERMINAL/ADMINISTRATIVE BUILDING	98'*
43	FUEL FARM	94'
44	AWOS	113'
45	FUTURE AWOS	111'*
46	CONVENTIONAL HANGAR	100'
47	ELECTRICAL VAULT	92'

* Estimated

FAA APPROVAL

Approved conditionally MAR 16 2011

Subject to comments contained in our letter dated MAR 16 2011

FEDERAL AVIATION ADMINISTRATION
Western-Pacific Region

By _____
Manager, LAX/ADO

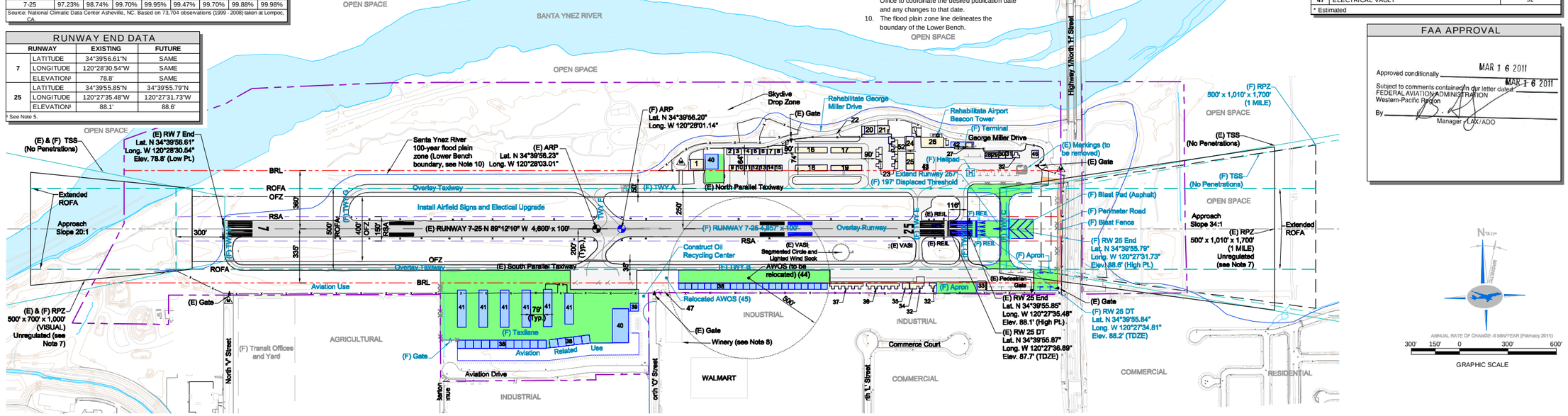


Figure 2-2
Airport Layout Plan

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indicates that the approach surface for Runway 7 is obstructed by a dirt road. The approach surface of Runway 25 is obstructed by Highway 1/North 'H' Street, the future Perimeter Road, and power poles/power lines.

Table 2-4
SUMMARY OF RECOMMENDED IMPROVEMENTS

Project	Timing
Phase 1 (2011 - 2015)	
Rehabilitate George Miller Drive	2011
Pavement Management Plan	2011
Reconstruct Apron	2012
Sustainability Plan	2014
Install Airfield Signs & Airfield Electrical Upgrade & Replacement	2015
Construct Perimeter Road	2015
Construct Box Hangars	2015
Phase 2 (2016 - 2020)	
Runway/Taxiway Overlay and Extension	2016
Construct Blast Fence	2016
Recertify Instrument Approach/Upgrade to WAAS/LPV Approach	2017
Rehabilitate City Owned Hangars	2018
Relocate AWOS/Install SuperAWOS	2019
Expand Terminal and Connect to City Sewer System	2020
Construct Individual Hangars	2020
Phase 3 (2021 - 2030)	
Construct Airport Café/Restaurant and Automobile Parking	Long-Term
Construct Individual Hangars	Long-Term
Construct Airport Maintenance Facility	Long-Term
Construct Oil Recycling Center	Long-Term
Rehabilitate Airport Beacon Tower	Long-Term
Provide Additional Automobile Parking	Long-Term/ As needed
As Needed (Beyond 2030)	
Construct Individual Hangars	As needed
Construct Conventional Hangars	As needed
Construct Aviation Related Use Building and Associated Parking	As needed
Install Jet A Tank	As needed
Construct Apron	As needed
Enhance Airport Security	As needed

Source: AECOM analysis.

The Exhibit "A" – Property Map shows the underlying parcels that comprise Lompoc Airport. Eight parcels were identified as part of Lompoc Airport property. In addition, known monuments on and around the Airport are identified on the Exhibit "A" – Property Map including how these monuments are protected.

COST AND FUNDING CONSIDERATIONS

Implementation of the recommended development plan will require the expenditure of approximately $31.0 million during the 20-year planning period and a total of $53.2 million in overall improvements. The

master plan capital improvement program will be funded from various sources including the FAA, State, City/airport revenues, and private investments. Table 2-5 summarizes the program expenditures.

Table 2-5
SUMMARY OF CAPITAL IMVPOVEMENT COSTS
(thousands of 2010 dollars)

Phase		FAA	State	Local	Private	Total	% Total
1	(2010 - 2015)	$ 5,688	$ 118	$ 514	$ 1,838	$ 8,083	26.3%
2	(2016 - 2020)	$13,307	$ 373	$1,931	$ 1,925	$ 17,535	56.5%
3	(2021 - 2030)	$ -	$ -	$ 916	$ 4,404	$ 5,320	17.2%
Phase 1 - 3 Total		**$18,927**	**$ 491**	**$3,353**	**$ 8,167**	**$ 30,938**	100.0%
	% Total	**61.2%**	**1.6%**	**10.8%**	**26.4%**	**100.0%**	

Source: AECOM analysis.

It is estimated that the FAA will contribute $19.0 million (61.2 percent); the state will contribute $491,000 (1.6 percent); private investment will account for $8.2 million (26.3 percent); and the City/airport will add $3.4 million (10.8 percent) of the recommended master plan improvements, which are estimated at $31.0 million.

Phase 1 costs account for approximately 26 percent of the master plan improvement costs, and include rehabilitation of George Miller Drive, reconstructing the north apron, installing airfield signs and electrical upgrading, and constructing box hangars. Construction of individual hangars is a continuous process throughout the planning period based on the demand that arises. Total hangar construction (both individual and conventional) shown in the master plan will cost approximately $7.0 million (or 23 percent of total program costs) and is expected to be funded primarily with private investment funds. Table 2-6 summarizes project costs of the recommended development plan.

Phase 2 accounts for approximately 57 percent of the master plan improvements. The majority of costs in Phase 2 are associated with the Runway/Taxiway Overlay and Extension. Other large projects in Phase 2 include the expanding of the terminal and connection to the city sewer system, construction of individual hangars, and relocation of the AWOS/Installation of a SuperAWOS. Phase 3 accounts for approximately 17 percent of the master plan improvement costs, and includes construction of individual hangars and construction of an airport café/restaurant and automobile parking.

For improvements beyond 2030 (As Needed projects) it is anticipated that of the $22.2 million it is anticipated that most will be funded by private investments ($20.5 million – 92.2 percent). The remaining 7.8 percent will be funded by the FAA ($1.6 million – 7.0 percent); state ($43,000 – 0.2 percent); and, City/airport contributions ($129,000 – 0.6 percent). Improvements beyond 2030 represent 41.8 percent of the total improvement cost of $53.2 million. These projects and their costs are also listed in Table 2-6. A graphical illustration of the future projects and funding sources are shown in Figure 2-3.

ENVIROMENTAL OVERVIEW

Environmental analysis in this study involved the preparation of an environmental overview contained in Chapter 9 in this report. Based on the findings contained in the environmental constraints analysis, additional studies pursuant to the National Environmental Policy Act (NEPA) are recommended related to four environmental affects, which may occur as a result of the Master Plan improvements and include the following:

FUNDING SOURCES KEY

- 1.X FAA and Local Funds
- 1.X FAA, State, and Local Funds
- 1.X Local Funds
- 1.X Private Party Funds

LEGEND

- Phase 1 (2010 - 2015)
- Phase 2 (2016 - 2020)
- Phase 3 (2021 - 2030)
- As needed (Beyond 2030)

	Project	City Cost	Project Cost	Timing
	Phase 1 (2010 - 2015)			
1.1	Rehabilitate George Miller Drive	$ 131,950	$ 1,319,500	2011
1.2	Pavement Management Plan	$ 20,000	$ 200,000	2011
1.3	Reconstruct Apron	$ 131,100	$ 1,748,000	2012
1.4	Sustainability Plan	$ 7,500	$ 75,000	2014
1.5	Install Airfield Signs & Airfield Electrical Upgrade & Replacement	$ 200,250	$ 2,670,000	2015
1.6	Construct Perimeter Road	$ 23,025	$ 307,000	2015
1.7	Construct Box Hangars	$ -	$ 1,838,000	2015
	Phase 1 Total	**$ 513,825**	**$ 8,157,500**	
	Phase 2 (2016 - 2020)			
2.1	Runway/Taxiway Overlay and Extension	$ 906,540	$ 12,087,200	2016
2.2	Construct Blast Fence	$ 18,900	$ 252,000	2016
2.3	Recertify Instrument Approach/Upgrade to WAAS/LPV Approach	$ 25,000	$ 250,000	2017
2.4	Rehabilitate City Owned Hangars	$ 450,000	$ 450,000	2018
2.5	Relocate AWOS/Install SuperAWOS	$ 37,950	$ 506,000	2019
2.6	Expand Terminal and Connect to City Sewer System	$ 492,375	$ 2,065,000	2020
2.7	Construct Individual Hangars	$ -	$ 1,925,200	2020
	Phase 2 Total	**$ 1,930,765**	**$ 17,535,400**	

	Project	City Cost	Project Cost	Timing
	Phase 3 (2021 - 2030)			
3.1	Construct Airport Café/Restaurant and Automobile Parking	$ -	$ 1,125,000	Long-Term
3.2	Construct Individual Hangars	$ -	$ 3,279,200	Long-Term
3.3	Construct Airport Maintenance Facility	$ 199,500	$ 199,500	Long-Term
3.4	Construct Oil Recycling Center	$ 90,000	$ 90,000	Long-Term
3.5	Rehabilitate Airport Beacon Tower	$ 90,000	$ 90,000	Long-Term
3.6	Provide Additional Automobile Parking	$ 536,000	$ 536,000	Long-Term/ As needed
	Phase 3 Total	**$ 915,500**	**$ 5,319,700**	
	Total Phases 1 through 3 (2010 - 2030)	**$ 3,352,590**	**$ 30,937,600**	
	As Needed (Beyond 2030)			
A.1	Construct Individual Hangars	$ -	$ 7,791,000	As needed
A.2	Construct Conventional Hangars	$ -	$ 3,180,000	As needed
A.3	Construct Aviation Related Use Building and Associated Parking	$ -	$ 9,527,500	As needed
A.4	Install Jet A Tank	$ 60,825	$ 811,000	As needed
A.5	Construct Apron	$ 34,890	$ 465,200	As needed
A.6	Enhance Airport Security	$ 33,750	$ 450,000	As needed
	As Needed (Beyond 2030) Total	**$ 129,465**	**$ 22,224,700**	
	Total	**$ 3,482,055**	**$ 53,162,300**	

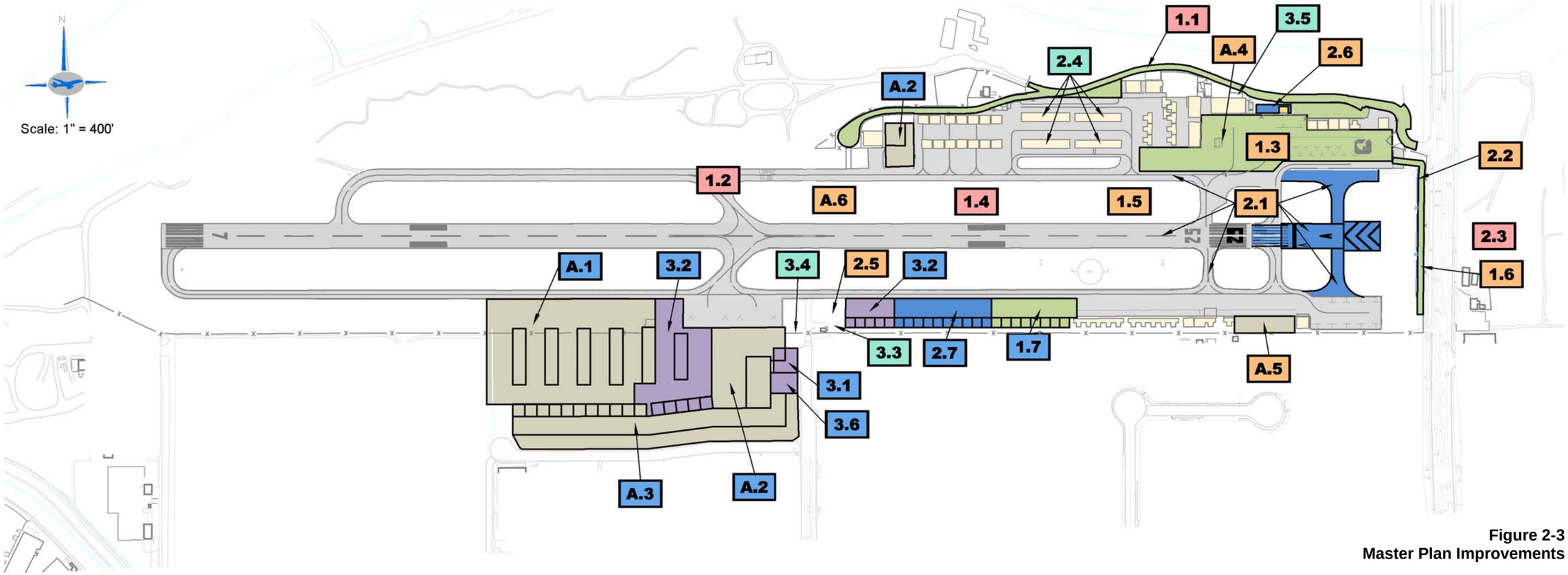

Figure 2-3
Master Plan Improvements

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Table 2-6
SCHEDULE OF IMPROVEMENTS

	Project	Cost	Timing
	Phase 1 (2010 - 2015)		
1	Rehabilitate George Miller Drive	$ 1,319,500	2011
2	Pavement Management Plan	$ 200,000	2011
3	Reconstruct Apron	$ 1,748,000	2012
4	Sustainability Plan	$ 75,000	2014
5	Install Airfield Signs & Airfield Electrical Upgrade & Replacement	$ 2,670,000	2015
6	Construct Perimeter Road	$ 307,000	2015
7	Construct Box Hangars	$ 1,838,000	2015
	Phase 1 Total	**$ 8,082,500**	
	Phase 2 (2016 - 2020)		
8	Runway/Taxiway Overlay and Extension	$12,087,200	2016
9	Construct Blast Fence	$ 252,000	2016
10	Recertify Instrument Approach/Upgrade to WAAS/LPV Approach	$ 250,000	2017
11	Rehabilitate City Owned Hangars	$ 450,000	2018
12	Relocate AWOS/Install SuperAWOS	$ 506,000	2019
13	Expand Terminal and Connect to City Sewer System	$ 2,065,000	2020
14	Construct Individual Hangars	$ 1,925,200	2020
	Phase 2 Total	**$17,535,400**	
	Phase 3 (2021 - 2030)		
15	Construct Airport Café/Restaurant and Automobile Parking	$ 1,125,000	Long-Term
16	Construct Individual Hangars	$ 3,279,200	Long-Term
17	Construct Airport Maintenance Facility	$ 199,500	Long-Term
18	Construct Oil Recycling Center	$ 90,000	Long-Term
18	Rehabilitate Airport Beacon Tower	$ 90,000	Long-Term
20	Provide Additional Automobile Parking	$ 536,000	Long-Term/ As needed
	Phase 3 Total	**$ 5,319,700**	
	Total Phases 1 through 3	**$30,937,600**	
	As Needed (Beyond 2030)		
21	Construct Individual Hangars	$ 7,791,000	As needed
22	Construct Conventional Hangars	$ 3,180,000	As needed
23	Construct Aviation Related Use Building and Associated Parking	$ 9,527,500	As needed
24	Install Jet A Tank	$ 811,000	As needed
25	Construct Apron	$ 465,200	As needed
26	Enhance Airport Security	$ 450,000	As needed
	As Needed (Beyond 2030) Total	**$22,224,700**	
	Total	**$53,237,300**	

Source: AECOM analysis.

- An emissions inventory is recommended to establish compliance with federal, State, and regional air quality standards

- An archeological study and field review is recommended to establish what, if any, historic resources or cultural resources of value exist on the site

- A biological site assessment and biological database search is recommended to establish what, if any, wildlife or plants of value exist on site

- A wetland delineation and jurisdictional determination is recommended. This analysis would identify total acres of jurisdictional waters within the airport property boundary and permit requirements if any airport improvements are anticipated in these areas.

In addition, prior to approval of airport improvements, public service providers (energy supply, natural resources, solid waste) should be contacted to determine whether the demand could be met through existing or planned service facilities. Finally, when a potential drainage issue is known, a drainage study should be conducted. The necessary environmental documentation should be prepared according to FAA, State, and City of Lompoc standards and regulations.

The necessary environmental documentation should be prepared according to FAA, State, and City of Lompoc standards and regulations.

CHAPTER 3

Inventory

Chapter 3

Inventory

INTRODUCTION

This chapter documents the number, type, and general condition of the existing facilities that comprise Lompoc Airport (LPC). It is a complete compilation of all systems, including airfield, terminal area, ground access, parking, NAVAIDS, pavement conditions, utilities, and the physical characteristics of the airport site.

A comprehensive inventory of existing facilities is made to assess their capacity to accommodate future traffic volumes. By comparing the capacity of existing facilities with future traffic volumes (demand/capacity analysis), capacity deficiencies can be determined. Once the deficiencies are identified, alternative expansion concepts (capable of accommodating future demand) can be formulated, evaluated, and ultimately, a recommended development program formulated.

The following subsections document the findings of the facility inventory work including a description of the study area.

STUDY AREA CHARACTERISTICS

Lompoc Airport is located north of the City of Lompoc. The City is located in central-western Santa Barbara County and houses approximately ten percent of the County's population. Lompoc is approximately seven miles from Vandenberg Air Force Base and 50 miles from the City of Santa Barbara. Santa Maria Airport is approximately 17 miles north of Lompoc Airport. In the 2000 census, Lompoc had 40,082 residents of the 399,347 residents in Santa Barbara County (see Table 3-1).

Table 3-1
LOMPOC AND SANTA BARBARA
POPULATION 1980-2008

Year	Santa Barbara County	Lompoc	% of County
1980	298,694	24,666	8.26%
1990	369,608	35,162	9.51%
2000	399,347	40,082	10.04%
2008	405,396	39,055	9.63%

Source: U.S. Census STF for 1980 and 1990; CA Department of Finance, Demographic Research Unit Latest E-5 Report from 1975-1999.

Table 3-1 shows that until recently, Lompoc has continued to represent a higher percentage of the Santa Barbara County population. In 2008, Santa Barbara County's population continued to increase, yet Lompoc's population decreased.

The service area for general aviation services that has been adopted for the development of demand forecasts in the master plan is described in Chapter 4. For forecasting purposes, Santa Barbara County and Oceano Airport (located in Santa Luis Obispo County) were judged to be best suited to reflect the general aviation market area. Figure 3-1 shows Lompoc and surrounding communities.

AIRPORT HISTORY

The first Lompoc Airport was on the property between 'H' and 'O' Streets and College and Pine Avenues, where Lompoc High School and the Lompoc Shopping Center now sit. In 1928, when it was dedicated, this site was far from the City.

First dedicated on November 4, 1928, the airport consisted only of a field of tall grass and a windsock. Twenty-one planes of the Army and Navy roared over Lompoc that cloudy day, then bounced down on the little field to the amazement of wide-eyed farmers and schoolboys. Also landing at the field for the big day were planes from Santa Maria and a big Ford tri-motor plane owned by Union Oil Company. Leading out at the opening ceremony was Lompoc Airport Committee Chairman D.C. Saunders, along with the rest of his committee. After the ceremony, the military planes took off and thrilled spectators with some aerial acrobatics, Army and Navy style.

The first airport manager was M.R. Bellman, who only held the post for one month and was replaced by C.A. Ralphs, chief test pilot for Santa Maria Airlines, Inc.

Flying began to make headway in the valley in March of 1930 when the Lompoc Flying Club was formed. The club called for a donation of $100 per person. With the money, a Swallow bi-plane was purchased for the club to use. The club survived the 30's with a hanger being built, which was 50 feet square, costing the club $1,628. It was the first building to be razed when the old airport was sold and moved to its present site.

On November 18, 1942, the Lompoc City Council voted unanimously to grant permission to the government the usage of the airport for a lighter than air craft (blimp) installation. It was to be manned by the Navy. The total acreage taken over for the blimp base amounted to 64.81 acres. The County consent was also obtained for the changeover. The Lompoc site had been picked by the Navy after extensive weather tests along the coastal area. Construction of the new base began in December of 1942. Quarters were constructed on the airport for Navy personnel, along with paving of the entire area and the erection of a huge mooring mast for the blimps. The function of the blimps was to patrol the coast along California for enemy submarines. The aircraft carried powerful depth charges that could be dropped if a submarine was sighted. Many times the blimps returned home to Lompoc without the charges on board.

The last year that the Navy occupied the old airport site, an auxiliary field was instituted on the mesa, adjacent to the city dump. It was there that local civilian pilots kept their planes and landed and took off. Reverend Al Waer managed the temporary facility, offering flying lessons and charter services.

Official Navy flights from the Lompoc Airport ended September 25, 1945. The installation was abandoned by the military a year later. The City re-purchased the land taken over by the Navy for $5,850. Flying gained popularity after World War II when local civilian pilots once again utilized the airport.

In 1960, the new airport, at its current location (see Figure 3-2) was dedicated as a county airport. The old airport property was sold, and Lompoc's first shopping center was built on the site. By 1960, the town

had grown up to and around the airport, causing great concern for aircraft and property owners alike. The airport property was appraised as having a total value of $1,210,000. The 27 acres on the easterly end of the property, zoned commercial, was valued at $30,000 per acre and the remaining 8 blocks were valued at $50,000 per block.

The new site covered approximately 140 acres. All funds realized from the sale of the old airport were used for development of the new facility, as stipulated by the federal government. Development of an adequate airport was declared a major milestone in Lompoc's advancement. The requirement for air service was acute as a result of Vandenberg Air Force Base and Point Arguello. Contractors working on those bases had both airfreight and personnel transportation needs. The FAA stipulated that the old landing strip continue to operate until the new facility was completed. In the years after the airport was built, the County did little to improve it, and in 1991 the City of Lompoc acquired the airport from the County. Figure 3-2 shows the City of Lompoc and Lompoc Airport.

In 2002, the runway was extended on both sides to a length of 4,600 feet. A full parallel taxiway was built on the south side of the runway. Airport Improvement Program (AIP) Grant distribution can be seen in Table 3-2.

EXISTING AIRPORT

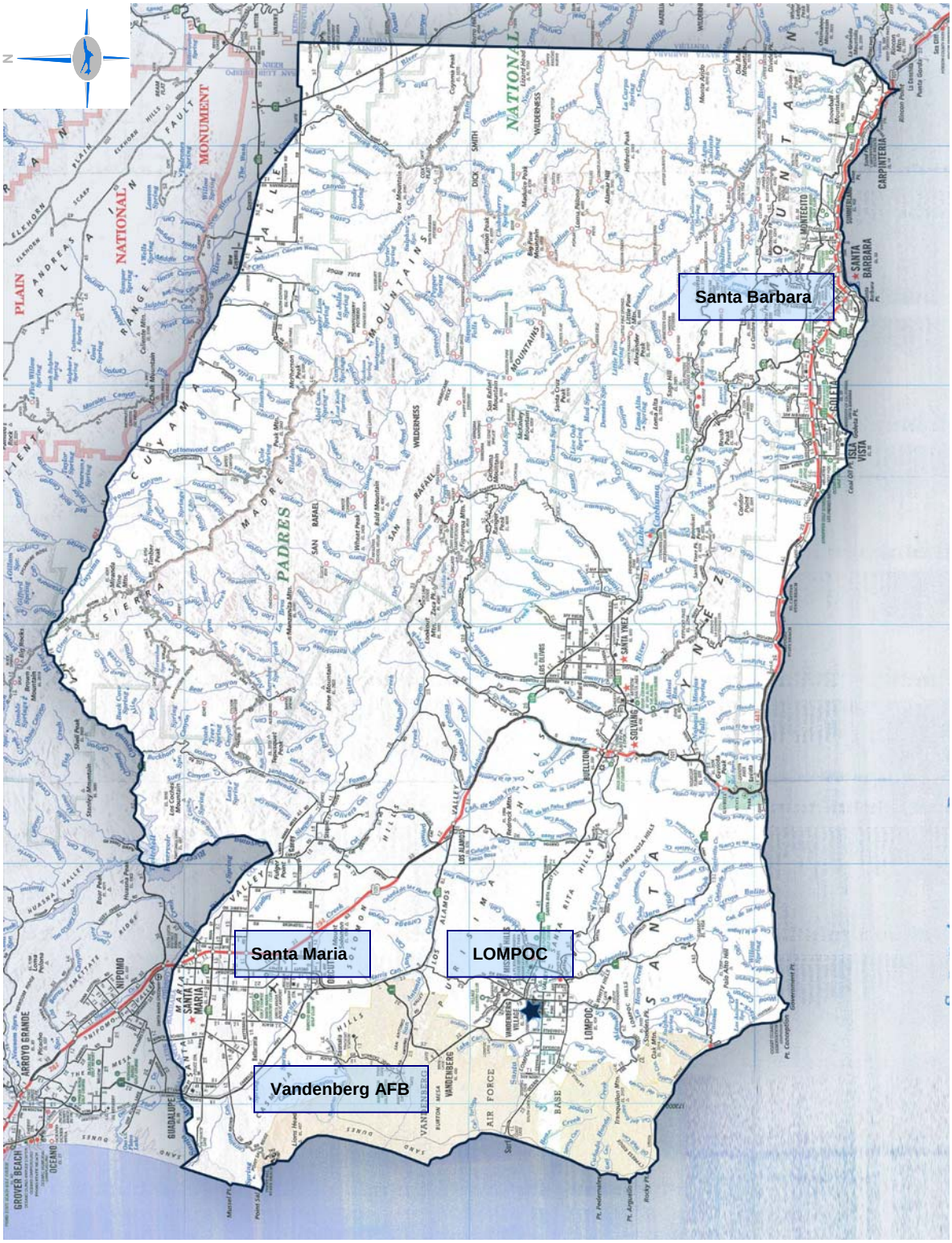
Lompoc Airport is situated in the western part of Santa Barbara County. The airport is located in the northern portion of the city, along the south bank of the Santa Ynez River and is owned by the City of Lompoc. Figure 3-2 presented the location of the airport.

Lompoc is contained in the National Plan of Integrated Airport Systems (NPIAS) and is classified as a General Aviation (GA) airport. A GA airport is one that serves a community that does not receive scheduled commercial air service. There are 2,560 airports in the nation with this designation and these airports account for 34 percent of the Nation's general aviation fleet. The airport is classified as a Community Airport in the California Aviation System Plan (CASP). This is a functional classification developed by the State to categorize airports based on an airport's function, services provided, and role in the aviation system. A community airport is defined in the CASP as "airports that provide access to other regions and states; located near small communities or in remote locations; serve, but are limited to, recreation flying, training, and local emergencies; accommodate predominately single engine aircraft under 12,500 pounds; provide basic or limited services for pilots or aircraft." Lompoc is included in the Central California Region (Region 5) of the CASP. This region is comprised of Santa Cruz, San Benito, Monterey, San Luis Obispo, and Santa Barbara Counties.

Planning standards contained in FAA AC 150/5300-13, Airport Design will be applied in this master plan study of Lompoc Airport using standards for airplane design group (ADG) II. Airplane design group II is defined as aircraft with wingspans from 49 feet up to but not including 79 feet and tail heights from 20 feet up to but not including 30 feet. The airport reference code identified on the previous Airport Layout Plan and master plan reflected airplane design group II and aircraft approach category B. Approach category B is defined as aircraft based on 1.3 times their stall speed in their landing configuration at the certificated maximum flap setting and maximum landing weight at standard atmospheric conditions ranging from 91 knots up to but not including 121 knots.

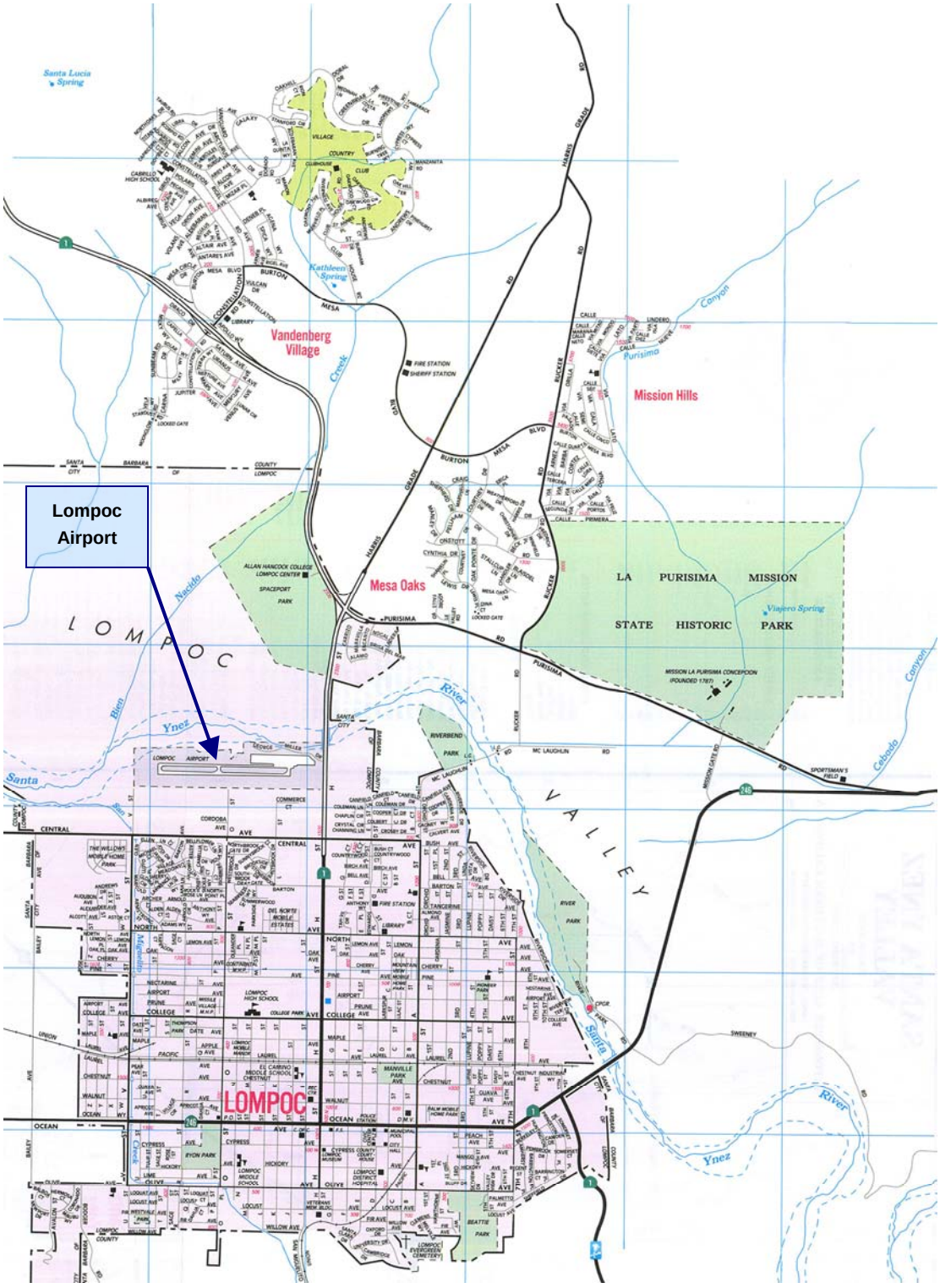
AIRSIDE FACILITIES

The term "airside" as used in this report relates principally to the airfield facilities, or landing area, and includes the runway and taxiway system, the runway approach areas and the associated appurtenances such as airfield lighting, visual, and navigation aids. One might argue that the aircraft parking aprons are also part of the airside operating element; however, we prefer to consider aprons as part of the "landside" because apron planning considerations are more intimately associated with passenger terminal or FBO



Source: AAA Automobile Club Central Coast Region and Kern County CA Regional Series Map.

Figure 3-1
Lompoc Location



Source: AAA Automobile Club Santa Barbara County Cities City Series Map.

Figure 3-2
Vicinity Map

Table 3-2
FAA AIRPORT IMPROVEMENT PROGRAM GRANT HISTORY

Date Completed/ Grant Issued	Grantor Agency	Description	Grant Amount
5/23/1961	FAA	Land acquisition (Parcels I, II, IV, VI) Construct east/west runway (110'x3,600') and parallel taxiway Construct access taxiways, parking apron, tie-downs, medium intensity runway lighting system, taxiway lighting system, beacon and beacon tower, lighted wind cone and segmented circle Conduct runway and taxiway marking and revetment Remove obstructions and seed landing area and install portion of the perimeter fence	$528,424 [a]
5/18/1979	FAA	Extend apron (approximately 6,924 square yards) including tie-downs, associated taxiway marking and fence relocation; Construct holding apron Runway 25 end (approx. 800 square yards) including associated marking and relocating existing taxiway lights; install apron floodlights.	$118,500
5/10/1983	FAA	Extend apron end identifier lights for Runway 25; install non-directional beacon; install apron security lighting; and install radio controls for existing runway lighting system, new runway end identifier lights and future VASI.	$67,860
12/8/1988	FAA	Construct aircraft apron with tie-downs and lighting (approx. 400'x230'); install security fencing (approx. 350'); install fire protection waterline (approx. 3,200').	$315,900
6/31/1991	State Division of Aeronautics	Overlay runway and taxiways; striping	$143,000
1992	FAA	Conduct Airport Master Plan Study	$53,879
1994	FAA	Conduct Airport Master Plan Study Acquire land for development and approaches	$1,016,121
1995	FAA	Improve Access Road	$233,050
1996	FAA	Construct Apron, rehabilitate taxiway, construct taxiway	$552,493
1997	FAA	Construct Apron, construct taxiway	$393,116
1998	FAA	Extend Runway	$133,597
1999	FAA	Improve Access Road, extend runway	$400,000
2002	FAA	Construct Access Road, extend runway	$345,000
2005	FAA	Construct Fuel Farm	$250,000
2005	FAA	Update Airport Master Plan Study (this project)	$142,500
2009	FAA	Install Perimeter Fencing	$66,667

[a] Total project cost: $987,563.
Source: Airport Master Plan July 1993; FAA – Office of Airports Report 4/29/2009; Telephone interviews with airport staff.

operations which are classified in the landside element. Air traffic control facilities and meteorological considerations are also addressed in the airside facility discussion as they can significantly affect aircraft operations into and out of an airport. Existing airside and landside facilities are shown in Figure 3-3, Existing Airport.

Airfield signage at the airport is limited to lighted arrows denoting runway exit locations. Once a taxiway naming convention is implemented at the airport, additional airfield signage should be installed, including mandatory hold position signs, location signs, and direction signs.

The north parallel taxiway features the airport name and elevation painted on the surface. This marking should not occur on a movement area of the airport, and therefore the information should be painted on an adjacent apron area. The building restriction line (BRL) in Figure 3-3 is maintained from the previous master plan and will be verified in this master plan per current FAA criteria.

Runway/Taxiway System

The airport has one runway, designated 7-25 and encompasses 208 acres. The runway is of asphalt construction and is 4,600 feet long and 100 feet wide. The true bearing of the runway is north 89º 12' 10" west. The runway was extended to its present length in 2002.

The present airport reference point (ARP) is located at 34° 39' 52.23" north latitude and 120° 28' 03.01" west longitude. The established airport elevation, defined as the highest point along any of an airport's runways, is 88 feet above mean sea level (MSL). As of November 2010 the magnetic declination was 13° 12' East with an annual rate of change of 5 minutes west per year.

Based on information contained in the latest U.S. Government Flight Information Publication Airport/Facility Directory, the runway pavement strength is 17,000 pounds for single wheel landing gears and no pavement strengths are given for dual wheel or dual tandem landing gears. Pertinent data for the existing runway ends is presented in Table 3-3. Runway elevation data was obtained from the runway extension as-built drawings.

Table 3-3
EXISTING RUNWAY END DATA

	Runway 7	Runway 25
Elevation	79.75'	88.08'
Latitude	34º 39' 56.61"N	34º 39' 55.85"N
Longitude	120º 28' 30.54"W	120º 27' 35.48"W

Runway 25 has a displaced threshold of approximately 116 feet likely due to Highway 1/North 'H' Street. The displaced threshold is not indicated in the Airport/Facility Directory. However, the displaced threshold should be noted in the Airport/Facility Directory to indicate to pilots that the full length of Runway 25 is not available for landings. The runway is equipped with medium intensity runway edge lights (MIRL). A segmented circle and windsock are located on the south side of the runway approximately 150 feet from the centerline. This marking system helps visiting pilots locate wind indicators, as well as indicating nonstandard traffic patterns that may exist. The traffic pattern for Runway 7 is a standard left-hand and for Runway 25 is right-hand. Figure 3-4 shows the published traffic patterns for the airport.

Weather equipment is owned and operated by the Federal Aviation Administration (FAA) and consists of an Automated Weather Observing System (AWOS).

The runway is served by two parallel taxiways; a 50-foot wide parallel taxiway on the north side of the runway and a 35-foot wide taxiway on the south side of the runway. Both taxiways are lit with medium intensity taxiway edge lights (MITL). Taxiway details are as follows:

- **North Parallel Taxiway** – is a partial parallel taxiway on the north side of the runway. Due to the Santa Ynez floodway, the north taxiway was not extended when Runway 7 was extended in 2002.
- **South Parallel Taxiway** – is a full parallel taxiway.
- **Exit Taxiways** – north and south parallel taxiways both have four exit taxiways; one on the west end of the runway, one midfield, and two on the east end of the runway.

Typically, taxiways are designated by an alphabetic (letter) name. This is done to avoid pilot confusion as to their location on the airfield. The master plan will recommend taxiway designations. According to Airport staff, the runway and north parallel taxiway pavements are in fair condition, the south parallel taxiway is in good/excellent condition, and the north apron is in poor condition.

Meteorological Considerations

Meteorological considerations for this master plan are based on weather observations taken at Lompoc Airport as obtained from the National Climatic Data Center (NCDC). Data gathered from Lompoc was based on 72,289 observations between 1999 and 2008.

Based on these data, the existing runway alignment provides 97.23 percent coverage for a 10.5-knot crosswind and 98.74 percent coverage for a 13-knot crosswind. FAA states in AC 150/5300-13 that the allowable crosswind is 10.5 knots for Airport Reference Codes A-I and B-I and 13 knots for Airport Reference Codes A-II and B-II. The coverage provided by the present runway meets the FAA recommendation of 95 percent crosswind coverage, thus additional runways for improved crosswind coverage are not required.

The average wind speed is 6.2 knots and calm wind conditions (less than 4 knots) prevail approximately 31.6 percent of the time. Wind speeds greater than 10 knots (11.4 mph) are relatively infrequent and occur approximately 1.9 percent of the time.

Based on the data provided by the NCDC, instrument flight rules (IFR) weather conditions occur 16.8 percent of the time. These are periods when cloud ceilings are less than 1,000 feet above ground and/or visibility is less than 3 miles. Periods of IFR are most likely to occur during August (37.5 percent), July (33.5 percent), and June (28.6 percent).

Minimum requirements to conduct an IFR approach at Lompoc include 700-foot ceilings and/or one mile visibility. Considering these minimums, the airport is closed 17.9 percent of the time. The airport reference temperature, which is defined as the mean maximum temperature of the hottest month is 75.2° and occurs in September. The average total annual precipitation is 14.64 inches. Wind roses for both the all weather and IFR conditions can be seen in Figure 3-5.

Airspace and Navigational Aids

Airspace

The existing system of en-route airways, navigational aids, and airports located within a 25 nautical mile (nm) radius of Lompoc Airport is depicted on Figure 3-6. The low altitude airways which traverse the area serve those en-route aircraft flying below 18,000 feet MSL. Including Lompoc Airport, there are two public airports within 25 nautical miles of the airport which are shown on Figure 3-6. These are Santa Maria Public Airport/Captain G Allan Hancock Field and

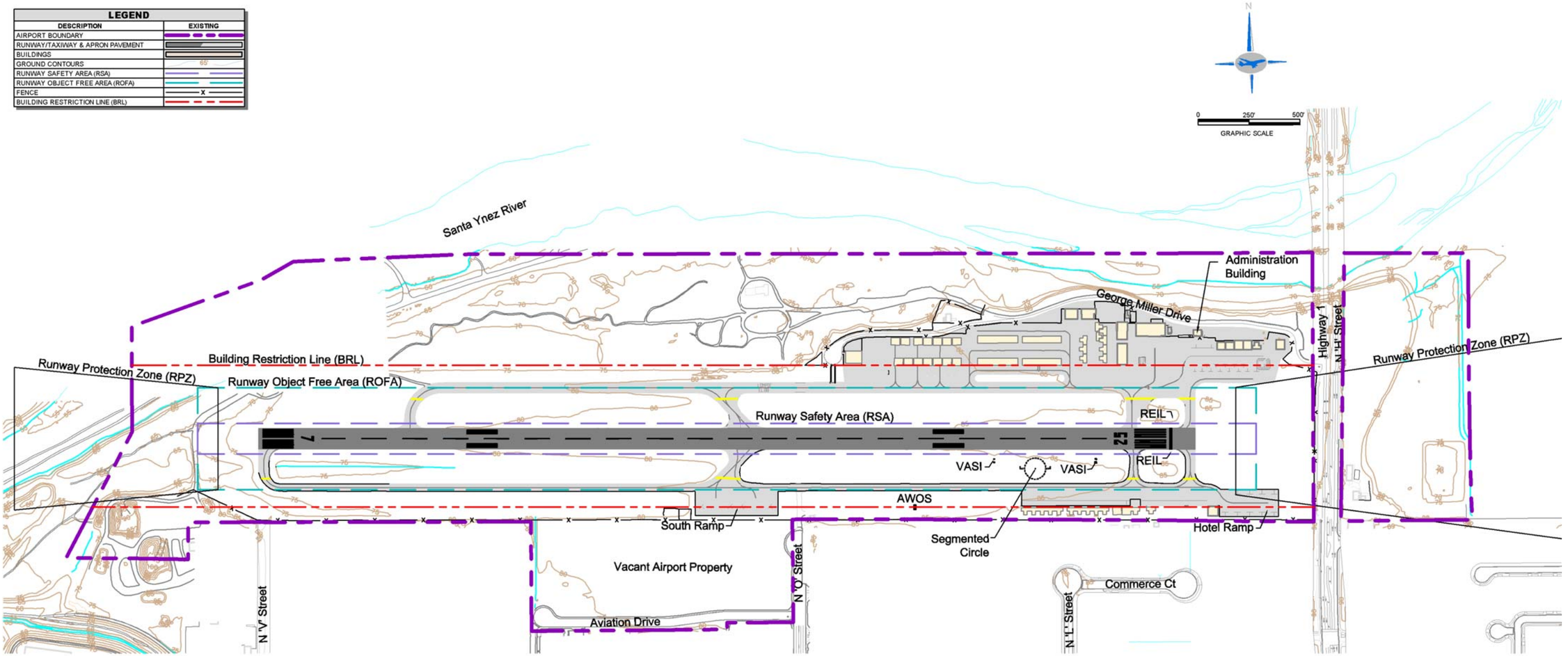


Figure 3-3
Existing Airport

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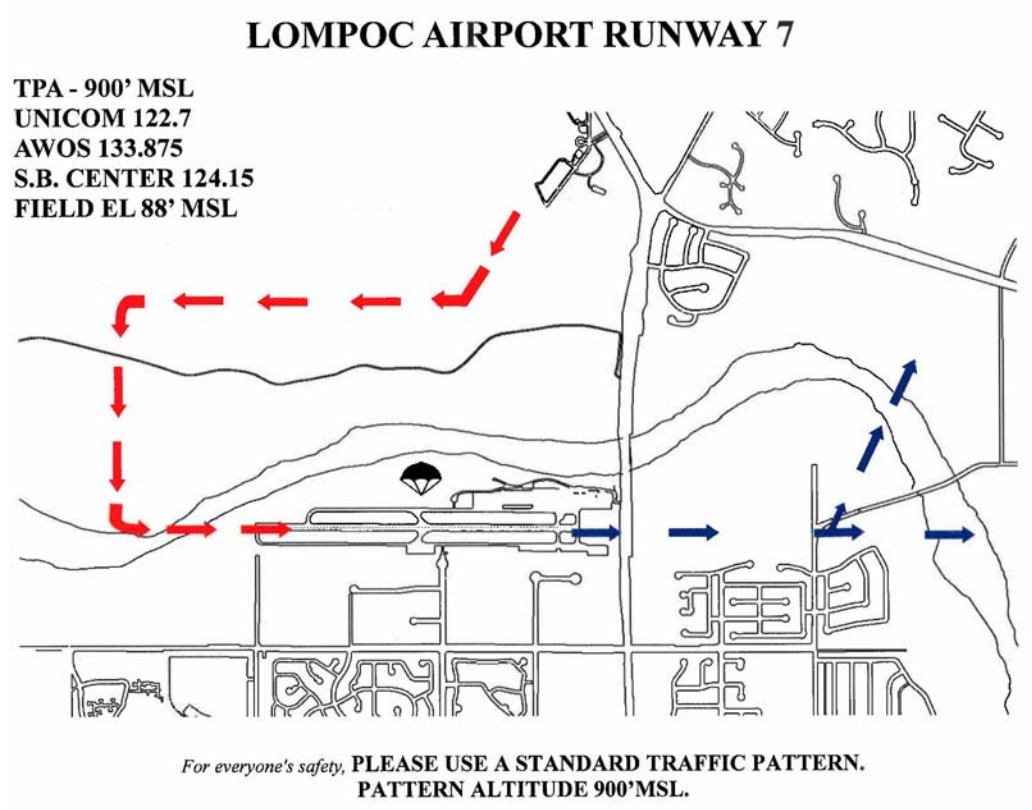


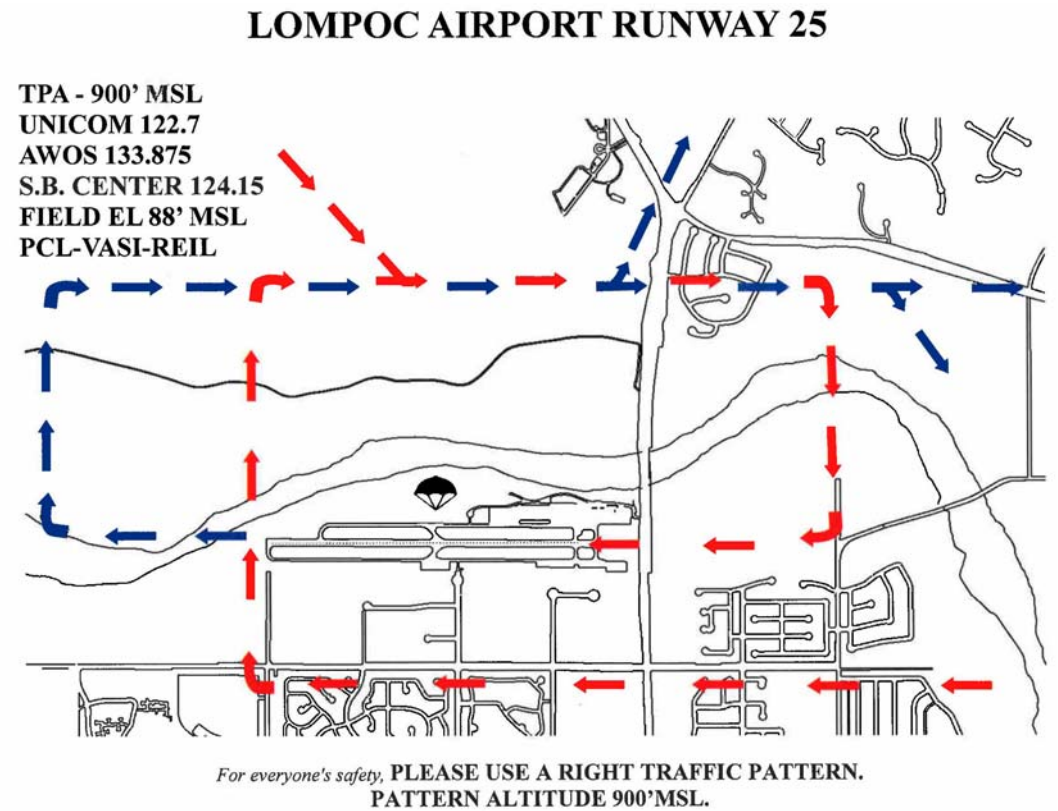
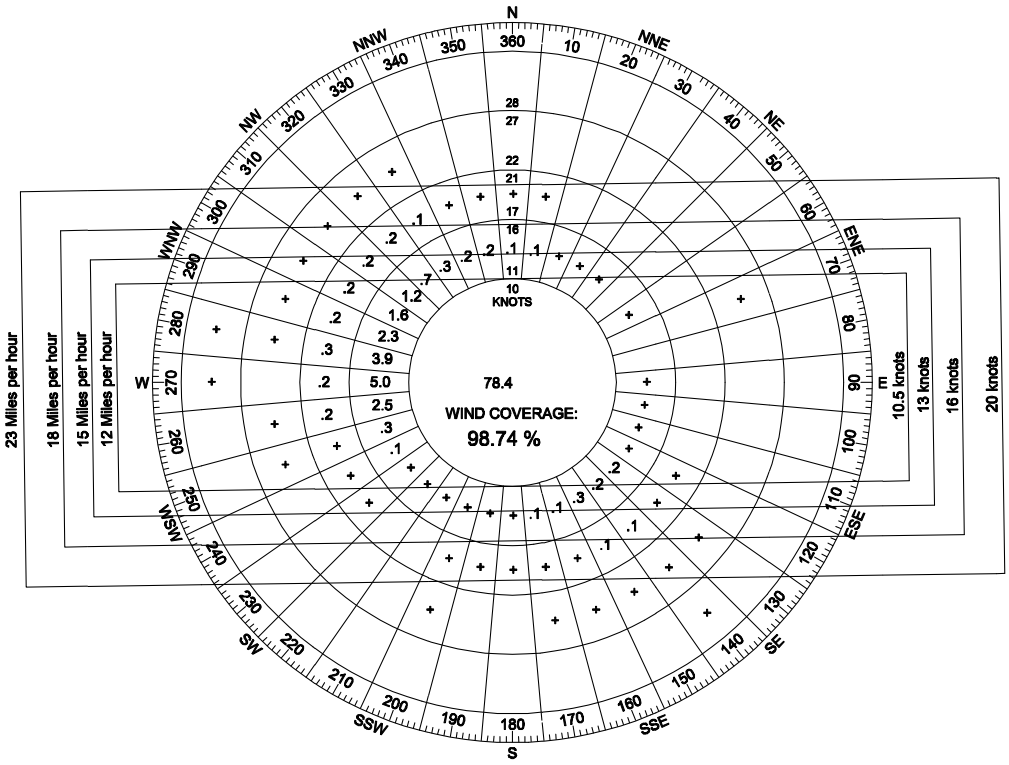
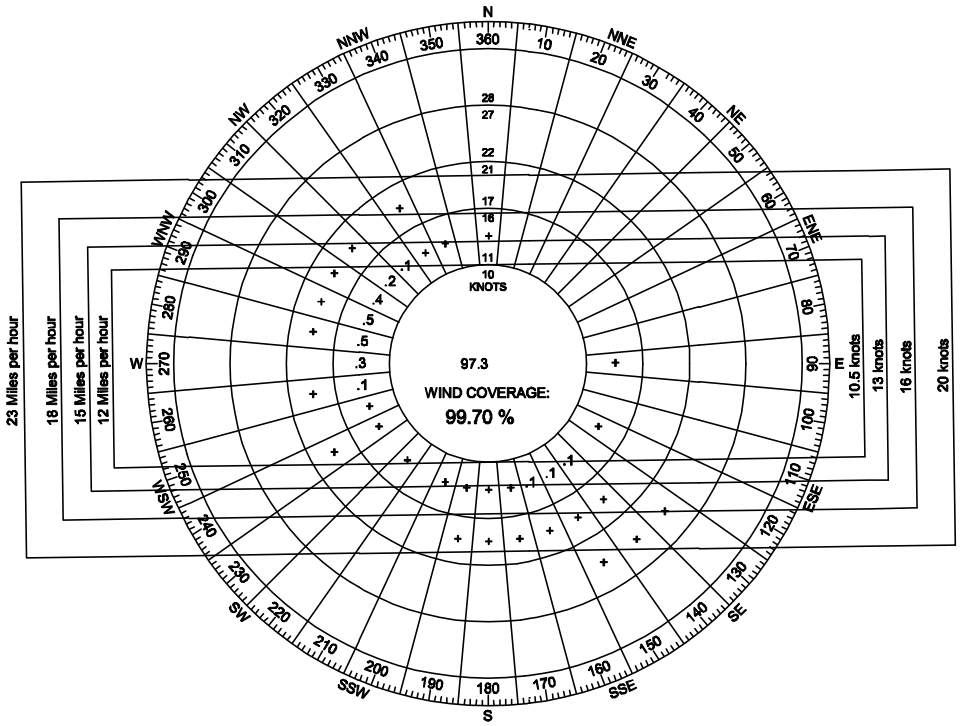


Figure 3-4
Runway 7-25 Traffic Patterns

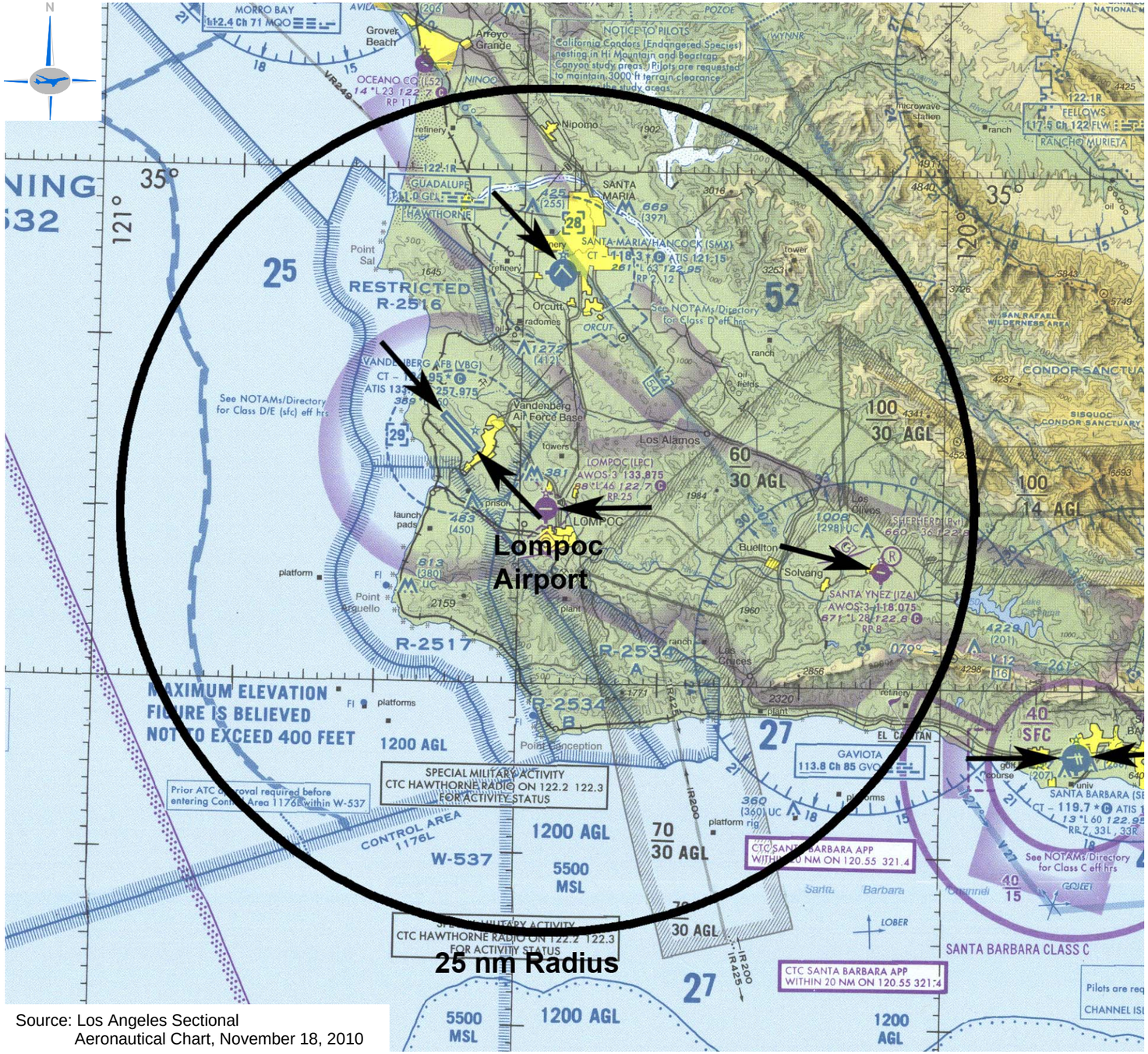


All Weather Wind Rose



IFR Wind Rose

Figure 3-5
Lompoc Airport Wind Coverage



Source: Los Angeles Sectional Aeronautical Chart, November 18, 2010

- Hard-surfaced runways 1500 ft. To 8069 ft. in length
- Hard-surfaced runways greater than 8069 ft., or some multiple runways less than 8069 ft.
- Services-fuel available and field tended during normal working hours depicted by use of ticks around basic airport symbol.
- Private "(Pvt)" - Non-public use having emergency or landmark value.
- Glider Operations
- IAP Final Approach Course
- VORTAC
- Class C Airspace (Mode C - see FAR 91.215)
- Class E (sfc.) Airspace
- Class D Airspace
- 2400 MSL / 4500 MSL — Differentiates floors of Class E Airspace greater than 700 ft. above surface
- IR 203 — MTR - Military Training Routes with identifier.
- 30 — Ceiling of Class D Airspace in Hundreds of feet.
- V23 — Low Altitude Federal Airways with identifier
- Wildlife Area
- Class E Airspace with floor 700 ft. above surface
- Prohibited, Restricted, Warning and Alert Areas; Canadian Advisory and Restricted Areas
- Special Military Activity

Figure 3-6
Airspace Environment and Adjacent Airports

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Santa Ynez. One private airport, Shepherd Airport, and one military airport, Vandenberg Air Force Base (AFB), are also located within the 25 nautical mile radius.

Table 3-4 presents the four neighboring airports within the 25 nautical mile radius and includes a summary of facilities and services. Oceano is a public airport located immediately beyond the 25 nautical mile radius and also shown in the table. Santa Barbara Airport is located approximately 34 nautical miles southeast of Lompoc Airport.

Table 3-4
AIRPORTS IN THE VICINITY OF LOMPOC AIRPORT

Airport	Lompoc	Vandenberg AFB	Santa Maria/ Hancock	Santa Ynez	Shepherd	Oceano
Distance from LPC (NM)	-	6.6 NW	14 N	19.7 E	20 E	27.2 N
Runways	7-25(4,600')	12-30(15,000')	12-30(6,304') 2-20(5,130')	8-26(2,804')	6-24(3,600')	11-29(2,325')
Runway Surface	Asphalt	Asphalt	Asphalt	Asphalt	Asphalt	Asphalt
Ownership	Public	Military	Public	Public	Private	Public
Based Aircraft	70	0	240	131	0	13
Individual Hangars	78	[a]	206	90	[a]	[a]
Fuel	100LL, Jet A	115 B+*	100LL, Jet A	100LL, Jet A	[a]	100LL
Maintenance	Major/Major	Major/Major*	Major/Major	Major/Major	[a]	[a]
Control Tower	No	Yes	Yes	No	No	No

* These facilities are not available to civilians.
[a] Information not available.
Source: FAA Form 5010-1; California Aviation System Plan 1998.

Controlled airspace means an area in which some or all aircraft may be subject to air traffic control. It is a generic term that covers the different classification of airspace (Class A, Class B, etc.) and defined dimensions within which air traffic control service is provided to instrument flight rule (IFR) and visual flight rule (VFR) flights in accordance with the airspace classification. The various controlled airspace areas found in the vicinity of Lompoc Airport are discussed below.

- **Class C Airspace.** Class C airspace consists of the airspace surrounding airports that have an operational airport traffic control tower (ATCT), are serviced by radar approach control, and accommodate minimum levels of aviation activity as specified by the FAA. Class C airspace is individually tailored for the airports they serve. These airspace areas generally consist of a surface area with an additional layer above it, resembling an upside-down wedding cake. Pilots are required to establish two-way radio communications with the air traffic control (ATC) facility providing air traffic service prior to entering Class C airspace and must maintain those communications while in the airspace. Within Class C airspace, air traffic controllers are required to separate aircraft operating under VFR from aircraft operating under IFR, but are not required to separate VFR operations from one another. The nearest Class C airspace is associated with Santa Barbara Airport and exists approximately 24 nautical miles southeast of Lompoc. This airspace has a floor of 1,500 feet and a ceiling of 4,000 feet.

- **Class D Airspace.** This is generally airspace from the surface to 2,500 feet above the airport elevation surrounding those airports that have an operational control tower. The area is generally defined as all area within five statute miles (4.3 nautical miles) of the airport; however, the circular configuration can be tailored when instrument approach procedures are published for an airport. The closest Class D Airspace area in the vicinity of the airport is

located at Vandenberg AFB (VBG). No separation services are provided to VFR aircraft in the Class D airspace area. This airspace starts approximately seven nautical miles northwest of Lompoc and has a ceiling of 2,900 feet. Santa Maria Airport's Class D airspace starts approximately eleven nautical miles from Lompoc and has a ceiling of 2,800 feet.

- **Class E Airspace.** There are two types of Class E airspace in the vicinity of Lompoc; one type starts at 700 feet above ground and the other starts at the surface. Class E airspace is controlled airspace, but is the least stringent controlled airspace classification in terms of pilot certification, aircraft equipment, entry requirements, etc. No separation services are provided to VFR aircraft in the Class E airspace area. Lompoc Airport is located in Class E airspace starting on the surface.

- **Restricted Areas.** Restricted areas contain airspace from the surface within which flight of aircraft is restricted due to the existence of unusual, usually invisible, hazards. Activities could include, but are not limited to artillery fire, aerial gunnery, and missile guidance. The controlling agency shall issue authorization for aircraft to enter the restricted area, as without authorization, penetration of the restricted area without permission may be extremely hazardous to the aircraft and its occupants. Restricted areas around Lompoc protect operations at Vandenberg and do not affect Lompoc's operations as aircraft (including jets) are able to turn prior to restricted areas. Restricted areas within 25 nautical miles of Lompoc include:

  - **R-2516** – This restricted area extends from the surface up to unlimited airspace and is controlled by Los Angeles Center. This surface starts approximately 4,500 feet west of the airport. This area is used mostly for missile launches, unmanned vehicle flights, and jet operations.

  - **R-2517** – This restricted area is the same as R-2516, as it extends from the surface up to unlimited airspace and is controlled by Los Angeles Center. This surface starts approximately 5,000 feet southwest of the airport. It is used for missile launches, unmanned vehicle flights, and jet operations. This area is closed at all times and can only be used with permission by general aviation and commercial operations.

  - **R-2534A** and **R-2534B** – These areas extend from 500 feet above ground level (AGL) to unlimited airspace and are controlled by Los Angeles Center. Unlike areas R-2516 and R-2517, these areas are only operated intermittently by NOTAM (notices to airmen) four hours in advance. These surfaces start 5,000 to 7,000 feet southwest and south of the airport, respectively. These areas are used mostly for launch activities, but could be used for Unmanned Aircraft Systems (UAS) flights.

- **Warning Areas.** A warning area is airspace of defined dimensions, extending from three nautical miles outward from the coast of the U.S. that contains activity that may be hazardous to nonparticipating aircraft. The purpose of such warning areas is to warn nonparticipating pilots of the potential danger. A warning area may be located over domestic or international waters or both.[1]

  Warning areas within 25 nautical miles of Lompoc include W-532 and W-537. Both of these areas extend from the surface to an unlimited altitude, are used intermittently, and are controlled by Los Angeles Center.

[1] http://www.faa.gov/airports_airtraffic/air_traffic/publications/atpubs/aim/Chap3/aim0304.html

There are no warning areas or restricted areas associated with Federal Correctional Institute. However, overflights of the facility are discouraged.

Low altitude Federal Airways in the vicinity of the airport can be seen on Figure 3-6 and include the following:

- **V25 –** is a northwest-southeast airway located approximately 24 nautical miles northeast of Lompoc that connects the Paso Robles and San Marcus VORTACs.

- **V27 –** is a northwest-southeast airway located approximately 10 miles northeast of the airport that connects the Morro Bay and Gaviota VORTACs.

Military training routes IR 425 and IR 200 travel within 4 nautical miles of Lompoc. Centered on these military training routes is Special Military Activity airspace. These are areas where the Department of Defense (DoD) conducts periodic operations involving Unmanned Aircraft Systems.

These aircraft may be accompanied by military or other aircraft which provide the pilots of the Unmanned Aircraft Systems visual observation information about other aircraft operations near them. Status of these routes and areas may be obtained by contacting the FAA/DoD facility on designated frequencies along the routes. There are two published instrument approach procedures for the airport, which are both classified as non-precision. An instrument approach procedure is a series of predetermined maneuvers for the orderly transfer of an aircraft under instrument flight conditions from the beginning of the initial approach to a point where a landing may be made visually. The procedure provides protection from obstacles that could jeopardize safety of aircraft operations by providing a specific clearance over obstacles. There are two types of procedures - precision and non-precision instrument approaches.

A precision approach procedure is one in which an electronic glide slope is provided that gives the pilot glide path, or specific descent profile guidance. A non-precision approach is a procedure in which no electronic glide slope is provided. In this case the pilot is provided with directional, or azimuth, guidance only. Published instrument approach procedures for Lompoc Airport are presented in Figures 3-7 and 3-8. The controlling obstacle for the procedures is the hotel located adjacent to the southeast corner Lompoc Airport.

Published instrument approaches are available at Lompoc and four neighboring airports including Vandenberg AFB, Santa Maria/Hancock, Santa Ynez, and Santa Barbara. Table 3-5 summarizes the instrument approaches and navigational aids for these airports and shows the airport, NAVAID, location of the NAVAID, type of procedure and the lowest landing minima.

Navigational Aids

The airport is non-towered uncontrolled airport in that there is not an airport traffic control tower (ATCT) on the field. A UNICOM is available at the airport. This service provides local traffic pattern advisories but is not used for air traffic control purposes.

An inventory of the navigational aids and air traffic services available at the airport are as follows:

- **Very High Frequency Omni-Directional Range (VOR) with Distance Measuring Equipment (DME)** - This navigational aid provides azimuth (direction) and distance information to the pilot. The Gaviota VORTAC (GVO) is located 18.5 miles (nautical miles) southeast of the airport. It is used for en-route navigation and for the VOR/DME instrument approach procedure for the airport. This VORTAC is unusable at 117-137 degrees 35 nautical miles (NM) from the station at all altitudes, 310-095 degrees 10 NM from the station below 8,500 feet, and 360-095 degrees 20 NM from the station below 12,500 feet.

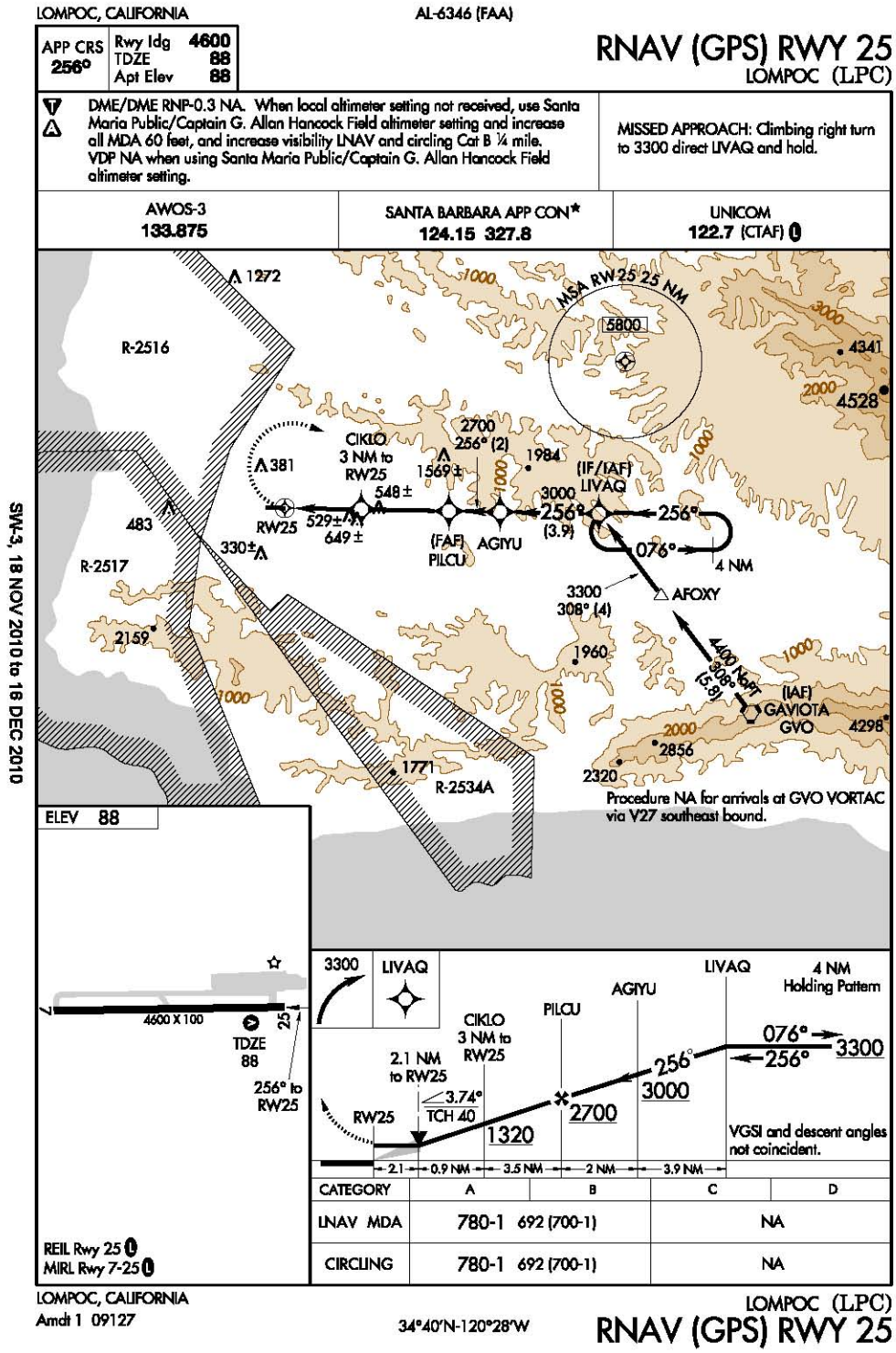

Figure 3-7
GPS Approach Runway 25

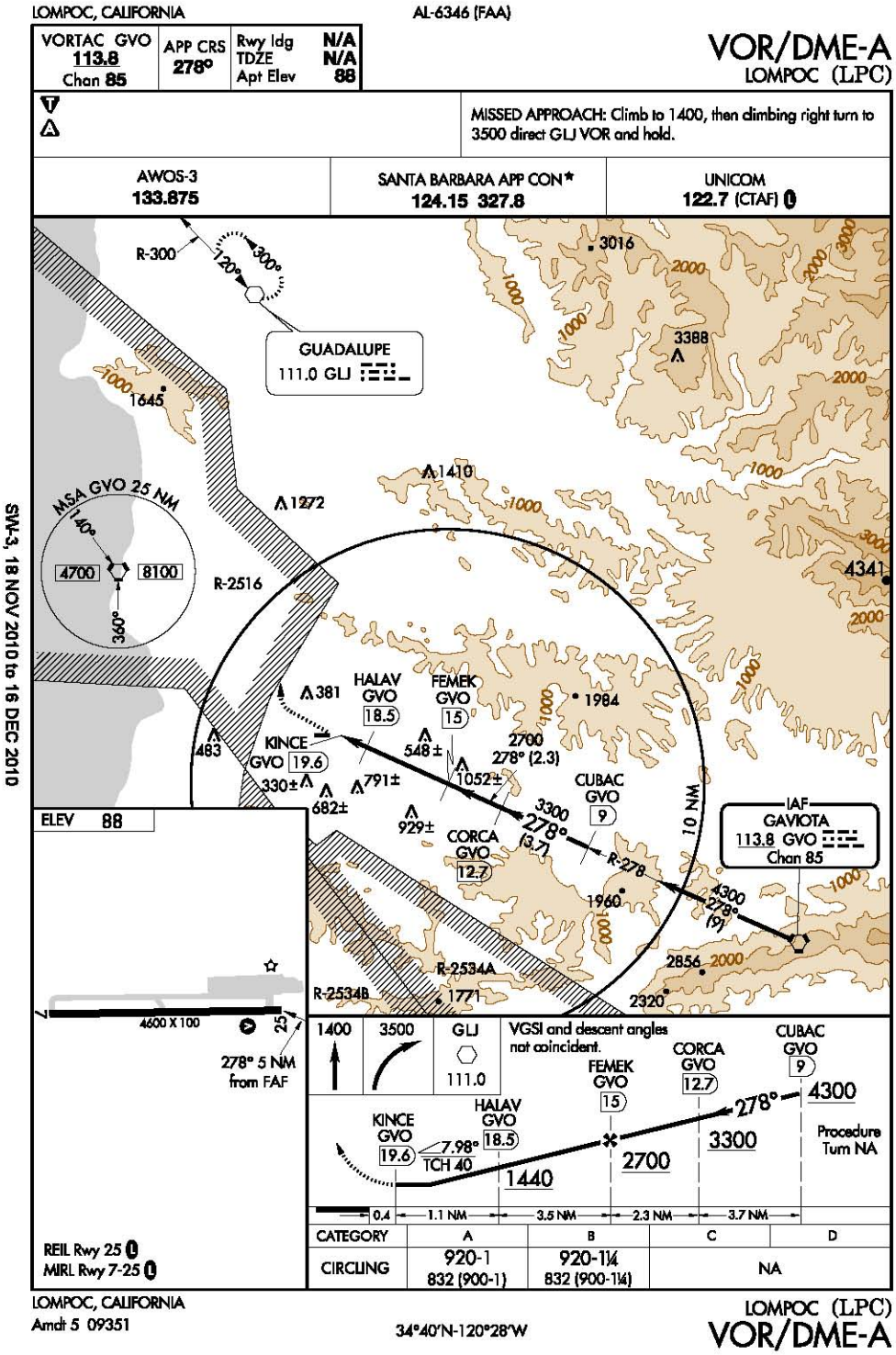

Figure 3-8
VOR Approach Runway 25

- **Automated Weather Observation Station (AWOS)** - automatically measures meteorological parameters, reduces and analyzes the data via a powerful computer, and broadcasts aviation weather reports. As previously noted, the AWOS is owned and maintained by the FAA. A winery was recently constructed adjacent to the AWOS which may affect wind readings (Airspace Case # 2008-AWP-5800-OE).

Table 3-5
INSTRUMENT APPROACH PROCEDURES AT LOMPOC AND NEARBY AIRPORTS

Airport	NAVAID	Location	Procedure	Lowest Minima
Lompoc	GPS	Satellite	RNAV (GPS) RWY 25	700'/1 mile
	VOR/DME	19.6 nm SE	VOR/DME-A	900'/1 mile
Vandenberg AFB	ILS	6.6 nm SW	HI-ILS or LOC/DME RWY 12	400'/¾ mile
	ILS	6.6 nm SW	HI-ILS or LOC/DME RWY 30	600'/1 mile
	ILS	6.6 nm SW	ILS or LOC/DME RWY 12	800'/1 mile
	ILS	6.6 nm SW	ILS or LOC/DME RWY 30	500'/1 mile
	TACAN	6.6 nm SW	HI-TACAN RWY 12	400'/¾ mile
	TACAN	6.6 nm SW	HI-TACAN RWY 30	600'/1 mile
	TACAN	6.6 nm SW	TACAN RWY 12	400'/½ mile
	TACAN	6.6 nm SW	TACAN RWY 30	600'/½ mile
Santa Maria/Hancock	ILS	14 nm N	ILS or LOC RWY 12	500'/½ mile
	GPS	Satellite	RNAV (GPS) RWY 12	500'/½ mile
	LOC	14 nm N	LOC/DME BC-A	900'/1 mile
	VOR	14 nm N	VOR RWY 12	500'/½ mile
Santa Ynez	GPS	Satellite	GPS RWY 8	400'/1 mile
	GPS	Satellite	GPS-A	500'/1 mile
	GPS	Satellite	VOR or GPS-B	1,300'/1¼ mile
Santa Barbara	ILS or LOC	Airport	ILS or LOC RWY 7	200'/½ mile
	RNAV (GPS)	Satellite	RNAV (GPS) RWY 7	600'/½ mile
	VOR or GPS	Satellite	VOR or GPS RWY 25	1,000'/1¼ mile

Source: United States Government Flight Information Publication, U.S. Terminal Procedures: U.S. Department of Transportation.

- **Flight Service Station (FSS)** - Assistance from the Flight Service Station (FSS) is available to pilots in the Lompoc Airport area through the Hawthorne FSS. The services which are provided by the FSS include:

  - Issuance of Notices to Airmen (NOTAM's)
  - Dissemination of Pilot Reports (PIREP's) to interested parties
  - Issuance of weather data and National Airspace System (NAS) information
  - VFR advisory service
  - Direction finding assistance to "lost" aircraft
  - Pilot briefing service
  - Flight plan assistance

In addition to the above navigational aids and advisory services, the airport is equipped with the following visual aids. These are provided to assist pilots in locating the airport at night or during periods of reduced visibility.

- **Rotating Beacon** - a visual aid that indicates the location of an airport. Alternating white and green beams indicate an airport with beacons located either on or close to an airport. The beacon was completely refurbished in 2008 and is in excellent condition. The paint on the beacon tower contains lead. The paint is peeling from the tower structure, leaving the metal exposed and unprotected. Either the lead paint should be removed and the tower repainted, or the tower should be replaced.

- **Runway End Identifier Lights (REIL)** – are two synchronized flashing lights, one on each side of the runway threshold, which provide rapid and positive identification of a runway end to approaching pilots. Runway 25 is equipped with REIL which are located at the displaced threshold.

- **Medium Intensity Runway Edge Lights (MIRL)** – The runway is equipped with MIRL, which are used to outline the edges of runways during periods of darkness or restricted visibility. The MIRL are preset at a low intensity from dusk to dawn and can be increased in intensity through the use of the Common Traffic Advisory Frequency (CTAF).

- **Visual Approach Slope Indicator (VASI)** – A VASI is a system of lights that provides pilots visual descent guidance information. It is usually located on the left side of a runway and can be seen for up to five miles during the day and 20 miles at night. Runway 25 is equipped with a four-light VASI, which is located left of Runway 25. The VASI is approximately 15 years old and is maintained by the FAA. The approach slope is set at a standard 3 degrees.

LANDSIDE FACILITIES

The landside facilities consist of those airport elements that support the various activities of the airport except for the navigation and maneuvering of aircraft. The exception to this categorization is the aircraft parking apron, which due to its relation with passenger terminals and FBOs is considered a landside component. At Lompoc Airport the landside facilities include aircraft parking aprons, terminal building, hangars, fuel facilities, and auto parking. The majority of the landside facilities at the airport are located in the terminal area on the north side of runway. As shown in Figure 3-3, landside facilities at Lompoc Airport are accessible from George Miller Drive, via Highway 1/North ‘H’ Street.

Terminal/Administration Building

The terminal/administration building was constructed in 1960. The building is approximately 1,200 square feet and accommodates an airport administration office, a pilot’s lounge/flight planning room, a lobby, a spare office, and restrooms. The condition of the building has deteriorated somewhat through the years. Presently, the restrooms are not ADA compliant.

Aircraft Parking Apron

There are aprons for aircraft parking north and south of the runway. On the south side of the runway there are 12 tie-downs distributed on two ramps (4 on the south ramp and 8 on the hotel ramp) and 15 hangars. On the north side of the runway there are approximately 41 tie-downs and 63 hangars. The north apron pavement is in poor condition and requires rehabilitation in the short-term planning period. There is a pedestrian gate at the hotel ramp providing direct access to the hotel parking lot. This gate features a number pad lock with the code provided only to airport users.

Aircraft Storage Hangars

There are approximately 78 hangars at Lompoc Airport including portables, T-hangars, box hangars, and conventional hangars. Table 3-6 presents a breakdown of existing aircraft storage hangars at the airport. A visual inspection was done to assess the relative condition of the hangars. Hangars shown in Table 3-6 are depicted on Figure 3-9.

Table 3-6
EXISTING AIRCRAFT STORAGE HANGARS

Hangar Name	Condition	Designator
Skydive Hangar	Excellent	170
East Portable	Fair	None
G-Hangars	Fair	G1-4
Maintenance Hangar	Poor	1801
Blue Storage Unit (South)	Excellent	370
Blue Hangars	Excellent	372, 374, 380, 382
Blue Storage Unit (North)	Excellent	384
Box Hangars near Airport Host	Excellent	376, 378
F Hangars	Fair	None
West of F Hangars	Fair	None
Large Box	Excellent	408
Large Box	Excellent	434
Hangars rows A-D (6 each)	Poor	A, B, C, D
Round Top North	Excellent	600, 610, 620, 630, 640, 650, 660
Round Top South	Excellent	602, 612, 622, 632, 642, 652, 662
West Most Large Box	Excellent	700
South East Box Hangar	Excellent	211
South Portable East	Fair	None
South Portable West	Fair	None
East Box	Excellent	361
West Box	Excellent	365
South T-Hangars	Good	401, 403, 405, 407, 409, 415, 417, 419, 421, 423

Definition of Conditions

Excellent – New or recent construction. No immediate maintenance needs.
Good – Hangar appears to be weather tight and of good integrity.
Fair – Maintenance and/or painting of the hangar required.
Poor – Holes in hangar roof/skin were observed. Hangar does not appear to be weather tight and is in need of rehabilitation or replacement.

Source: AECOM analysis.

Fixed Base Operators

There are no full-service Fixed Base Operators (FBOs) at the airport. There are two FBOs including the skydive FBO and aircraft maintenance FBO located on the airport. The skydive FBO trains skydivers while the aircraft maintenance FBO provides maintenance for all aircraft types at the airport.

LEGEND	
DESCRIPTION	EXISTING
AIRPORT BOUNDARY	
RUNWAY/TAXIWAY & APRON PAVEMENT	
BUILDINGS	
RUNWAY SAFETY AREA (RSA)	
RUNWAY OBJECT FREE AREA (ROFA)	
FENCE	
BUILDING RESTRICTION LINE (BRL)	

N

0 150' 300'
GRAPHIC SCALE

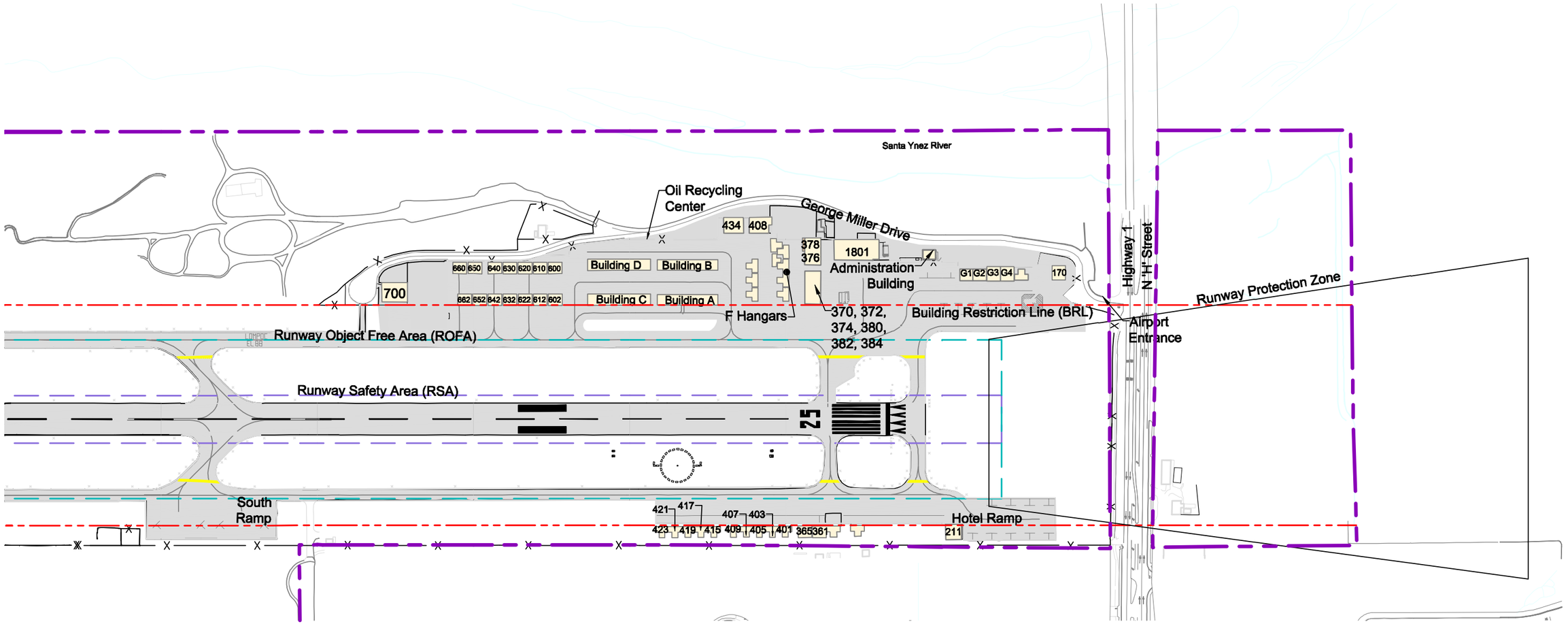

Figure 3-9
Existing Hangar Layout

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Automobile Parking

Lompoc Airport provides approximately 73 total automobile parking spaces. Details can be seen in Table 3-7. It is to be noted that the 24 parking spaces in the bus parking area adjacent to the terminal parking area are currently unusable. A commuter bus service parks between six and eight buses in this area overnight. The pavement in this area is in poor condition and should be paved in the short-term. The commuter bus service was transferred to the City in 2010. The City will need to find an alternate location to park the buses overnight to utilize this area for airport parking.

Table 3-7
AUTOMOBILE PARKING AT LOMPOC AIRPORT

Location	Parking Spaces	Handicapped
West of Administration Building	9	
East of Administration Building	4	1
Bus Parking Area	24	
West of Hangar 434 (unmarked)	13	
Near Hangar 404	4	1
Skydive	8	1
Across the street from Skydive	11	
Total	**73**	**3**

Source: AECOM analysis.

Oil Recycling Center

The airport features an oil recycling center. This center is located along George Miller Drive, near Hangar 434 (see Figure 3-9). This center is located outside the airport fence, adjacent to one of the most heavily used gates onto the airfield. Additionally, the City operates a recycling center just south of the airport off North 'V' Street.

EXISTING UTILITIES

Utilities for Lompoc Airport include the existing systems for water, electric power, sewage, natural gas, and telephone communications. Water, sewer, garbage, and electricity are provided by the City of Lompoc. Natural gas is provided by The Gas Company and telephone communications is provided by GTE. Approximate locations of utilities are depicted in Figure 3-10.

The airport is served by two 10-inch water lines; one located in conjunction with George Miller Drive and the other along the airport's southern boundary. Storm water runoff from the east end of the airport is collected in pipes that begin at 12 inches in diameter and expand to 24 inches in diameter, downstream. Storm water collected in these pipes, along with storm water from the north apron, outfalls directly into the Santa Ynez River. Several 24-inch storm pipes are located to drain water from the infield areas towards the Santa Ynez River.

Electrical service is provided to the airport along George Miller Drive via above ground service. This service feeds airport tenants along the northern side of the property. A high power underground electric line (12 kV) parallels the southern airport fence, behind the hangars, and runs from the electric vault to Highway 1/North 'H' Street. Buildings are not to be erected within 10 feet of this power line. The electric vault is dedicated to supplying power to the airfield lighting. However, currently, not all airfield lighting is connected to this power source, as some receive their power from the north service lines.

The airport is not connected to the City sewer system. A 6-inch sewer main is co-located with Highway 1/ North 'H' Street. The airport utilizes a septic system, with a large leech field located east of Hangar 408. If the septic system fails, the Regional Water Quality Control Board will require connection to the City sewer system.

AIRPORT TENANTS AND SERVICES

The City enters into lease agreements with private entities or businesses at the airport for hangars, units, tie-downs, and land. Terms of leases are negotiated between the City and the interested lessee party. As such, consideration and duration can vary from one lease to another. Table 3-8 presents leases presently in effect at the airport.

Table 3-8
LONG-TERM LOMPOC AIRPORT TENANTS

Tenant	Lease Area	Lease Type	Lease Expiration
Catalina Pacific Aviation, LLC	7,530 SF	Land	July 31, 2045
Catalina Pacific Aviation, LLC	23,000 SF	Land	September 31, 2018
Curtis and Associates, LLC	13,850 SF	Land, Hangar	June 30, 2022
William Ranch	3,000 SF	[a]	January 31, 2034
Jeffrey Honeywell	1,530 SF	Hangar	June 30, 2034
Thomas & Linda Hurd	2,304 SF	Land	December 31, 2035
Land McCarley & Irving	6,300 SF	Land	May 31, 2045
Paradise View Motors, Inc.	3,000 SF	Land	March 31, 2028
James Foley	1,100 SF	Hangar	April 30, 2015
William Nolan (north)	9,210 SF	Land	September 30, 2039
William Nolan (south)	15,000 SF	Land	February 28, 2040
Ronald/Judith Rarick	1,530 SF	Hangar	June 30, 2034
Skydive Santa Barbara	9,891 SF	Land	October 31, 2045
City of Lompoc Utility Dept.	10 acres	Land	March 31, 2032
V & J Rock Transport Inc.	344,225 SF	Land	June 30, 2011
Jon Warner	1,200 SF	Land	May 31, 2026
Santa Barbara County	16,000 SF	Land	March 31, 2012
Rivers Edge Pet Lodge	0.92 acres	Land	September 31, 2017

[a] – Data unavailable.
Note: All hangars are used for aircraft or aviation services.
Source: City of Lompoc

General aviation services at Lompoc Airport are provided by the City of Lompoc and two airport tenants. These services are depicted in Table 3-9. As can be seen in the table, the City of Lompoc provides a majority of the services available at the airport. Curtis & Associates primarily provides aircraft maintenance services, but also operates the UNICOM. Sky Dive Santa Barbara provides skydive training and instruction. It is also important to note that several services typically found at an airport are not present at Lompoc. These include aircraft, aircraft parts, and/or pilot supply sales, flight instruction and/or testing; and aircraft rentals and/or charters. These services would typically be provided by a fixed base operator (FBO).

LEGEND	
DESCRIPTION	EXISTING
AIRPORT BOUNDARY	
AIRFIELD PAVEMENT	
FENCE	
GROUND CONTOURS	
ELECTRICAL	
WATER	
SEWER	
STORM-DRAIN	
NATURAL GAS	

N

0 250' 500'

GRAPHIC SCALE

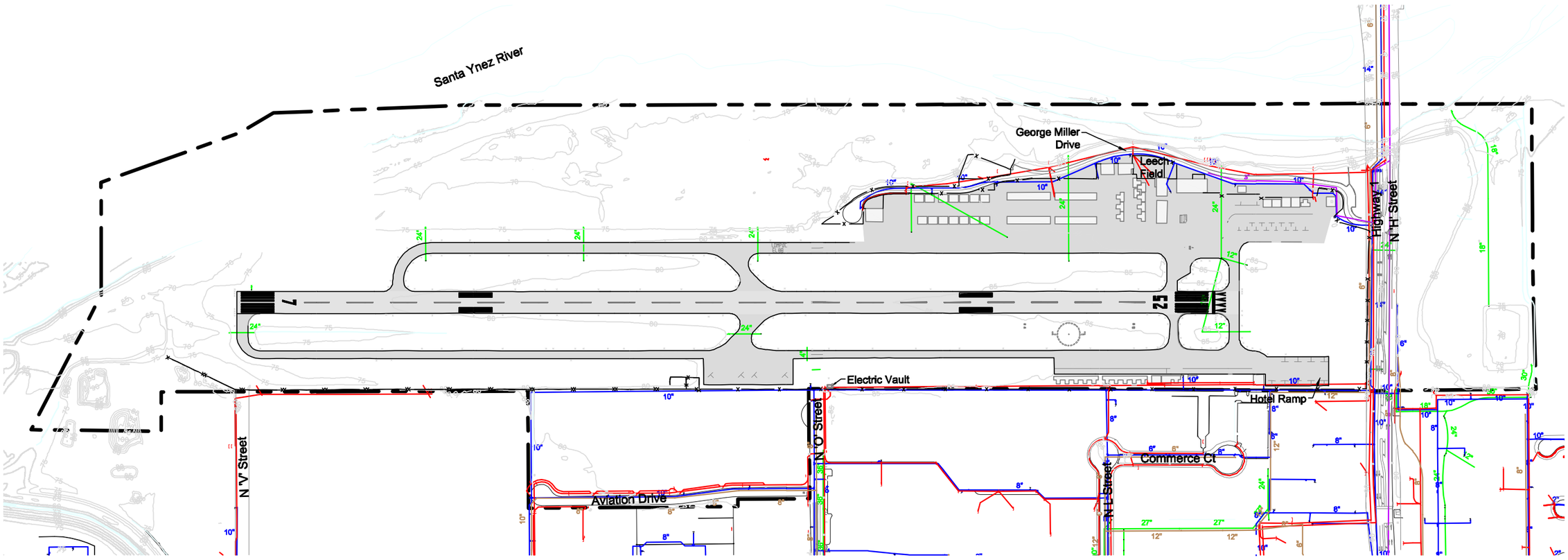

Figure 3-10
Existing Utilities

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AIRPORT OPERATIONS

Historical Aviation Activity

This subsection summarizes the recent historical levels of aviation activities at the airport in terms of based aircraft and aircraft operations. The general aviation industry experienced a major decline in the 1980s, early 1990s, and currently. This was due to a number of reasons including high interest rates, past recession, high product liability costs, loss of the GI Bill for pilot training, and increasing aircraft operating costs. Subsequently, the industry displayed growth in terms of new aircraft deliveries (including single engine piston aircraft). With current developments of the national and world-wide economic recession, general aviation has been hard hit and based aircraft and operations have been recently decreasing.

Table 3-9
GENERAL AVIATION SERVICE PROVIDERS AT LOMPOC

Service	City of Lompoc	Curtis & Associates	Skydive Santa Barbara
Airport Administration and Maintenance	X		
Airport Security	X		
Crash/Fire/Rescue	X		
Unicom Operation		X	
Aircraft Parking/Storage	X		
Aircraft Maintenance		X	
Fuel	X		
Tenant Activities			
Skydiving			X
Other Services			
Pilot Lounge	X		
Sales/Aircraft Parts/Supplier [a]			
Flight Instruction/Testing [a]			
Aircraft Rental/Charter [a]			

[a] Not available at airport.
Source: City of Lompoc

A based aircraft is one that is permanently stationed at an airport or a lessee, usually through some form of agreement between the aircraft owner and the airport management. Information indicating the history of based aircraft at Lompoc Airport was compiled from data contained in the last FAA Terminal Area Forecast (TAF). Lompoc based aircraft by type can be seen in Table 3-10 from 1993 to 2008.

As seen in Table 3-10 the number of based aircraft has been between 60 and 70 since 1993. Only in 2006, with 77 based aircraft has shown a significant increase of based aircraft. Single engine aircraft, which represent the majority of aircraft at Lompoc, increased to 75 in 2006 and decreased to 68 in 2008.

An operation, or movement, is defined as either a takeoff or landing with each operation being categorized as either local or itinerant. A local operation is one that is performed by aircraft that 1) operate in the local traffic pattern or within sight of the airport; 2) are known to be departing for or arriving from flights in local practice areas located within a 20-mile radius of the airport; or 3) execute simulated instrument approaches or low passes at the airport. Itinerant operations are all operations other than local. Aircraft operations for the period 1993-2007 are shown in Table 3-11.

Table 3-10
HISTORY LOMPOC AIRPORT BASED AIRCRAFT 1993-2008

Year	Single Engine	Multi Engine	Jet	Helicopter	Other	Total
1993	61	4	0	2	0	67
1994	61	4	0	2	0	67
1995	61	4	0	2	0	67
1996	61	4	0	2	0	67
1997	54	4	0	2	0	60
1998	54	4	0	2	0	60
1999	53	1	0	3	6	63
2000	53	1	0	3	6	63
2001	53	1	0	3	6	63
2002	53	1	0	3	6	63
2003	53	1	0	3	6	63
2004	63	1	0	0	6	70
2005	63	1	0	0	6	70
2006	75	1	0	0	1	77
2007	75	1	0	0	1	77
2008	68	0	1	1	0	70

Source: FAA Terminal Area Forecast 2008.

Table 3-11
HISTORICAL ANNUAL
AIRCRAFT OPERATIONS 1993-2007

Year	Itinerant	Percent Itinerant	Local	Percent Local	Military	Total
1993	19,200	51.47%	18,000	48.26%	100	37,300
1994	19,200	51.47%	18,000	48.26%	100	37,300
1995	19,000	51.21%	18,000	48.52%	100	37,100
1996	19,000	51.21%	18,000	48.52%	100	37,100
1997	20,500	53.11%	18,000	46.63%	100	38,600
1998	20,500	53.11%	18,000	46.63%	100	38,600
1999	20,500	53.11%	18,000	46.63%	100	38,600
2000	20,500	53.11%	18,000	46.63%	100	38,600
2001	20,500	53.11%	18,000	46.63%	100	38,600
2002	20,500	53.11%	18,000	46.63%	100	38,600
2003	20,500	53.11%	18,000	46.63%	100	38,600
2004	20,500	53.11%	18,000	46.63%	100	38,600
2005	18,200	50.14%	18,000	49.59%	100	36,300
2006	15,100	50.00%	15,000	49.67%	100	30,200
2007	15,100	50.00%	15,000	49.67%	100	30,200

Source: FAA Terminal Area Forecast 2008.

Historical aviation activity at Lompoc Airport has varied from 30,200 to 38,600 operations per year since 1993. The FAA Terminal Area Forecast provides both historical and forecast data on aircraft operations at Lompoc Airport. Aircraft operations were at their highest between 1997 and 2004 at 38,600 annual operations. Since 2004, operations have been declining to approximately 30,200 in 2006. Since Lompoc

does not have a tower, operations are estimated, as is evidenced by the round number of operations and years with repeating data.

LOMPOC AIRPORT ACCIDENT HISTORY

Since 1965 there have been 30 aircraft accidents recorded by the National Transportation and Safety Board (NTSB) associated with Lompoc Airport. This equates to approximately 0.7 accidents per year. Of these 30 accidents, only eleven occurred on the Airport and three additional ones occurred on final approach or take off. One of the three local accidents involved a low-approaching aircraft that hit power lines near Lompoc Airport on final approach. The NTSB deemed the probable cause as the pilot's failure to maintain clearance from the power lines and the pilot's lack of recent experience. None of the accidents in the past 45 years were due to unsafe conditions at Lompoc Airport.

BASED AIRCRAFT OWNERS SURVEY

As part of the master plan, a survey was mailed to the based aircraft owners at the airport. Sixty-three surveys were mailed. Of these, 21 (33 percent) were returned. Most respondents (nine) anticipate flying activity to increase over the next five years. Physical improvements that were deemed least important where T-shelters (shade hangars) and most important was pavement resurfacing. Most facilities at the airport were rated satisfactorily. The poorest rated facilities were the pavement conditions, and the most excellent facility was fueling. Respondents were also asked to rate the cost of facilities and services at the airport. Maintenance rates, tie-down rates, and transient parking rates were rated average, whereas fuel costs and hangar rentals were rated average to high.

Main comments that were received concerning improvements at the airport include pavement resurfacing, unreliable automated weather reporting, hangar and gutter improvements, lower instrument approach minimums, and a café or restaurant. Other comments provided include, potential skydivers view platform, turn-offs from the runway, dissatisfaction with increasing rent for the run-down hangars, traffic on the runway going in opposing directions, and suggestions of a crosswind runway.

SURROUNDING LAND USES

The airport is surrounded by a mix of residential, industrial, and commercial land uses. Light industrial/commercial area is located immediately south of the airport and commercial is immediately east of Highway 1/North 'H' Street. Within this area is a four-story hotel, which represents the controlling obstacle for the non-precision approaches. East, north, and west of the airport is open space and residential areas are northeast and south of Central Avenue. The Santa Ynez River and associated floodplain north of Lompoc Airport provides a natural buffer.

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CHAPTER 4

Forecasts of Aviation Demand

Chapter 4

Forecasts of Aviation Demand

INTRODUCTION

This chapter presents the forecast of general aviation demand at Lompoc Airport. Prudent planning for the physical development of an airport requires a well-documented forecast of aviation activity at the subject facility. Once the forecasting tasks of the planning process have been completed, the airport planner can then translate the projected activity levels into required facilities. The forecast then serves as a basis for determining the phased development of the facility components for the short, intermediate, and long-range planning periods.

The forecast developed for this study covers the period between 2011 and 2030, with intermediate year forecasts presented for the years 2015 and 2020. It is important to note that the forecasts presented herein represent unconstrained potential or "market-driven" demand, without consideration of the physical, safety, noise, regulatory, institutional, or political constraints that may preclude development of facilities to fully serve the demand.

The forecast has been prepared for general aviation demand, and the assessment focused on based aircraft. The result of this analysis was utilized in the development of projections of aircraft operations and fuel flowage.

It is also important to note that due to the uncertainties in the long-range aviation outlook, long-term forecasting is approximate in nature. However, an indication of trends is important since estimates can be made of facility costs, social costs, and environmental impacts, which an airport creates on the surrounding area. Thus, the purpose of the forecasting effort is to identify activity levels, which then serve as planning tools.

FORECAST OF BASED AIRCRAFT

A based aircraft is one that is permanently stationed at an airport, usually by some form of agreement between the aircraft owner and airport management. This forecast value is used in developing projections of aircraft activity, as well as determining facility requirements for airport elements such as aprons and hangars.

The approach used to forecast based aircraft at Lompoc involved the following steps: (1) use the latest 2008 FAA Terminal Area Forecast (TAF) data to assess total based aircraft in the Lompoc Competitive Market Area (CMA); (2) forecast the share of based aircraft in the CMA served at Lompoc considering both supply (competitive airports) and demand factors; (3) project the fleet mix of aircraft based at Lompoc. The methodology and assumptions used in each step are described below.

Total Based Aircraft in the Competitive Market Area (CMA)

Lompoc Airport is located in the City of Lompoc and situated in western Santa Barbara County. For the purposes of this study, the CMA broadly defined as the Santa Barbara County and includes Oceano Airport because of its proximity to both the County and Lompoc. The CMA is depicted in Figure 4-1 and includes five public airports: Lompoc, Oceano County, Santa Barbara, Santa Maria/Hancock (Santa Maria), and Santa Ynez. While one other public airport is within the CMA (New Cuyama), it is a limited use airport, is not included in the NPIAS, and presently has no based aircraft, and therefore does not represent a competing airport. Vandenberg AFB is also within the CMA, but because it is military installation, it too does not represent a competing airport. Therefore, airports analyzed in this forecast include: Lompoc, Oceano County, Santa Barbara, Santa Maria, and Santa Ynez.

Figure 4-1
Competitive Market Area

The 2008 FAA Terminal Area Forecast was used to compile historical based aircraft data for the CMA. Over the past 21 years (1987 to 2008), based aircraft within the CMA have been fluctuating from between 545 in 1997 and 1998 to 725 in 2007. Table 4-1 shows the historical based aircraft for each airport in the CMA, as well as their respective market shares. Average, low, and high market shares are shown at the bottom of the table and will be used to forecast future based aircraft at Lompoc. In 2008, there were 659 based aircraft in the CMA. Since its low in 1998, based aircraft in the CMA have experienced a generally upward trend from 545 to 659 based aircraft. Total based aircraft had been increasing every year from 2005 to 2007. All airports show a decline in based aircraft in 2008, which can be a sign of the current economic condition.

Table 4-1
HISTORICAL BASED AIRCRAFT IN THE
LOMPOC AIRPORT CMA 1987 – 2008

Based Aircraft						
Year	**Lompoc**	**Santa Maria**	**Santa Ynez**	**Santa Barbara**	**Oceano**	**Total**
1987	73	190	151	281	25	720
1988	73	190	151	273	25	712
1989	60	190	144	257	21	672
1990	66	185	141	257	15	664
1991	66	196	136	257	26	681
1992	67	197	157	257	26	704
1993	67	197	157	257	26	704
1994	67	197	157	258	26	705
1995	67	197	132	155	28	579
1996	67	194	132	156	28	577
1997	60	194	112	158	21	545
1998	60	194	112	158	21	545
1999	63	199	112	237	21	632
2000	63	199	112	237	21	632
2001	63	198	112	206	21	600
2002	63	198	112	184	21	578
2003	63	200	112	181	21	577
2004	70	198	141	200	31	640
2005	70	198	141	189	27	625
2006	77	241	143	189	27	677
2007	77	243	167	211	27	725
2008	70	240	131	205	13	659
Percent of the Competitive Market Area						
1987	10.14%	26.39%	20.97%	39.03%	3.47%	100.00%
1988	10.25%	26.69%	21.21%	38.34%	3.51%	100.00%
1989	8.93%	28.27%	21.43%	38.24%	3.13%	100.00%
1990	9.94%	27.86%	21.23%	38.70%	2.26%	100.00%
1991	9.69%	28.78%	19.97%	37.74%	3.82%	100.00%
1992	9.52%	27.98%	22.30%	36.51%	3.69%	100.00%
1993	9.52%	27.98%	22.30%	36.51%	3.69%	100.00%
1994	9.50%	27.94%	22.27%	36.60%	3.69%	100.00%
1995	11.57%	34.02%	22.80%	26.77%	4.84%	100.00%
1996	11.61%	33.62%	22.88%	27.04%	4.85%	100.00%
1997	11.01%	35.60%	20.55%	28.99%	3.85%	100.00%
1998	11.01%	35.60%	20.55%	28.99%	3.85%	100.00%
1999	9.97%	31.49%	17.72%	37.50%	3.32%	100.00%
2000	9.97%	31.49%	17.72%	37.50%	3.32%	100.00%
2001	10.50%	33.00%	18.67%	34.33%	3.50%	100.00%
2002	10.90%	34.26%	19.38%	31.83%	3.63%	100.00%
2003	10.92%	34.66%	19.41%	31.37%	3.64%	100.00%
2004	10.94%	30.94%	22.03%	31.25%	4.84%	100.00%
2005	11.20%	31.68%	22.56%	30.24%	4.32%	100.00%
2006	11.37%	35.60%	21.12%	27.92%	3.99%	100.00%
2007	10.62%	33.52%	23.03%	29.10%	3.72%	100.00%
2008	10.62%	36.42%	19.88%	31.11%	1.97%	100.00%
Average	10.43%	31.30%	20.96%	33.55%	3.76%	100.00%
Low	8.93%	26.39%	17.72%	26.77%	2.26%	100.00%
High	11.61%	35.60%	23.03%	39.03%	4.85%	100.00%

Sources: 1987-2007 FAA 2008 Terminal Area Forecast; 2008 FAA Form 5010-1 and Telephone Interviews; AECOM analysis.

Total Based Aircraft at Lompoc Airport

Historically, the market share of Lompoc has been an average of 10.4 percent of the general aviation aircraft based in the CMA. This rate has varied from a low of 8.9 percent (1989) to as much as 11.6 percent (1995). Since 2001, Lompoc has experienced based aircraft market shares slightly above its historical average. Lompoc's market share has fluctuated from 10.5 to 11.6 percent in the last 8 years.

The approach used to forecast based aircraft at Lompoc was based on the airport's share of forecasted based aircraft in the CMA. Table 4-2 presents based aircraft totals for the CMA and for the State of California throughout the planning period.

Table 4-2
BASED AIRCRAFT FORECAST
CALIFORNIA AND CMA 2008 – 2030

		Forecast		
	2009	2015	2020	2030
California	27,835	29,174	30,334	32,737
CMA	659	797	842	913
CMA % of California	2.37%	2.73%	2.78%	2.79%

Source: FAA 2008 Terminal Area Forecast (2008-2025);
AECOM (2026-2030).

A range of forecasts were developed for based on the following assumptions (scenarios) regarding Lompoc's future share of the based aircraft market in CMA:

- **Low Growth Forecast:** This scenario assumes the number of based aircraft at Lompoc will remain constant at current levels (70 based aircraft). The TAF assumes no growth will occur at the airport.

- **Baseline Forecast:** This scenario assumes a condition where Lompoc Airport's competitive position reflects the current based aircraft growing to its historical high share of based aircraft within the CMA (11.6 percent) by 2030.

- **High Growth Forecast:** This scenario assumes several factors occur increasing the number of based aircraft at Lompoc. First, it is recognized that Santa Barbara has experienced a decline in based aircraft since 1987. This trend is expected to continue, as tie-down, hangar rates, and landing fees at Santa Barbara continue to increase. Santa Ynez and Santa Maria have historically benefited from this trend. However, developable land at Santa Ynez appears to be limited, and the runway length prevents higher performance aircraft from relocating there. Santa Maria has an abundance of area to accommodate based aircraft, but the airport also provides commercial service. This means that security measures at Santa Maria are more restrictive and less attractive to GA users. A commercial service airport also typically has a higher fee structure associated with it, which GA users are very sensitive to. It is assumed that based aircraft trends at Santa Maria will begin to follow Santa Barbara (a declining share of based aircraft in the CMA)

  Based upon this understanding of the CMA system, it is assumed that in 2030 Santa Barbara will return to its historical low market share representation, Santa Ynez will expand to its historical high market share, and Santa Maria will return to its historical average market share. Since Oceano is constrained, it is assumed to capture its historical low market share. Lompoc would then capture the remaining based aircraft, approximately 16.6 percent.

Applying these assumptions to the forecast of based aircraft in the CMA, results in the projections for based aircraft at Lompoc Airport shown in Table 4-3. As may be noted, all forecasts start at the existing (2009) based aircraft levels of 70 aircraft as obtained from Lompoc Airport. Under the Baseline Forecast, based aircraft at Lompoc increase from 70 in 2009 to 114 by 2030. Under the High Growth Forecast, based aircraft at the airport reach 152 by 2030. The Low Growth Forecast remains constant at 70 based aircraft. Figure 4-2 graphically presents the based aircraft forecast.

Table 4-3
BASED AIRCRAFT FORECAST - LOMPOC AIRPORT 2015-2030

	Existing	2015	2020	2030
Low	70	70	70	70
Baseline	70	83	93	114
High	70	93	113	152

Source: AECOM analysis.

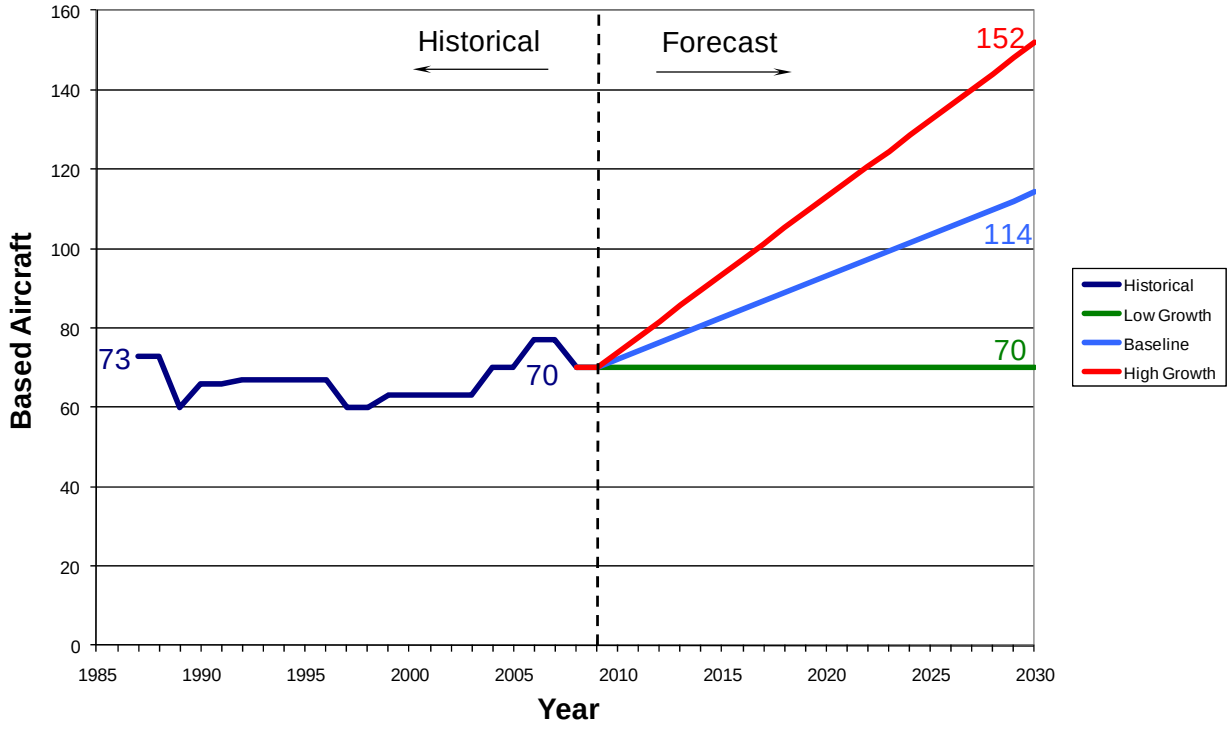


Figure 4-2
Lompoc Based Aircraft

Based Aircraft Fleet Mix

The forecast fleet mix of general aviation aircraft located at Lompoc was based on historical fleet mix information. Historic fleet mix information of Lompoc and Santa Barbara County from 1995 to 2007 is shown in Table 4-4.

In 2009, Lompoc Airport has 70 based aircraft including one helicopter, one multi-engine, and one jet aircraft (the remaining 67 are single engine). This data was used for short-term based aircraft fleet mix forecasts. Intermediate and long-term forecasts were tempered to include increased jet and helicopter aircraft. Aircraft defined as “other” include lighter than air, gliders, and home-built aircraft. Since “other” aircraft were historically present at the airport, some are included in the fleet mix for the Baseline and High Growth Forecast. Table 4-5 shows the resulting based aircraft fleet mix for the planning period.

Table 4-4
BASED AIRCRAFT FLEET MIX LOMPOC AIRPORT AND SANTA BARBARA COUNTY 1995-2008

Year	Single Engine	Jet	Multi-Engine	Helicopter	Other	Total
Competitive Market Area						
1995	465	8	71	20	15	579
2000	500	6	73	27	26	632
2005	495	20	55	19	36	625
2006	543	28	54	22	30	677
2007	581	32	61	23	28	725
2008	524	21	60	26	28	659
Lompoc Airport						
1995	61	0	4	2	0	67
2000	53	0	1	3	6	63
2005	63	0	1	0	6	70
2006	75	0	1	0	1	77
2007	75	0	1	0	1	77
2008	68	0	1	1	0	70
Lompoc as a Percent of the Competitive Market Area						
1995	13.1%	0.0%	5.6%	10.0%	0.0%	11.6%
2000	10.6%	0.0%	1.4%	11.1%	23.1%	10.0%
2005	12.7%	0.0%	1.8%	0.0%	16.7%	11.2%
2006	13.8%	0.0%	1.9%	0.0%	3.3%	11.4%
2007	12.9%	0.0%	1.6%	0.0%	3.6%	10.6%
2008	13.0%	0.0%	1.4%	3.8%	0.0%	10.6%

Source: FAA 2008 Terminal Area Forecast; Airport Records.

Table 4-5
FORECAST BASED AIRCRAFT FLEET MIX LOMPOC AIRPORT 2015-2030

Year	Single Engine	Turbine/ Jet	Multi-Engine	Helicopter	Other	Total
2009	67	1	1	1	0	70
Low Growth Forecast						
2015	67	1	1	1	0	70
2020	67	1	1	1	0	70
2030	67	1	1	1	0	70
Baseline Forecast						
2015	80	1	1	1	0	83
2020	90	1	1	1	0	93
2030	107	2	2	2	1	114
High Growth Forecast						
2015	88	1	1	1	2	93
2020	106	1	2	2	3	113
2030	134	2	6	4	6	152

Source: AECOM analysis.

Selected Forecast

For this master plan the Baseline Forecast was selected to be used in subsequent analyses. This forecast reflects a moderate rate of growth for the airport (approximately 3 percent per year). The Low Growth Forecasts no growth which is not prudent planning. The High Growth Forecast suggests that based aircraft would increase at approximately 6 percent per year. Given the current economic climate, this aggressive growth rate was deemed to be unrealistic.

It is noted that forecasting by definition is uncertain; therefore the three forecasts prepared (Low Growth, Baseline, and High Growth) represent a range of forecasts to assist in the planning of required facilities at Lompoc Airport.

Comparison with Other Forecasts

Three other forecasts of based aircraft have been prepared for Lompoc. These forecasts – the 2008 Terminal Area Forecast (TAF) prepared by the FAA, the California Aviation System Plan (CASP) 1999 Update, and the 1993 Lompoc Airport Master Plan – are summarized in Table 4-6, and compared with the Baseline Forecast of based aircraft. The table shows that the 1999 CASP and 2009 Master Plan Baseline Forecast reflect similar levels of based aircraft in 2015 and 2020 and the TAF reflects no growth at the airport.

Table 4-6
COMPARISON OF BASELINE FORECAST OF BASED AIRCRAFT WITH FAA 2008 TAF, 1999 CASP, AND 1993 AIRPORT MASTER PLAN

		Forecast		
Item	**2009**	**2015**	**2020**	**2030**
2009 Master Plan Baseline Forecast	70	83	93	114
2008 FAA TAF	77	77	77	N/A
1999 CASP	80	87	95	N/A
1993 Master Plan	99	104	N/A	N/A

N/A – Data not available.
Sources: As noted.

FORECAST OF AIRCRAFT OPERATIONS

An aircraft operation, or movement, is defined as either a takeoff or landing with each operation being categorized as either local or itinerant. A local operation is one that is performed by aircraft that: (1) operates in the local traffic pattern or within sight of the airport; (2) is known to be departing to or arriving from flights in local practice areas (within a 20-mile radius of the airport); or (3) executes simulated instrument approaches or low passes at the airport. Itinerant operations are all operations other than local.

Annual Operations

Annual aircraft operations for the years 1987 to 2008 are shown in Table 4-7. Annual aircraft operations have significantly decreased over time and were reportedly more than 100,000 in the 1980s. As evidenced by multiple years of the same number, operations counts at the airport are estimated. Annual aircraft operations at Lompoc show a decline since 1988. Starting in the early 1990s annual aircraft operations have consistently been between 30,000 and 40,000 operations.

To forecast annual aircraft operations at Lompoc Airport, operations per based aircraft ratios were used. Data from 1987 to 1989 was disregarded as operations per based aircraft were extremely high and was deemed to be unrealistic within the 20-year planning period. The Low Growth Forecast used the current ratio of annual aircraft operations per based aircraft (431). The Baseline and High Growth Forecasts used the historical average and high ratios, 550 and 650 operations per based aircraft, respectively. Historical operations per based aircraft are shown in Table 4-8.

Table 4-9 presents the forecast of annual aircraft operations. The number of operations increases from 30,200 to 62,600 and 98,800 under Baseline and High Growth Forecasts, respectively. Annual operations are also identified as itinerant and local operations. The Baseline and High Growth Forecasts shift from present levels of 50 percent itinerant and local operations, to an assumed level of 60 percent itinerant operations in the year 2030. This accounts for an increase in tourist and corporate aircraft operations. It is assumed that itinerant and local operations will remain at present levels in the Low Growth Forecast.

Table 4-7
HISTORICAL ANNUAL AIRCRAFT OPERATIONS
LOMPOC AIRPORT 1987 - 2008

	Itinerant			Local		
Year	Air Taxi	General Aviation	Military	General Aviation	Military	Total
1987	1,200	36,000	24,750	44,000	0	105,950
1988	1,246	36,266	24,750	44,659	0	106,921
1989	1,200	40,000	100	40,000	0	81,300
1990	1,200	25,000	100	25,000	0	51,300
1991	1,200	25,000	100	25,000	0	51,300
1992	1,200	18,000	100	18,000	0	37,300
1993	1,200	18,000	100	18,000	0	37,300
1994	1,200	18,000	100	18,000	0	37,300
1995	1,000	18,000	100	18,000	0	37,100
1996	1,000	18,000	100	18,000	0	37,100
1997	2,500	18,000	100	18,000	0	38,600
1998	2,500	18,000	100	18,000	0	38,600
1999	2,500	18,000	100	18,000	0	38,600
2000	2,500	18,000	100	18,000	0	38,600
2001	2,500	18,000	100	18,000	0	38,600
2002	2,500	18,000	100	18,000	0	38,600
2003	2,500	18,000	100	18,000	0	38,600
2004	2,500	18,000	100	18,000	0	38,600
2005	200	18,000	100	18,000	0	36,300
2006	100	15,000	100	15,000	0	30,200
2007	100	15,000	100	15,000	0	30,200
2008	100	15,000	100	15,000	0	30,200

Source: FAA 2008 Terminal Area Forecast.

Table 4-8
HISTORICAL AIRCRAFT OPERATIONS PER BASED AIRCRAFT AT LOMPOC AIRPORT 1993-2008

Year	Operations	Based Aircraft	Ratio
1993	37,300	67	557
1994	37,300	67	557
1995	37,100	67	554
1996	37,100	67	554
1997	38,600	60	643
1998	38,600	60	643
1999	38,600	63	613
2000	38,600	63	613
2001	38,600	63	613
2002	38,600	63	613
2003	38,600	63	613
2004	38,600	70	551
2005	36,300	70	519
2006	30,200	77	392
2007	30,200	77	392
2008	30,200	70	431
Average			544
Low			392
High			643

Source: FAA 2008 Terminal Area Forecast; AECOM analysis.

Table 4-9
FORECAST OF ANNUAL OPERATIONS LOMPOC AIRPORT 2006-2030

Year	Itinerant	Local	Total
2009	15,200	15,000	30,200
Low Growth Forecast			
2015	15,100	15,100	30,200
2020	15,100	15,100	30,200
2030	15,100	15,100	30,200
Baseline Forecast			
2015	22,850	22,850	45,700
2020	28,100	23,000	51,100
2030	37,600	25,000	62,600
High Growth Forecast			
2015	30,250	30,250	60,500
2020	40,400	33,100	73,500
2030	59,300	39,500	98,800

Source: AECOM analysis.

Comparison with Other Forecasts

The 2008 FAA TAF, 1999 Caltrans CASP, and 1993 Lompoc Airport Master Plan also provides forecasts of aircraft operations for the airport. These are presented in Table 4-10 and as can be seen, the 2008 FAA TAF anticipates no growth in aircraft operations over the forecast period. Similar to the based aircraft forecasts, the 1999 CASP and Baseline Forecast show similarities in the 2015 and 2020 forecasts.

Table 4-10
COMPARISON OF BASELINE FORECAST OF AIRCRAFT OPERATIONS WITH FAA 2008 TAF, 1999 CALTRANS CASP, AND 1993 LOMPOC AIRPORT MASTER PLAN

		Forecast		
Item	**2009**	**2015**	**2020**	**2030**
2009 Master Plan Baseline Forecast	30,200	45,700	51,100	62,600
2008 FAA TAF	30,200	30,200	30,200	N/A
1999 CASP	42,985	46,746	51,045	N/A
1993 Master Plan	52,000	55,000	N/A	N/A

N/A – Data not available
Sources: as noted.

Aircraft Operations by Aircraft Type

General aviation operations by type of aircraft were forecast by applying the existing aircraft fleet mix and over time increasing multi-engine, jet, helicopter, and "other" aircraft operations and decreasing single engine operations to forecast future operations. It is expected that in the future more multi-engine and jet aircraft will utilize the airport. As the economy improves it is expected that transient operations in the form of tourists and corporate aircraft will increase. The mix of existing (2009) operations was estimated based upon conversations with airport management staff and TAC input. The future mix is based on trends reflected in the forecast of based general aviation aircraft and also accounts for increased tourist and corporate aircraft operations in the long-term. Table 4-11 presents aircraft operations by type at the airport under the Low Growth, Baseline, and High Growth Forecasts. It also shows the percentages of the fleet mix used to forecast operations of annual aircraft operations by type.

Peak Hour Aircraft Operations

Peak hour operations were forecast for the average day of the peak month (ADPM). The peak month was assumed to account for approximately ten percent of annual aircraft operations. The number of operations for the average day of the peak month is obtained by dividing the peak month activity by 30 days. A peak hour factor is 12 percent of ADPM operations assumed to project peak hour operations. Table 4-12 presents the forecast of peak hour airport operations. The Low Growth Forecast shows 12 peak hour operations in the planning period. For the Baseline Forecast, it is expected that there will be 25 peak hour operations in 2030. The High Growth Forecast estimates 40 peak hour operations in the planning period.

Table 4-11
FORECAST AIRCRAFT OPERATIONS AIRCRAFT BY TYPE

	2009		2015		2020		2030	
Aircraft Type	**Ops.**	**Percent**	**Ops.**	**Percent**	**Ops.**	**Percent**	**Ops.**	**Percent**
Low Growth Forecast								
Single Engine	29,000	96.03%	28,540	94.50%	27,940	92.50%	27,480	91.00%
Multi-Engine	1,000	3.31%	1,210	4.00%	1,360	4.50%	1,510	5.00%
Jet	50	0.17%	300	1.00%	450	1.50%	600	2.00%
Helicopter	150	0.50%	150	0.50%	300	1.00%	450	1.50%
Other	0	0.00%	0	0.00%	150	0.50%	150	0.50%
Total	**30,200**	**100.00%**	**30,200**	**100.00%**	**30,200**	**100.00%**	**30,200**	**100.00%**
Baseline Forecast								
Single Engine	29,000	96.03%	42,730	93.50%	46,500	91.00%	54,780	87.50%
Multi-Engine	1,000	3.31%	2,060	4.50%	2,560	5.00%	3,760	6.00%
Jet	50	0.17%	460	1.00%	1,020	2.00%	1,570	2.50%
Helicopter	150	0.50%	460	1.00%	770	1.50%	1,880	3.00%
Other	0	0.00%	0	0.00%	260	0.50%	630	1.00%
Total	**30,200**	**100.00%**	**45,700**	**100.00%**	**51,100**	**100.00%**	**62,600**	**100.00%**
High Growth Forecast								
Single Engine	29,000	96.03%	55,660	92.00%	65,780	89.50%	83,980	85.00%
Multi-Engine	1,000	3.31%	2,720	4.50%	4,040	5.50%	6,920	7.00%
Jet	50	0.17%	910	1.50%	1,470	2.00%	2,960	3.00%
Helicopter	150	0.50%	910	1.50%	1,470	2.00%	3,460	3.50%
Other	0	0.00%	300	0.50%	740	1.00%	1,480	1.50%
Total	**30,200**	**100.00%**	**60,500**	**100.00%**	**73,500**	**100.00%**	**98,800**	**100.00%**

Ops. – Operations
Source: AECOM analysis.

Table 4-12
FORECAST OF PEAK HOUR OPERATIONS
DURING THE AVERAGE DAY OF THE PEAK MONTH (ADPM)
LOMPOC AIRPORT 2009-2030

	Estimated	Forecast		
	2009	2015	2020	2030
Low Growth Forecast				
Aircraft Operations	30,200	30,200	30,200	30,200
Peak Month Percentage	10%	10%	10%	10%
Peak Month Operations	3,020	3,020	3,020	3,020
Days in Peak Month	30	30	30	30
ADPM Operations	101	101	101	101
Peak Hour Percentage	12%	12%	12%	12%
Peak Hour Operations	12	12	12	12
Baseline Forecast				
Aircraft Operations	30,200	45,700	51,100	62,600
Peak Month Percentage	10%	10%	10%	10%
Peak Month Operations	3,020	4,570	5,110	6,260
Days in Peak Month	30	30	30	30
ADPM Operations	101	152	170	209
Peak Hour Percentage	12%	12%	12%	12%
Peak Hour Operations	12	18	20	25
High Growth Forecast				
Aircraft Operations	30,200	60,500	73,500	98,800
Peak Month Percentage	10%	10%	10%	10%
Peak Month Operations	3,020	6,050	7,350	9,880
Days in Peak Month	30	30	30	30
ADPM Operations	101	202	245	329
Peak Hour Percentage	12%	12%	12%	12%
Peak Hour Operations	12	25	29	40

Source: AECOM analysis.

FUEL FLOWAGE

Avgas fuel flowage was projected using historic ratios (Table 4-13) of fuel flowage to annual operations. The average gallons of Avgas per operation will be applied to the Low, Baseline, and High Growth Forecast total operations to project future fuel flowage (Table 4-14). As can be seen in Table 4-14, Avgas flowage is forecast to double with the high growth forecast to approximately 54,000 gallons by 2030.

The 10,000 gallon Jet A fuel tank was installed and brought into service in 2007. The table below depicts historical Jet A fuel flowage at the airport:

Year	Gallons Jet A
2007	28,245
2008	25,948

Table 4-13
HISTORICAL FUEL FLOWAGE
LOMPOC AIRPORT 1997-2008

Year	Gallons Avgas [a]	Annual Ops. [b]	Average gal./ops Avgas [c]
1997	12,700*	38,600	N/A
1998	20,648	38,600	0.53
1999	26,353	38,600	0.68
2000	23,439	38,600	0.61
2001	23,808	38,600	0.62
2002	N/A	38,600	N/A
2003	35,111	38,600	0.91
2004	28,973	38,600	0.75
2005	20,146	36,300	0.55
2006	21,172	30,200	0.70
2007	27,223	30,200	0.90
2008	26,913	30,200[2]	0.89
Average			0.72
Low			0.53
High			0.91

* Data extrapolated from October to December information
Sources: [a] Airport Records;
[b] 2008 FAA TAF;
[c] AECOM analysis.

Table 4-14
AVGAS FUEL FLOWAGE FORECAST
LOMPOC AIRPORT 2015-2030

	2015	2020	2030
Low Growth	27,000	27,000	27,000
Baseline	33,000	37,000	45,000
High Growth	43,000	53,000	71,000

Source: AECOM analysis.

Due to the fact that the Jet A fuel tank was recently installed and the installation of the tank occurred during the current downturn in traffic at the airport, historical data provides little value for forecasting future fuel flowage rates. Therefore, forecasting fuel flowage for Jet A was derived using different methodology than for Avgas. Forecasts were developed by first understanding recent and present operating conditions at the airport.

Presently, the Skydive FBO represents the largest buyer of jet fuel. However, the operator conducts several operations in between fueling. When fueling, the aircraft requires approximately 70 to 80 gallons of fuel. While not presently occurring, in the recent past, small and medium sized business jet aircraft (such as Cessna Citations and Falcon 900s) would frequent the airport, originating from the east coast. These aircraft would fill up at the airport, and require approximately 1,000 gallons of jet fuel. Additionally, there has been a recent helicopter operator who is based at the airport. This operator's business features periods of high operations and periods of little to no operations.

With this general understanding of present and recent operating conditions available at the airport, the following assumptions were made to forecast fuel flowage at Lompoc. It is assumed that each operation represents 50 gallons of fuel flow. Total operations requiring jet fuel are derived from the:

- Total number of jet operations
- Plus half of all helicopter operations.

As seen in Table 4-15 this methodology represents a reasonable estimate of fuel flow throughout the master plan study. Baseline forecasts include 126,000 gallons of annual Jet A fuel flowage in 2030.

Table 4-15
JET A FUEL FLOWAGE FORECAST
LOMPOC AIRPORT 2015-2030

	2015	2020	2030
Low Growth	26,000	30,000	42,000
Baseline	35,000	70,000	126,000
High Growth	68,000	110,000	235,000

Source: AECOM analysis.

CHAPTER 5

Facility Requirements

Chapter 5

Facility Requirements

INTRODUCTION

Chapter 4 produced a forecast of aviation traffic volumes expected to be generated at the airport during the 20-year forecast period. The next step in the planning process is to determine the type and magnitude of airport facilities that will be needed during the 20-year strategic planning period to satisfactorily accommodate future traffic volumes.

The process of determining facility requirements involves the application of acceptable airport planning standards to the various forecast components to identify the needed facilities that will provide sufficient capacity to handle the expected traffic. By comparing the sizes and capacities of the future facility needs with existing facility sizes and capacities, facility deficiencies can be determined and quantified.

The deficiencies are then resolved by increasing facility capacities over a phased development program. This chapter of the report addresses the calculation of theoretical airport facility requirements as discussed above. The facilities developed through this planning process must be considered theoretical until they have been related to existing facilities. In Chapter 6, Concept Development, the recommended improvements derived from the facility requirements are delineated in a series of plans and drawings.

The uncertainty of long-range forecasting was noted in Chapter 4, and a range of forecasts was provided. In the interest of preparing a plan that can be used as a development guide beyond the 20-year master planning period congruent with current economic conditions, the analysis of facility requirements used the Baseline Forecast presented in Chapter 4. It is important to note that it will be ***actual*** demand that dictates the eventual development of facilities and not forecast demand. Should traffic actually materialize faster than forecast, then facility improvements should be accelerated. Should demand actually lag the forecast, then facility improvements may be deferred. Thus, the use of the Baseline Forecast does not commit the City to construct the facilities associated with projected demand, but it provides an assumed schedule for planning purposes. In the interest of developing a flexible plan, facility requirements for the High Growth Forecast are also included in this chapter. These facilities would be required only if demand outpaces the Baseline Forecast.

Airport facility requirements are grouped into the two main operating elements - airside facilities and landside facilities. Before addressing the facility requirements, a brief discussion of airport classification is presented.

AIRPORT CLASSIFICATION

Lompoc Airport functions in several roles as defined by FAA and the State and explained in Chapter 3. The airport is contained in the National Plan of Integrated Airport Systems (NPIAS) and is classified as a General Aviation (GA) Airport. A GA airport is one that serves a community that does not receive scheduled commercial air service. The airport is also contained in the California Aviation System Plan (CASP) and is classified as a Community Airport.

Community Airports provide access to other regions and states; located near small communities or in remote locations; serve, but are not limited to recreation flying, training, and local emergencies; accommodate predominately single engine aircraft under 12,500 pounds; and provide basic or limited services for pilots or aircraft.

During the first meeting of the Technical Advisory Committee (TAC), the TAC participated in a visioning survey. While the airport is primarily used for personal use, the TAC identified that the airport is also very important for business/corporate use, emergency/medical transport, and tourism.

Airport Reference Code

The FAA in its current Advisory Circular (AC) 150/5300-13, Airport Design, has developed an airport reference code (ARC) which is a coding system that relates airport design criteria and planning standards to two components: the operational and physical characteristics of aircraft operating at or expected to operate at the airport. It is an alphanumeric code with the numeric component consisting of a Roman numeral. The letter element of the code is the aircraft approach category and thus relates to operational characteristics. The aircraft approach category is a grouping of aircraft that is based on 1.3 times the stalling speed as follows:

Category	Speed
A	Speed less than 91 knots
B	Speed 91 knots or more but less than 121 knots
C	Speed 121 knots or more but less than 141 knots
D	Speed 141 knots or more but less than 166 knots
E	Speed 166 knots or more

The second component of the ARC is the airplane design group and relates to the wingspan and tail height of aircraft which are physical characteristics. The grouping of aircraft by airplane design group is as follows:

Airplane Design Group	Wingspan	Tail Height
I	Up to but not including 49 feet	Up to but not including 20 feet
II	49 feet up to but not including 79 feet	20 feet up to but not including 30 feet
III	79 feet up to but not including 118 feet	30 feet up to but not including 45 feet
IV	118 feet up to but not including 171 feet	45 feet up to but not Including 60 feet
V	171 feet up to but not including 214 feet	60 feet up to but not including 66 feet
VI	214 feet up to but not including 262 feet	66 feet up to but not including 80 feet

The aircraft approach speed element of the ARC will generally deal with runways and runway related facilities whereas the airplane design group relates to separations required between airfield elements, i.e., runway-taxiway separations, taxilane, and apron clearances, etc.

Design Aircraft and Associated Airport Reference Code

The ARC to be used for airport master planning, as well as airport layout plans, is the ARC category applicable to the most demanding class of aircraft estimated to fly at least 500 annual operations at the airport. The current Airport Layout Plan (ALP) indicates an ARC of B-II for the airport. This is appropriate for future planning and will accommodate business aircraft such as Cessna Citation series aircraft. Table 5-1 depicts representative aircraft that this ARC accommodates and also lists their physical characteristics.

ARC B-II will be used for existing and future planning purposes. Application of planning and design standards for ARC B-II ensures that all general aviation aircraft that currently use the airport will be provided facilities

that are designed to appropriate standards, in accordance with the planning standards contained in FAA AC 150/5300-13, Airport Design. Table 5-2 presents the FAA airport planning standards for Airport Reference Code B-II.

Table 5-1
REPRESENTATIVE DESIGN AIRCRAFT


Item	Cessna 150	Cessna 550 (II)	Cessna CJ2
Airport Reference Code	A-I	B-II	B-II
Approach speed (knots)	55	108	122
Wingspan (feet)	32.7	51.7	49.8
Length (feet)	23.8	47.2	47.7
Undercarriage width (feet)	6.58	12.58	15.95
Tail height (feet)	8.0	15.0	14.0
Max. design takeoff weight (pounds)	1,600	13,300	12,500
Max. design landing weight (pounds)	1,600	12,700	11,525
Maximum fuel capacity (US gallons)	26	835	655
Standard Seating Capacity (seats)	2	10	10

Source: AECOM

Table 5-2
AIRPORT PLANNING STANDARDS
FOR AIRPORT REFERENCE CODE B-II

AIRPORT DESIGN AIRPLANE AND AIRPORT DATA

Aircraft Approach Category ..... B
Airplane Design Group II
Airplane wingspan ..... 79 feet
Runway 25 end approach visibility minimum ..... Not lower than 1 mile
Runway 7 end approach visibility minimums ..... Visual exclusively
Airplane undercarriage width (1.15 x main gear track) ..... 14.47 feet
Airport elevation ..... 88 feet
Airplane tail height ..... 15 feet

SEPARATION STANDARDS

Runway centerline to parallel runway centerline ..... 700 feet
wider runway separation may be required for capacity (See AC 150/5060-5)
Runway centerline to parallel taxiway/taxilane centerline ..... 240 feet
Runway centerline to edge of aircraft parking ..... 250 feet
Taxiway centerline to parallel taxiway/taxilane centerline ..... 105 feet
Taxiway centerline to fixed or movable object ..... 65.5 feet
Taxilane centerline to parallel taxilane centerline ..... 97 feet
Taxilane centerline to fixed or movable object ..... 57.5 feet

RUNWAY PROTECTION ZONES

Runway protection zone: (Runways 7 and 25)
Length ..... 1,000 feet
Width 200 feet from runway end ..... 500 feet
Width 1,200 feet from runway end ..... 700 feet

Table 5-2 (cont'd)
AIRPORT PLANNING STANDARDS
FOR AIRPORT REFERENCE CODE B-II

OBSTACLE FREE ZONES

Runway obstacle free zone width	400 feet
Runway obstacle free zone length beyond each runway end	200 feet
Inner-approach obstacle free zone width	400 feet
Inner-approach obstacle free zone length beyond approach light system	200 feet
Inner-approach obstacle free zone slope from 200 feet beyond threshold	50:1

RUNWAY DESIGN STANDARDS

Runway width	75 feet
Runway shoulder width	10 feet
Runway blast pad width	95 feet
Runway blast pad length	150 feet
Runway safety area width	150 feet
Runway safety area length beyond each runway end or stopway end, whichever is greater	300 feet
Runway object free area width	500 feet
Runway object free area length beyond each runway end or stopway end, whichever is greater	300 feet
Clearway width	500 feet
Stopway width	75 feet

TAXIWAY DESIGN STANDARDS

Taxiway width	35 feet
Taxiway edge safety margin	7.5 feet
Taxiway shoulder width	10 feet
Taxiway safety area width	79 feet
Taxiway object free area width	131 feet
Taxilane object free area width	115 feet
Taxiway wingtip clearance	26 feet
Taxilane wingtip clearance	18 feet

Source: FAA Advisory Circular 150/5300-13, Airport Design, Change 15 dated December 31, 2009.

AIRFIELD CAPACITY

Annual and Hourly Capacity

Hourly runway capacities and annual service volume (ASV) estimates are needed to design and evaluate airfield development and improvement projects. The approach for estimating airport capacity in this study used capacity estimates contained in FAA AC 150/5060-5, Airport Capacity and Delay. The advisory circular contains capacity and delay estimates suitable for long range planning and the conditions at Lompoc. The capacity assumptions listed in the advisory circular are applicable to Lompoc. These include:

- A mix index of 0 to 20.
- A runway configuration (single runway) addressed in the AC.
- Percent arrivals equal to departures.
- Percent touch and go's between 0 and 40 percent.
- A full length parallel taxiway with ample runway exits.

Based on guidelines contained in the advisory circular the ASV is identified as 220,000 operations. An hourly VFR capacity estimate of 115 operations and an hourly IFR capacity of 26 operations are also identified.

It should be noted that the ASV represents the capacity of the present airport. It is also important to note the capacity of an airport is not constant and may vary over time depending upon airfield improvements, airfield or airspace geometry, ATC procedures, weather, and mix of aircraft operating at the airport. The capacity of an airport can change with or without airfield improvements.

Demand Versus Capacity

By comparing ASV and hourly capacities with the forecast annual and peak hour demand, the relationship between demand and capacity can be determined. Table 5-3 presents the comparisons of demand versus capacity and as seen, the present airfield will accommodate annual demand through the planning period.

Table 5-3
DEMAND VERSUS CAPACITY

	2015	2020	2030
ANNUAL:			
Demand	45,700	51,100	62,600
Capacity	220,000	220,000	220,000
% Capacity Utilized	21%	23%	28%
WEIGHTED HOURLY:			
Demand	18	20	25
Capacity	112	112	112
% Capacity Utilized	16%	18%	22%

Source: AECOM

Throughout the twenty-year planning period, capacity is adequate and the relationship of demand and capacity is below a threshold when capacity improvements are usually considered. Generally, capacity improvements should be recommended when demand is forecast to utilize 60 percent of capacity. This allows sufficient lead time to develop improvements before the airport becomes saturated. Airport activity levels warranting capacity improvements are contained in FAA Order 5090.3C. As seen in Table 5-3, the forecast demand utilizes 28 percent of annual and 22 percent of hourly capacity, which is well below the 60 percent planning threshold.

From this comparison of demand and capacity it is concluded that airfield capacity is sufficient to accommodate forecast operations and airfield (runway/taxiway) improvements are not warranted based upon capacity reasons. In fact, should operations occur at levels noted in the High Growth Forecast, by 2030, only 45 percent of annual and 36 percent of weighted hourly capacity would be utilized. Although the implementation of additional airfield capacity is not warranted strictly from a capacity standpoint, there may be equally important considerations that dictate otherwise.

AIRSIDE FACILITY REQUIREMENTS

As discussed earlier, the airside operating element as used in this report includes the runway and taxiway system, the runway approach areas and the associated appurtenances such as airfield lighting, visual aids, and navigation aids. With the exception of aircraft aprons which, due to their interface with terminal facilities, are analyzed as a landside element, airside refers to those airport areas where aircraft operations are conducted. The ability of the present airside facilities to accommodate existing and future traffic loads and the facilities required through the year 2030 are examined in the following subsections.

Runway System

The existing runway system was described in Chapter 3. This section deals with runway requirements needed to satisfy the forecast demand in terms of runway length, pavement strength requirement, crosswind coverage, and safety areas. Planning and design standards set forth in FAA AC 150/5300-13, Airport Design, for airport reference code B-II are the basis of this analysis. This will provide satisfactory facilities for the variety of aircraft expected to use the airport.

When determining runway requirements it is important to account for the type of approach the airport has or can be expected to have. Runways with lower visibility minimums have more restrictive requirements. Currently Runway 25 is equipped for non-precision instrument approaches with visibility minimums not lower than 1 mile. For the purpose of this master plan, these instrument approach capabilities are assumed in the future for Runway 25. Through the based aircraft owner's survey, based aircraft owners expressed a desire for lower visibility ceilings, on the order of 400 to 600 feet. A desire for an LDA, ILS, LPV, or WAAS approach was noted. Providing for lower approach minima will be evaluated in the next phase of the Master Plan: Concept Development.

Crosswind Runway

The existing runway system provides 97.23 percent coverage for a 10.5 knot (12 mph) crosswind, 98.74 percent coverage for a 13 knot (15 mph) crosswind. FAA states in AC 150/5300-13 that the allowable crosswind is 10.5 knots for Airport Reference Codes A-I and B-I, 13 knots for Airport Reference Codes A-II and B-II. The coverage provided by the existing runway alignment meets the FAA recommendation of 95 percent crosswind coverage, thus additional runways for improved crosswind coverage are not required.

Runway Length

This subsection deals with the runway length requirements for the existing runway at Lompoc. Runway length is a critical consideration in airport planning and design. Aircraft need specified runway lengths to operate safely under varying conditions of wind, temperature, and takeoff weight.

FAA Advisory Circular 150/5325-4B contains criteria used in developing runway lengths required for various general aviation utility and transport airports. The recommended runway lengths are based on performance information from manufacturer's flight manuals in accordance with provisions in FAR (Federal Aviation Regulations) Part 23, Airworthiness Standards: Normal, Utility, and Acrobatic Category Airplanes, and FAR 91, General Operating and Flight Rules.

Aircraft performance combined with significant site characteristics are considered in analyzing runway length. The site characteristics that are evaluated include: airport elevation, temperature (mean maximum temperature of the hottest month), runway gradient, and wind conditions.

The FAA Airport Design (Version 4.2d) software package contains a program to calculate typical runway requirements for various classes of aircraft. This model was applied and the results are presented in Table 5-4. The airport site characteristics used in the runway length analysis were:

- Elevation - 88 feet MSL
- Temperature – 75°F (September)
- Maximum Difference in Runway Centerline Elevation – 9 feet
- Surface Winds – Calm

Table 5-4
FAA RECOMMENDED RUNWAY LENGTHS
FOR LOMPOC AIRPORT

AIRPORT AND RUNWAY DATA

Airport elevation ..... 88 feet
Mean daily maximum temperature of the hottest month ..... 75° F
Maximum difference in runway centerline elevation ..... 9 feet

RUNWAY LENGTHS RECOMMENDED FOR AIRPORT DESIGN

Small airplanes with approach speeds of less than 30 knots ..... 300 feet
Small airplanes with approach speeds of less than 50 knots ..... 810 feet
Small airplanes with less than 10 passenger seats
- 75 percent of these small airplanes ..... 2,380 feet
- 95 percent of these small airplanes ..... 2,920 feet
- 100 percent of these small airplanes ..... 3,470 feet

Small airplanes with 10 or more passenger seats ..... 4,020 feet

Large airplanes of 60,000 pounds or less
- 75 percent of these large airplanes at 60 percent useful load ..... 5,260 feet
- 75 percent of these large airplanes at 90 percent useful load ..... 6,630 feet
- 100 percent of these large airplanes at 60 percent useful load ..... 5,500 feet
- 100 percent of these large airplanes at 90 percent useful load ..... 7,230 feet

Sources: FAA Advisory Circular 150/5325-4B, Runway Length Requirements for Airport Design.
AECOM application of FAA Airport Design (Version 4.2d).

The present length of Runway 7-25 is 4,600 feet which is estimated to satisfy the requirements for 100 percent of all small airplanes with 10 or more passenger seats. The runway does not accommodate most large aircraft weighing less than 60,000 pounds. As evidenced by recent and current operations, only small to medium sized business jets operate out of Lompoc. These aircraft include Cessna Citations and Hawkers.

The current runway length accommodates 75 percent off these large airplanes at approximately 45 percent useful load. Extending the runway 660 feet, to an overall length of 5,260 feet, will accommodate 75 percent of large airplanes at a reasonable 60 percent useful load. However, it is recognized that physical constraints, Santa Ynez River floodplain to the west and Highway 1/North 'H' Street on the east, effectively limit potential runway extensions to approximately 260 feet. A runway extension to the extent that it is practical is recommended to enhance operations of tourist and corporate aircraft. It is estimated that a 4,860-foot long runway would accommodate 75 percent of large airplanes at a 51 percent useful load. This modest extension will allow most small to medium sized business jets to operate at or near maximum loading factors. Business jets that currently use the airport – such as the Falcon 900 – do so under a weight penalty.

However, should the Santa Ynez River flood plains be re-evaluated and it is found that flood conditions change, the City should evaluate potential extensions to Runway 7 for an overall runway length of 5,260 feet.

Runway Width

Runway width is a dimensional standard that is based upon the physical and performance characteristics of aircraft using the airport (or runway). The characteristics of importance are wingspan and approach speeds. In this case, FAA airplane design group II (wingspans up to but not

including 79 feet) and approach category B are used and will provide adequate width and separation for current and anticipated aircraft operations. FAA AC 150/5300-13 specifies a runway width of 75 feet for an airport reference code of B-II. The present runway is 100 feet wide and exceeds the standard.

Runway Grades

The maximum longitudinal grade is 2.0 percent for runways serving aircraft approach category B aircraft. The existing maximum longitudinal runway grade is 0.2 percent and therefore longitudinal grades for the runway meet design standards. The runway should have adequate transverse slopes to prevent the accumulation of water on the surface. A maximum transverse grade of 1.0 to 1.5 percent is recommended for the airport by FAA. Based on inspection of as-built drawings obtained for this study, the runway complies with these standards. The data reviewed was from the March 2000 AIP 7 and 8 runway extension projects; City project number AP-8.

Pavement Strength

As mentioned in Chapter 3, based on information contained in the latest U.S. Government Flight Information Publication/Facility Directory the runway pavement strength is 17,000 pounds for single wheel landing gears. This is adequate to accommodate aircraft expected to use the airport in the future. Therefore strengthening of the runway pavement is not required. However, should operations of larger jets, such as the Dassault Falcon 900 become more frequent; pavement strengthening may need to be considered.

Airfield Signage

Lompoc Airport has some lighted arrows denoting taxiway exit locations along the runway. Runway signage should be expanded to include:

- Holding position signs along with taxiway location signs on all taxiways that intersect the runway.
- Runway exit signs for both runway directions at all taxiway exits.
- Taxiway designation signs.
- Runway remaining signs.
- Location signs for aircraft taxiing from the runway ends toward the terminal.

All signs should be installed in accordance with FAA AC 150/5340-18, current version.

Runway Shoulders

Runway 7-25 does not have shoulders. It is suggested that 10-foot shoulders be provided along the runway on both sides to provide for increased safety and drainage.

Runway Blast Pads

A runway blast pad provides blast erosion protection beyond runway ends. Runway blast pads are required to be the width of the runway plus the shoulder – 120 feet wide at Lompoc – and 150 feet long in accordance with airport reference code B-II criteria. Presently, Runway 7-25 has no blast pads. At a minimum a blast pad should be constructed on Runway 25. Consideration may also be given to erecting a blast fence along Highway 1/North ‘H’ Street, to minimize dust blowing across the road and protect the road from occasional jet blast.

Runway Safety Area

A runway safety area (RSA) is defined as a rectangular area centered about the runway that is cleared, drained, graded, and usually turfed. Under normal conditions, this area should be capable of accommodating occasional aircraft that may veer off the runway, as well as fire fighting equipment. For Lompoc Airport, the existing and future requirement for Runway 7-25 to accommodate airport reference code B-II is an area 150 feet wide centered on the runway centerline, and extending 300 feet beyond each runway end. The RSA at both runway ends (7 and 25) are completely on airport property. There are specific FAA clearing and grading standards for runway safety areas. The existing runway safety areas appear to meet these standards.

Runway Obstacle Free Zone

The runway obstacle free zone (OFZ) is a volume of airspace centered above the runway centerline. The runway OFZ is the airspace above a surface and the elevation at any point on the surface is the same as the nearest point on the runway centerline. The OFZ clearing standard precludes taxiing and parked airplanes and object penetrations, except for frangible visual NAVAIDs that need to be located in the OFZ because of their function. The design standards for an ARC of B-II call for an OFZ extending 200 feet beyond each of the runway ends. For runways serving large airplanes (12,500 pounds or more) the width of the OFZ is 400 feet, 200 feet on either side of the runway centerline. The northwestern most corner of Runway 7's OFZ is traversed by a dirt road used by the adjacent sand and gravel company. However, due to the fact that the road is in the Santa Ynez River bed, it is significantly lower than the runway elevation, and vehicles traversing the road do not penetrate the runway OFZ.

Runway Object Free Area

The runway object free area (ROFA) is a two dimensional ground area surrounding the runway and its clearing standard precludes parked aircraft, agricultural operations, and objects, except those fixed by function. The ROFA clearing standard requires clearing of the ROFA of above ground objects protruding above the RSA edge elevation (except those fixed by function). The criterion replaces the former design standard of the aircraft parking limit line and is designed with the intention of providing adequate wing-tip clearance. The design standards for an ARC of B-II call for a ROFA extending 250 feet on either side the runway centerline and extending 300 feet beyond the end of the runway. Object free areas also exist for taxiways and are 131 feet wide (65.5 feet on either side of centerline) for airplane design group II. The northwestern most corner of Runway 7's ROFA is traversed by a dirt road used by the adjacent sand and gravel company. However, due to the fact that the road is in the Santa Ynez River bed, it is significantly lower than the RSA, and vehicles traversing the road do not penetrate the ROFA. In addition, that same corner includes dense trees, also below the ROFA elevation.

Threshold Siting Surface

Appendix 2 of FAA Advisory Circular 150/5300-13, Airport Design, contains guidance on locating runway thresholds to meet approach obstacle clearance requirements using threshold siting surfaces. If an object penetrates a threshold siting surface, one or more of the following actions is required: 1) the object is removed or lowered to preclude the penetration; 2) the threshold is displaced to preclude the object penetration; 3) visibility minimums are raised; 4) night operations are prohibited; or 5) the threshold crossing height is raised (applicable if there is an approach with vertical guidance).

The shape, dimensions and slope of a threshold siting surface are dependent upon the type of aircraft operations, landing visibility minimums and types of instrumentation available. For the purpose of this analysis, a threshold siting surface for the following type of runway is assumed:

- Runway 7: "Approach end of runways expected to serve large airplanes (visual day/night); or instrument minimums greater than or equal to 1 statute mile (day only)."
- Runway 25: "Approach end of runways expected to support instrument straight-in night operations, serving approach category A and B aircraft only."

For Runway 7, the applicable threshold siting surface is described as follows. The surface begins 200 feet from the threshold and the centerline of the surface extends 10,000 feet along the extended runway centerline. The surface measures 200 feet laterally on each side of the centerline at the runway threshold and increases to a width of 500 feet on each side of the runway centerline at 1,500 feet from the runway threshold. The surface continues at 1,000 feet wide for another 8,500 feet. The beginning of the elevation is the runway threshold elevation, and the surface extends outward and upward at a slope of 20 to 1.

The threshold siting surface for Runway 25 is described as follows. The centerline of the surface extends 10,000 feet along the extended runway centerline. The surface extends laterally 200 feet on each side of the centerline 200 feet from the runway threshold and increases to a width of 1,900 feet on each side of the runway centerline at 10,200 feet from the runway threshold. The beginning of the elevation is the same as the runway threshold, and the surface extends outward and upward at a slope of 20 to 1.

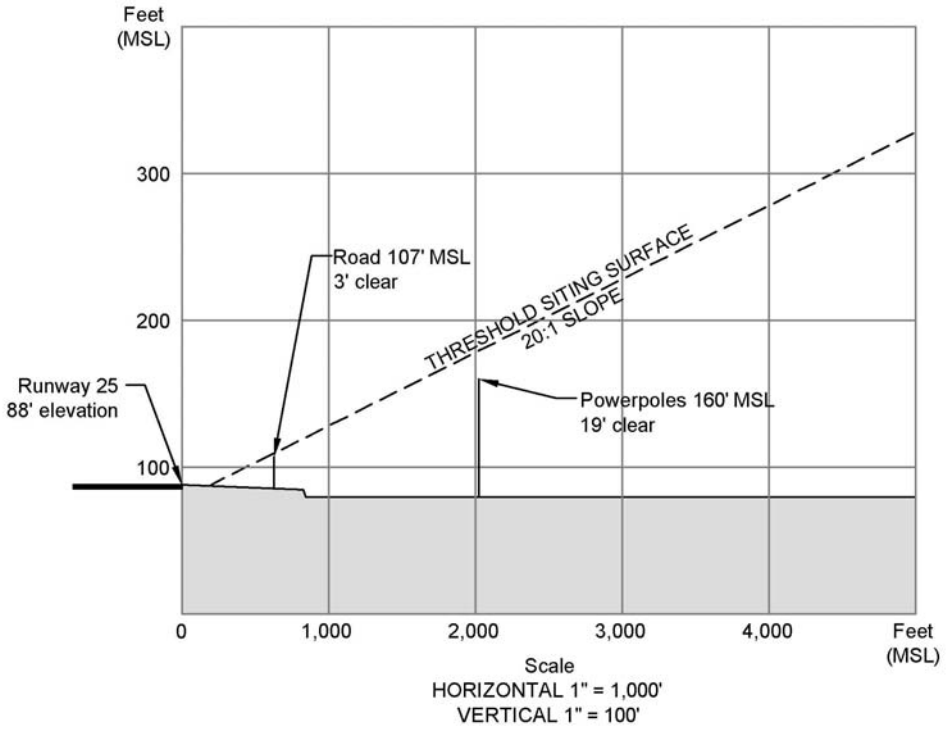
The existing instrument approaches for Runway 25 are only available for approach category A and B aircraft and visibility minimums are 1 statute mile. As was previously noted, the ability to provide a better instrument approach is analyzed in the next phase of the master plan.

Based on a review of the obstacles in the vicinity of the airport and current threshold siting criteria, it is found that the existing Runway 25 displaced threshold of 116 feet is not properly located. The controlling obstacle is Highway 1/North 'H' Street. The road height is 107 feet above mean sea level (MSL) 628 feet from the runway end, which includes a 17-foot allowance for tractor trailers. Another notable object in the vicinity of the airport are power lines, which are estimated at 160 feet MSL, 2,023 feet from the Runway 25 end. The Runway 25 end elevation is 88 feet MSL. Locating the threshold siting surface with respect to the runway threshold (physical runway end) results in a 3-foot clearance over the road and a 19-foot clearance over the power-lines (see Figure 5-1). Therefore, no displaced threshold is needed for Runway 25.

Approach Surfaces and Runway Protection Zones

The approach surface and the runway protection zone (formerly called clear zone) are important elements in the design of runways which help to ensure the safe operations of aircraft. A brief description of these two areas follows:

- **The Approach Surface** is an imaginary inclined plane beginning at the end of the primary surface and extending outward to distances up to 10 miles depending on runway use (i.e., instrument or visual approaches). The width and slope of the approach surface are also dependent on runway use. The approach surface governs the height of objects on or near the airport. Objects should not penetrate or extend above the approach surface. If they do, they are classified as obstructions and must be either marked or removed.



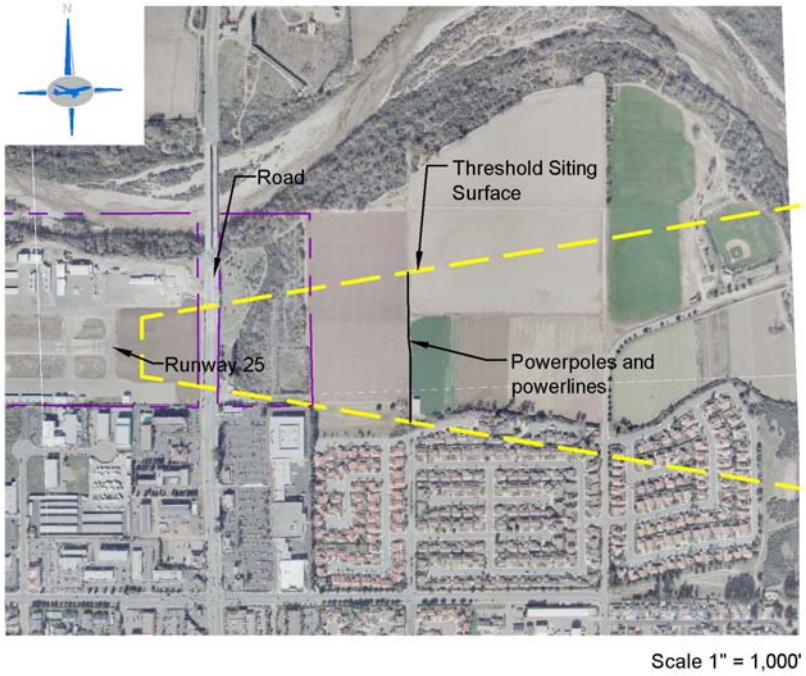


Figure 5-1
Threshold Siting Surface

- **The Runway Protection Zone** is an area at ground level that provides for the unobstructed passage of landing aircraft through the above airspace and is used to enhance the protection of people and property on the ground. The runway protection zone (RPZ) begins at the end of the primary surface and has a size which varies with the designated use of the runway. Land uses specifically prohibited from the RPZ are residences and places of public assembly (churches, schools, hospitals, office buildings, shopping centers, and other uses with similar concentrations of persons typify places of public assembly). Fuel storage facilities are also prohibited within the RPZ.

Federal Aviation Regulations Part 77 indicates that the approach surface should be kept free of obstructions to permit the unrestricted flight of aircraft in the vicinity of the airport. As the type of instrument approach to a runway becomes more precise, the approach surface increases in size and the required approach slope becomes more restrictive.

The runway protection zone is the most critical safety area under the approach path and should be kept free of all obstructions. No structure should be permitted nor the congregation of people allowed within the runway protection zone. Control of the runway protection zone by the airport owner is essential. It is desirable, therefore, that the airport owner acquire adequate property interests, preferably in fee title, in the runway protection zone to ensure compliance with the above.

As indicated above, the approach and runway protection zone dimensions are dependent on the type of approach being made to a runway. Presented in Table 5-5 are runway protection zone dimensions for various type runways. RPZs for each runway end can be different depending upon approaches available to the runway. The RPZ for Runway 7 has an inner width of 500 feet, an outer width of 700 feet, and is 1,000 feet long. The previous master plan provided a slightly larger RPZ for Runway 25, providing enhanced protection. The RPZ has an inner width of 1,000 feet, an outer width of 1,510 feet, and a length of 1,700 feet. This larger RPZ will be retained in this master plan.

Table 5-5
RUNWAY PROTECTION ZONE DIMENSIONS

Approach Visibility Minimums	Facilities Expected To Serve	Runway Protection Zone Dimensions			
		Length (Feet)	Inner Width (Feet)	Outer Width (Feet)	Area (Acres)
Visual and Not lower than 1 mile	Small Aircraft Exclusively	1,000	250	450	8.035
	Aircraft Approach Categories A & B	1,000	500	700	13.770
	Aircraft Approach Categories C & D	1,700	500	1,010	29.465
Not lower than ¾ mile	All Aircraft	1,700	1,000	1,510	48.978
Lower than ¾ mile	All Aircraft	2,500	1,000	1,750	78.914

Source: FAA Advisory Circular 150/5300-13, Airport Design.

Approximately 7.8 acres of the Runway 7 RPZ are not within airport property and the RPZ includes a portion of the Santa Ynez River. The off-airport portion of the Runway 7 RPZ lies within the Santa Ynez flood plain, which prevents development. Approximately 40 percent of the Runway 25 RPZ extends beyond airport property. The RPZ includes a detention basin and animal shelter (which are located on airport property) along with a section of Highway 1/North 'H' Street. The portion of the RPZ that extends beyond airport property is part of the Santa Ynez flood plain, preventing development.

Building Restriction Line

According to AC 150/5300-13, the building restriction line (BRL) is defined as a line identifying suitable building area locations on airports. It encompasses runway protection zones, runway object free areas, runway and taxiway visibility zone critical areas, areas required for terminal instrument procedures, and airport traffic control tower clear line of sight.

In the case of Lompoc, the BRL depicted on the previous ALP was located at 360 feet north of the runway centerline and 335 feet south of the runway centerline, extending out to the airport boundary. The BRL defines the maximum building area on the airport. However, ultimate developments should also comply with FAR Part 77 imaginary surfaces. According to FAR Part 77, buildings built along the BRL on the north side can be no taller than 15.7 feet and on the south side, no taller than 12.1 feet above the nearest runway elevation. The BRL from the previous ALP is retained in this master plan.

Taxiways

Runway 7-25 has a centerline-to-centerline separation from the north parallel taxiway of 250 feet, which exceeds requirements contained in FAA AC 150/5300-13, Airport Design, for airport reference code B-II (240 feet is required). The centerline-to-centerline separation from the runway to the south parallel taxiway is 240 feet, which meets FAA design standards. The FAA runway to parallel taxiway standard precludes any part of an airplane (tail, wingtip, nose, etc.) on a parallel taxiway centerline from being within the runway safety area or penetrating the OFZ. As previously noted, the airport taxiways are undesignated. Taxiway designations are defined in the next phase of the master plan.

Airspace and Navigational Aids

There are no special use airspace areas such as restricted, prohibited, or warning areas that influence the airport. Vandenberg Air Force Base airspace is close to Lompoc Airport, but airplanes are provided enough space to turn out before entering the restricted areas associated with Vandenberg AFB. Over-flights of the Federal Corrections Facility are discouraged

The airspace in the immediate vicinity of Lompoc is Class E (starting at the surface). As it was described in Chapter 3, the airport has two instrument approaches, is a non-towered airport, and has various visual aids. Runway 25 is served by a GPS and a VOR approach. These approaches permit landings with visibilities as low as one mile and a 700-foot minimum descent height. Runway 25 is equipped with a four-box visual approach slope indicator (VASI) with a 3-degree glide path and runway end identification lights (REIL). Consideration may be given to replace the VASI with a PAPI (precision approach path indicator).

Next Generation Air Transportation System (NextGen)

NextGen will reshape the national airspace system by 2025. Changes will affect not only airspace and navigational aids, but will affect all phases of a flight, from flight planning, to the landing. The FAA has detailed plans for mid-term implementation (year 2018). Most technology being implemented during the mid-term will utilize advanced avionics found on modern aircraft. Changes to the national airspace system will be most noticeable in and around large commercial service airports, such as Los Angeles,

San Francisco, and Oakland International Airports. Smaller outlying general aviation airports, like Lompoc, will not be immediately impacted by NextGen; but may benefit from enhanced GPS instrument approach procedures and more direct en route navigation.

Since one of the goals of NextGen is to reduce aviation's impact on the environment, alternative fuels are being considered and developed. This is a long-term implementation, seeking to replace current leaded aviation fuels (Avgas) and could potentially have an impact on general aviation. Storage requirements for alternative fuel may also be different than Avgas, but it is assumed that regardless of the selected fuel, storage tanks will be required.

LANDSIDE FACILITY REQUIREMENTS

The airport landside system is comprised of all facilities supporting the movement of goods between the community's ground transportation system and the airport's airside system, and also any facilities used in the maintenance or protection of those facilities. For Lompoc, these include general aviation terminal/administration building, aircraft storage and services, and airport support facilities. The landside elements, together with the previously discussed airside elements, form all of the airport development facilities required to accommodate the forecast level of traffic.

Since the airfield development program has been based upon an ultimate level of some 62,600 operations and 114 based aircraft (under the Baseline Forecast), the planning of landside facilities should be based upon striking a balance of airside and landside capacity. The determination of general aviation and support area facilities has been accomplished for the three future planning periods of 2015 (short-term), 2020 (intermediate-term), and 2030 (long-term). As previously noted, facility requirements for the long-term High Growth Forecast are included in this section to illustrate facilities needed should greater demand occur than anticipated in the Baseline Forecast.

The following subsections present the rationale for determining future landside facility requirements to serve the general aviation role of the airport.

General Aviation Terminal/Administration Building

Terminal facilities at Lompoc relate to those required to support general aviation operations. The existing terminal building is about 1,165 square feet and accommodates the airport manager's office, transient pilots, and a small meeting room. As previously noted, the building was built in the 1960s.

The amount of general aviation terminal space required is based upon the expected demand, i.e., the peak hourly volume of pilots and passengers who will use the facilities. A planning standard of 49 square feet per peak hour pilot/passengers is used to determine the required area. Table 5-6 shows the breakdown of the planning standard. An estimated 2.5 pilot/passengers are assumed per peak hour operation. Table 5-7 shows the building requirements that were calculated using the above approach.

As Table 5-7 indicates, a terminal area requirement of approximately 3,100 square feet is required in 2030. To accommodate approximately 3,100 square feet of area for pilots/passengers, either the existing terminal building should be expanded by 1,900 square feet, or a replacement facility provided. Since the airport manager also manages the City Transit System, consideration may be given to developing a joint facility that houses City Transit functions. Approximately 20,000 square feet of office space is required for City Transit operations. Additionally, a 4-6 acre City Transit Yard should be set aside for bus and employee parking, wash racks, and a fuel facility.

Table 5-6
DERIVATION OF REQUIREMENTS FOR
GENERAL AVIATION TERMINAL BUILDINGS

Operational Use	Area Required (SF) Per Peak Hour Pilot/Passenger
Waiting Area/Pilot's Lounge	15
Management Operations	3
Public Conveniences	1.5
Concessions, Dining, etc.	5
Circulation, Mechanical, Maintenance	24.5
Total	49

SF – Square Feet
Note: Space requirements for circulation, mechanical, and maintenance should be allocated equally among other terminal building uses in calculating total building requirements.

Table 5-7
GENERAL AVIATION TERMINAL AREA REQUIREMENTS

Item	2015	2020	2030	HGF 2030
Peak Hour Operations	18	20	25	40
Total Peak Hour Occupants	45	50	63	100
Area/Occupant (SF)	49	49	49	49
Total Building Area (SF)	2,205	2,450	3,087	4,900

HGF – High Growth Forecast; SF – Square Feet
Source: AECOM

Transient Aircraft Parking Apron

The overall requirements for facilities are driven by the desires of the market. Aircraft parking apron is required primarily for visiting transient aircraft as most based aircraft are stored in hangars. These are aircraft that land at Lompoc, but are based elsewhere. A busy itinerant day is derived from the average day of the peak month forecasts (ADPM) of aircraft activity and forms the basis of estimating transient parking apron requirements.

Transient aircraft parking apron requirements were determined by applying the following assumptions to itinerant movements performed by transient aircraft on an ADPM.

- Transient operations are approximately 50 percent of itinerant aircraft operations.
- The majority of transient aircraft will arrive and depart on the same day, thus it is assumed that the actual number of aircraft utilizing the parking apron is one-half (50 percent) of the transient movements being performed on the average day of the peak month.
- During the planning period, 50 percent of the transient aircraft will be on the ground at any given time.
- Thus, 25 percent of transient operations (during ADPM) will be temporarily parked on the transient apron.

- Single engine aircraft require 2,700 square feet (300 square yards) of apron space; multi-engine aircraft and helicopters require 5,625 square feet (625 square yards); and business jets require 14,400 square feet (1,600 square yards) of apron for parking and maneuvering.

Summarized in Table 5-8 are the transient apron requirements.

The analysis concludes that roughly 6,425 square yards of apron for 16 aircraft are required to accommodate transient demand in 2030. Currently only 3 of 44 existing tie-down areas are being used for based aircraft. Some of the remaining 41 could be used as transient tie-downs. This is also sufficient tie-downs to accommodate High Growth Forecast levels (25 tie-downs required). There are approximately 35,400 square yards of aircraft apron, of which 24,675 square yards are the tie-downs. The rest of the apron is used for fuel facilities and as ramp space. Since existing based aircraft tie-down spaces are underutilized, tie-downs could be designated as transient. Construction of additional apron will not be required for the purposes of transient aircraft parking. However, consideration should be given to designate transient tie-down areas for special events, such as the annual Piper Cub Fly In. As discussed in Chapter 3, transient tie-downs are dispersed throughout the airport. These areas serve as transient tie-downs as they are near the winery, hotel, and terminal. Rehabilitation of the north apron should occur in the short-term.

Table 5-8
TRANSIENT AIRCRAFT TO BE ACCOMMODATED ON TRANSIENT AIRCRAFT APRON

Number of Aircraft to be Accommodated	2015	2020	2030	HGF 2030
Annual Transient Operations	11,425	14,050	18,800	29,650
Peak Month Transient Operations	1,143	1,405	1,880	2,965
ADPM Transient Operations	38	47	63	99
Number of Aircraft Parked	10	12	16	25
Size of Transient Aircraft Apron				
Single Engine: Number of Aircraft [a]	9	11	14	21
Area/Aircraft (SY)	300	300	300	300
Apron Area (SY)	2,700	3,300	4,200	6,300
Multi- Engine/Helicopter: Number of Aircraft [a]	1	1	1	2
Multi-Engine/Helicopter: Area/Aircraft (SY)	625	625	625	625
Apron Area (SY)	625	625	625	1,250
Turboprop/Business Jet: Number of Aircraft [a]	0	1	1	2
Turboprop/Business Jet: Area/Aircraft (SY)	1,600	1,600	1,600	1,600
Apron Area (SY)	0	1,600	1,600	3,200
Total Aircraft	10	13	16	25
Total Apron Area (SY)	3,325	5,525	6,425	10,750

HGF – High Growth Forecast; SF – Square Feet; SY – Square Yards
[a] Based upon estimated transient aircraft operations.
Source: AECOM

Based Aircraft Storage

Aircraft based at the airport can be stored either by occupying a paved tie-down parking space or by storage within a hangar. The number of aircraft stored in hangars varies according to the desire for hangar space versus apron storage, the economics of providing hangars, and the severity of weather conditions prevailing at the airport location. The number of based aircraft at Lompoc may increase from the present level of approximately 70 to 114 aircraft in the year 2030 under the Baseline Forecast. Adequate storage facilities should be provided to accommodate forecast based aircraft. In determining the demand for the various types of storage, the following assumptions were made:

- Due to the apparent underutilization of the existing apron areas, predominance of based aircraft in hangars, and prevailing weather conditions present at Lompoc, it is assumed that all based aircraft will be stored in hangars.
- It is assumed that all "other" aircraft will be stored in individual hangars. Aircraft classified as "other" include ultra-light, glider, and home built aircraft.
- It is assumed that all single engine and multi-engine aircraft will be stored in individual hangars. Multi-engine aircraft will require a larger size individual hangar.
- All turboprops and business jets will be stored in conventional hangars and each will require 4,500 square feet of floor space.
- It is assumed that helicopters will be stored in conventional hangars with each helicopter requiring 1,620 square feet of floor space.

For the purpose of this analysis of facility requirements, hangars are generally categorized into two basic types, "conventional" bay, or community type hangars and "individual" hangars. Conventional hangars are large structures that will accommodate several aircraft of different sizes in an open bay, while individual hangars are sized to accommodate one aircraft. Individual hangars may be portable hangars, T-hangars, or rectangular ("box") hangars. Conventional hangars can serve business jets and individual hangars primarily serve personal use aircraft and smaller business use aircraft. Individual hangars can be combined to create an apparently larger structure. Figure 5-2 presents the different types of individual hangars and a typical conventional hangar.

For the purpose of this analysis, individual hangar requirements are determined as number of spaces, or units, and may be provided through a mix of rectangular, T-hangar, and portable hangars. Table 5-9 summarizes the storage hangar requirements for based aircraft determined in this analysis. The analysis is based on the Baseline Forecast.

Table 5-10 shows that if based aircraft increase as forecast, 37 new T-hangars will be needed in addition to eventual replacement/rehabilitation of old hangars. The replacement/rehabilitation of old hangars should be anticipated, especially for hangars that are currently in poor condition. These hangars include the maintenance hangar and hangars in rows A-D (the City owned hangars). Hangars in fair condition will require periodic maintenance and include the east portables, G-Hangars, F-Hangars, west F-Hangars, south portable east, and south portable west hangars. It is to be noted, that currently there are 15,000 square feet of conventional hangar space. Forecast 2030 facility requirements only show a need for 12,000 square feet.

The Baseline Forecast projects 107 single engine, 2 multi-engine, and 1 "other" aircraft in the year 2030. These are assumed to be stored in individual hangars. In addition, forecasts show two turboprop/business jets and two helicopters, which are proposed to be stored in conventional hangars. As it can be seen from the previous summary table (Table 5-10), an additional 37 individual hangars are required in 2030. While individual hangars (T-hangars and/or rectangular hangars) are expected to be the primary means of housing

based aircraft, the airport layout plan should also provide adequate space for construction of conventional hangars for aircraft storage or servicing. Should High Growth Forecast demand levels occur, a need for 73 additional individual hangars and approximately one additional conventional hangar may be needed by 2030.

Three approaches are available to the City in providing hangars. The first would involve leasing land to aircraft owners and allowing them to construct their own hangars. To assure uniformity in construction as well as visually pleasing results, the airport owner (the City) could control the type of hangar built by a clause in the land lease. An alternative to the above would be for the airport owner to construct the hangars and then rent or lease them to aircraft owners. If this approach is followed, firm commitments for their use should be made before construction of the hangars are undertaken. A third approach is to have a complex of hangars built by a private party on property leased by the airport. An example of this approach is the recently constructed "round-top" hangars located north of the runway.

Table 5-9
BASED AIRCRAFT STORAGE HANGAR
REQUIREMENTS BASED ON BASELINE FORECAST

	2015	2020	2030	HGF 2030
Single Engine Piston				
Number of Based Aircraft	80	90	107	134
Number of Aircraft in Individual Hangar*	80	90	107	134
Multi-Engine Piston				
Number of Based Aircraft	1	1	2	6
Number of Aircraft in Individual Hangar*	1	1	2	6
Turboprop/Business Jets				
Number of Based Aircraft	1	1	2	2
Number of Aircraft in Conventional Hangar	1	1	2	2
Area/Aircraft (SF)	4,500	4,500	4,500	4,500
Conventional Hangar Floor Area (SF)	4,500	4,500	9,000	9,000
Helicopters				
Number of Based Aircraft	1	1	2	4
Number of Aircraft in Conventional Hangar	1	1	2	4
Area/Aircraft (SF)	1,620	1,620	1,620	1,620
Conventional Hangar Floor Area (SF)	1,620	1,620	3,240	6,480
Other				
Number of Based Aircraft	0	0	1	6
Number of Aircraft in Individual Hangar	0	0	1	6
Total Based Aircraft	83	93	114	152
Total Aircraft Hangared	83	93	114	152
Required Individual Hangars (Spaces)*	81	91	110	146
Required Conventional Hangar Area (SF)	6,120	6,120	12,240	15,480

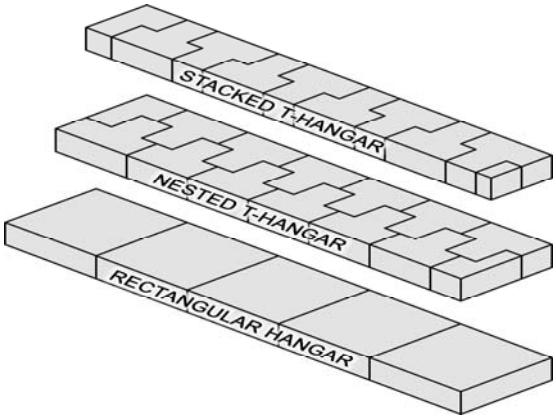
*May be rectangular, T-hangar, or portable hangar.
HGF – High Growth Forecast; SF – Square Feet
Source: AECOM analysis.

INDIVIDUAL HANGARS

Portable Hangar

T-Hangar

Rectangular Hangar



Hangar Configurations

CONVENTIONAL HANGARS

Conventional Hangars

Figure 5-2
Hangar Types

Table 5-10
BASED AIRCRAFT STORAGE HANGAR DEFICIENCY BY 2030

Item	Existing	Deficiency			
		2010-2015	2016-2020	2021-2030	HGF 2030
Individual Hangar (Spaces)	73	8	18	37	73
Conventional Hangar (SF)	15,022	0	0	0	458

HGF – High Growth Forecast; SF – Square Feet
Source: AECOM analysis.

Aircraft Maintenance Facilities

A fixed base operator (FBO) at Lompoc Airport provides major airframe and power plant repair services. The FBO hangar spans approximately 9,000 square feet which is adequate for anticipated aircraft maintenance demand. In the case that additional maintenance facilities are needed, a 10,000-square foot hangar should be located in the master plan.

Fixed Base Operator Lease Area

Typically, the FBO lease area at small general aviation airports is on the order of five to ten acres. This size is representative of FBOs that service aircraft up to small and medium jets, which correlates with the size of aircraft serviced at Lompoc. An FBO's space needs will depend on the services it provides, particularly the number of tie-downs and hangars it provides for based aircraft. At Lompoc, a total of at least seven acres of FBO space will be reserved for use to 2030. This is also sufficient space to accommodate High Growth Forecast levels.

Automobile Parking

For general aviation users, the parking areas are designed to accommodate peak activity periods. A generally accepted value for computing the amount of general aviation parking space needed is 1.3 spaces per peak hour general aviation pilot/passenger. This factor takes into account airport employees, rental car spaces, and visitors as well as pilots/passengers. The area required per automobile is 350 square feet, which includes circulation routes and other necessary clearances within the parking area. The projected general aviation auto parking requirements are summarized in Table 5-11.

Table 5-11
AUTOMOBILE PARKING REQUIREMENTS
FOR GENERAL AVIATION USERS

Item	2015	2020	2030	HGF 2030
Peak Hour Operations	18	20	25	40
Total Occupants	45	50	63	100
Spaces/Occupant	1.3	1.3	1.3	1.3
Total Parking Spaces (Each)	59	65	82	130
Area/Parking Space (SF)	350	350	350	350
Total Parking Area (SF)	20,700	22,800	28,700	45,500

HGF – High Growth Forecast; SF – Square Feet
Source: AECOM analysis.

There are approximately 37 existing parking spaces provided for general aviation at the terminal building, with additional parking available in the hangars. The existing auto parking facilities were documented in Chapter 3 and include 74 automobile parking spaces, of which 13 are not marked. As seen in Table 5-11 a

requirement of 82 spaces is identified. In 2030 an 8-space deficiency will exist for the baseline forecast and should the High Growth Forecast demand occur, 56 spaces may be needed in 2030. Additional parking facilities should be included with proposed based aircraft developments.

Aircraft Rescue and Fire Fighting (ARFF) Facilities

The FAA requires Aircraft Rescue and Fire Fighting (ARFF) facilities for airports 14 CFR Part 139 certification. Part 139 certification is required for airports having scheduled air carrier operations. General aviation airports like Lompoc are not required to obtain Part 139 certification and therefore are not required to have ARFF facilities at the airport. Rescue and fire fighting capabilities are provided by the City Fire Station located half a mile from the airport. The City Fire Station (Station No. 1) houses two Class A and B foam machines attached to fire trucks. Fire fighters at this station are trained in responding to aircraft fires.

Airport Maintenance

The airport has a devoted area for airport maintenance equipment storage, which includes an area near the AWOS. Approximately 1,000 square feet is used for airport maintenance. It is assumed that by 2030, 2,000 square feet will be needed if all desired equipment is acquired. This 2,000 square feet area could potentially be co-located with the proposed City Transit Yard on North 'V' Street. Additional equipment desired includes a sweeper, small tractor, and larger mower.

Aviation Fuel Storage

Bulk aviation gas (Avgas) and Jet A storage requirements were determined for the airport based upon the forecast of Avgas and Jet A contained in Chapter 4. The bulk Avgas and Jet A fuel storage requirements are determined on the following basis:

- Peak month flowage is 10 percent of the annual flowage
- Peak month is divided by 30 to determine the average day flowage in the peak month.
- A 14-day supply is provided.

Table 5-12 summarizes the fuel storage requirements for both Avgas and Jet A. There are currently two 10,000-gallon fuel storage tanks at the airport; one for Avgas and one for Jet A. Both fuel storage tanks are above ground.

Based on the forecast, the capacity is deemed adequate, as neither Avgas nor Jet A storage 14-day storage capacity exceed 10,000 gallons in 2030. The 28-day demand shows, though, that a second Jet A tank may be required by 2030 should demand increase as forecast. It is noted that current deliveries are infrequent due to the depressed economy.

Oil Recycling Center

Presently, there is one oil recycling center at the airport. A second may be considered, depending on the ultimate landside configuration.

Table 5-12
AVIATION FUEL STORAGE REQUIREMENTS (gallons)

Avgas				
Item	**2015**	**2020**	**2030**	**HGF 2030**
Annual Flowage	33,000	37,000	45,000	71,000
Peak Month Flowage	3,300	3,700	4,500	7,100
Average Day Flowage in Peak Month	110	123	150	237
Storage Capacity (14-day reserve)	1,540	1,722	2,100	3,318
Storage Capacity (28-day reserve)	3,080	3,444	4,200	6,636
Jet A				
Item	**2015**	**2020**	**2030**	**HGF 2030**
Annual Flowage	35,000	70,000	126,000	235,000
Peak Month Flowage	3,500	7,000	12,600	23,500
Average Day Flowage in Peak Month	117	233	420	783
Storage Capacity (14-day reserve)	1,638	3,262	5,880	10,962
Storage Capacity (28-day reserve)	3,276	6,524	11,760	21,924

HGF – High Growth Forecast
Source: AECOM analysis.

Airport Security

The Transportation Security Administration (TSA), in cooperation with the general aviation community, has developed guidelines to enhance security at general aviation airports. To evaluate security needs at a specific airport, TSA has developed an Airport Characteristics Measurement Tool. Table 5-13 displays the Airport Characteristics Measurement Tool along with Lompoc's ranking. Overall risk is measured on a scale of 0 (lowest risk) to 55 (highest risk), and grouped into four levels. Suggested security enhancements are given for each level (see Figure 5-5). Lompoc Airport falls into the second lowest level of risk, with 20 points. Figure 5-3 displays the suggested security measures for this risk level and are summarized below. According to the local TSA representative, Lompoc Airport currently exceeds security guidelines.

- **Law Enforcement Officer Support.** Airport operators are encouraged to have regular patrols of the airport by local law enforcement. City law enforcement and airport staff regularly patrol the airport.

- **Security Committee.** An airport security committee is composed of airport tenants and users drawn from all segments of the airport community. The main goal of the group is to involve airport stakeholders in developing effective and reasonable security measures and disseminating timely security information. The airport commission also acts as the security committee.

- **Transient Pilot Sign-In/Out Procedures**. Sign-in and out procedures can help identify non-based (transient) pilots and aircraft using the airport. No procedures are in place.

- **Signs.** Signs should be posted to warn against unlawful activity. Signs are present at Lompoc.

- **Documented Security Procedures.** These are written procedures to guide airport operators on security guidelines, protocols, and procedures. Documented procedures do not exist for the airport.

- **Positive Passenger/Cargo/Baggage ID.** Prior to boarding the pilot should ensure that the identities of all passengers are verified and all baggage and cargo is known to the occupants.

- **All Aircraft Secured.** All aircraft secured in locked hangar facilities or locked on the apron.

- **Community Watch Program.** A community watch program encourages tenants and airport users who frequent Lompoc Airport to identify an outsider or suspicious behavior and notify the appropriate authorities.

- **Contact List.** Including law enforcement and other emergency contacts.

Future Airport Security

Derived from the Baseline Forecast, potential increases in operations and based aircraft could increase Lompoc Airport's security risk. Table 5-13 also shows the future security risk of the airport. It is to be noted that future security needs may change, but using today's guidelines, the following needs could arise:

- **Access Controls.** Physical barriers, such as fences, should be constructed around the airport perimeter securing it from unauthorized access. Physical barriers can also be in the form of natural barriers. Lompoc Airport is secured with perimeter fencing and natural barriers (Santa Ynez River). Access control gates are present.

- **Lighting System.** Security lighting provides a means to deter theft, vandalism, or other illegal activity at night. Security lighting should not interfere with aircraft operations. Apron lights are present at the airport.

- **Personnel ID System.** Airport operators may wish to implement a method to badge employees and other authorized tenants; granting access to various areas of the airport.

- **Vehicle ID System.** Vehicles can be identified through the use of decals, stickers, or tags, aiding airport personnel and law enforcement in identifying authorized vehicles.

- **Challenge Procedures.** Challenge procedures include a developing community watch program, and encouraging airport tenants to challenge unfamiliar people at the airport. Tenants are encouraged to challenge strangers or people performing suspicious activities.

Table 5-13
AIRPORT CHARACTERISTICS MEASUREMENT TOOL

Security Characteristics	Assessment Scale [a]	Lompoc Airport	
		Existing	Future
Location			
Within 30 nm of mass population areas [b]	5	5	5
Within 30 nm of a sensitive site [c]	4	4	4
Falls within outer perimeter of Class B airspace	3	0	0
Falls within boundaries of restricted airspace	3	0	0
Based Aircraft			
Greater than 101 based aircraft	3	-	3
26-100 based aircraft	2	2	-
11-25 based aircraft	1	-	-
10 or fewer based aircraft	-	-	-
Based aircraft over 12,500 pounds	3	0	0
Runways [d]			
Runway length equal to or greater than 5,000 feet	5	-	-
Runway length less than 5,000 feet, greater than 2,001 feet	4	4	4
Runway length 2,000 feet or less	2	-	-
Asphalt or concrete runway	1	1	1
Operations			
Over 50,000 annual operations	4	0	4
Part 135 operations	3	0	0
Part 137 operations	3	0	0
Part 125 operations	3	0	0
Flight training	3	0	0
Flight training in aircraft over 12,500 pounds	4	0	0
Rental aircraft	4	0	0
Maintenance, repair, and overhaul facilities conducting long term storage of aircraft over 12,500 pounds	4	4	4
Total	**55**	**20**	**25**

[a] Assess points for every characteristic that applies to the airport.
[b] Mass population area – area with total metropolitan population of at least 100,000 people.
[c] Sensitive sites – areas which would be considered key assets or critical infrastructure of the United States. Sensitive sites can include certain military installations, nuclear and chemical plants, centers of government, monuments and iconic structures, and/or international ports.
[d] Facilities with multiple runways should only consider the longest runway on the airport.

Points/Suggested Guidelines			
>45	25-44	15-24	0-14
Fencing Hangars Closed Circuit TV Intrusion Detection System			
Access Controls Lighting System Personnel ID System Vehicle ID System Challenge Procedures			
Law Enforcement Officer Support Security Committee Transient Pilot Sign-In/Out Procedures			
Signs Documented Security Procedures Positive Passenger/Cargo/Baggage ID All Aircraft Secured Community Watch Program Contact List			

Figure 5-3
Risk Level and
Suggested Airport Security Enhancements

Summary of Landside Requirements

Table 5-14 summarizes existing facilities and planning requirements for Lompoc Airport. These requirements accommodate the forecasted 114 based aircraft and 62,600 operations of the Baseline Forecast that was assumed for facility planning purposes. The table also depicts additional facilities should High Growth Forecast levels materialize. As previously stated, the commitment to build and provide facilities will depend on the actual demand that materializes, and not forecast demand.

Table 5-14
SUMMARY OF BASELINE FORECAST LANDSIDE REQUIREMENTS

					Additional Facilities	
Item	**Existing**	**2015**	**2020**	**2030**	**2030**	**HGF (2030)**
GA Terminal (SF)	1,165	2,239	2,504	3,087	1,922	3,735
Transient Apron (number of tie-downs)						
Single engine/Multi-engine	44	10	12	15	0*	0*
Turboprops/Business jets	0	0	1	1	0*	0*
Individual hangars (spaces)	73	81	91	110	37	73
Conventional Hangar Space (SF) (fixed wing)	15,022	6,120	6,120	12,240	0	4,500
Auto Parking (spaces)	74	59	65	82	8	56
Fuel Storage (gallons)						
Avgas	10,000	3,080	3,444	4,200	0	0
Jet A	10,000	3,276	6,524	11,760	1,760	11,924
Oil Recycling Centers	1	1	1	2	1	1
Fixed Base Operator (acres)	0.2	7	7	7	6.8	6.8
Airport Maintenance	1,000	1,000	1,000	2,000	1,000	1,000

* Existing tie-downs are underutilized. Tie-downs could be used as transient or based aircraft tie-downs.
HGF – High Growth Forecast; SF – square feet
Source: AECOM

Pavement areas at Lompoc, especially the north apron, need to be rehabilitated within the planning period. Pavement strengthening may be required should Dassault Falcon 900 operations become more frequent. Should based aircraft exceed 100 at Lompoc Airport, additional security needs should be met, including a personnel identification system, a vehicle identification system, and challenge procedures.

GROUND ACCESS

Access to the airport is primarily provided by George Miller Drive. George Miller Drive connects to Highway 1/North 'H' Street. Highway 1/North 'H' Street is a four-lane road. In addition, North 'O' Street provides access to the airport near the south ramp. George Miller Drive is in poor condition and needs repaving in the short-term. Passenger access is available on the hotel ramp on the south-eastern most corner of the ramp. Members of the TAC noted that improved access to the airport from the south should be provided. The airport is not served by the City's public transit system.

LAND AREA REQUIREMENTS

The land use on an airport will vary depending on the role and volume of traffic. For Lompoc Airport, the on-airport land uses can be broadly categorized into three categories described herein.

The ***aircraft operating area (AOA)*** is defined as that area on-airport that lies within the building restriction lines (BRL) and runway protection zones (formerly clear zones). It includes the runways, taxiways, associated safety areas, lateral clearances, and runway approaches. The FAA defines the BRL as a line which identifies suitable building area locations and encompasses the runway protection zones, the runway object free area, the runway visibility zone, NAVAID critical areas, areas required for terminal instrument procedures (TERPS), and areas required for clear line of sight from the control tower (when applicable).

As previously mentioned, based on the existing taxiway location the existing building restriction line should be located 360 feet from the runway centerline on the north side and 335 feet on the south side of Runway 7-25. As seen above and as defined by FAA, runway protection zones (RPZs) areas on airport property are also encompassed within the BRL. Therefore, the BRL is assumed to be the general boundary of the AOA.

Areas of the airport serving landside aviation facilities can be categorized as ***aeronautical use areas***. This would include general aviation uses such as storage hangars, tie-downs and transient aprons, terminal and administration building, potential FBO sites, aircraft maintenance, and auto parking.

The current airport is approximately 208 acres. The breakdown of airport property is shown on Table 5-15. Areas classified as **open space** reflect undeveloped and vacant areas on the airport. This land also includes the Santa Ynez River. Both RPZs extend beyond airport property and are co-located with the Santa Ynez flood plain, prohibiting development. It is to be noted that Highway 1/North 'H' Street is not included on airport property.

As seen in Table 5-15, approximately 50 percent of the airport is within the AOA category and approximately 40 percent is categorized as open space. The planning of the airport will determine the area required for aeronautical use to accommodate forecast demand.

Table 5-15
LAND AREAS AT LOMPOC AIRPORT

Category	Acreage	Percent
Aircraft Operating Area (AOA)	104	50
Aeronautical Use Areas	18	9
Open Space	86	41
Total	208	100

Source: AECOM

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CHAPTER 6

Concept Development

Chapter 6

Concept Development

INTRODUCTION

This chapter, Concept Development, describes the recommended development concept and different development options that were evaluated. It includes extension of the runway to better accommodate small to medium sized business jet aircraft and landside development to meet forecasted demand. Development concepts were qualitatively evaluated for environmental compatibility. Once a preferred development concept is identified, the remaining tasks in the master plan will define the concept through a series of airport layout drawings and implementation plan. The airport concepts as described herein are based upon the facility requirements discussed in Chapter 5 and the aviation demand forecasts in Chapter 4. The concept defines in general terms, the different areas on-airport and the type of development, to organize the basic land uses and major on-airport facilities, which will ultimately promote the orderly development of the airport.

As with preceding chapters in this study, this section is organized by airside and landside facilities. First though, a discussion of the "no build" or "no action" alternative is presented.

NO BUILD/NO ACTION

The "no build" or "no action" alternative is a scenario where no projects occur at the airport. Under this alternative there will be no changes to the airport. The runway will remain its present length of 4,600 feet and the existing hangar facilities will remain "as is", including the City owned T-hangars which are in poor condition. Under the no action alternative, aviation demand will not be met.

AIRSIDE DEVELOPMENT CONCEPT

Runway Length

As was noted in Chapter 5, the present runway length of 4,600 feet accommodates 75 percent of large airplanes less than 60,000 pounds at 45 percent useful loads. A runway extension of 660 feet (5,260-foot overall runway length) would provide a runway length capable of accommodating 75 percent of large airplanes (less than 60,000 pounds) at 60 percent useful loads. While the economy is presently depressed, return of jet operations are expected at Lompoc as the economy recovers. Jet operators who used the airport previously, operated at lower loading factors due to the existing runway length.

Extension of the runway to 5,260 feet is impractical due to the Santa Ynez River flood plain to the west and Highway 1/North 'H' Street to the east. Therefore, the maximum extension practical, while providing full runway safety and object free areas, a blast fence, and airport perimeter road, is 257 feet. However,

should the flood plains be re-evaluated and have changed, the City should consider extending Runway 7 to provide an overall runway length of 5,260 feet. A runway extension of 257 feet will allow most small to medium sized business jets to operate at or near maximum loading factors. For example, the Falcon 900 (which operates out of the airport on a semi-regular basis) requires 5,189 feet of runway length to operate at maximum capacities. Extending the runway will result in less of a weight penalty for this aircraft. The 257-foot extension will occur on the east end of the runway; as the west end of the runway cannot be extended due to the flood plain. Figure 6-1 depicts the proposed 257-foot runway extension. In conjunction with the runway extension, the north and south parallel taxiways are extended, to provide direct taxiway entrance to the runway threshold. Extension of the south parallel taxiway requires relocation of four transient (hotel) tie-downs. The hotel apron area is shown expanded towards the east to accommodate these four displaced tie-downs.

As was previously noted in Chapter 5, the current 116-foot displaced threshold is not required. However, due to the location of Highway 1/North 'H' Street, the landing threshold of the extended runway must be displaced 197 feet from the extended runway end. Therefore, this runway extension will provide a total of 4,857 feet for takeoff and 4,660 feet of landing length on Runway 25. Operations (takeoffs and landings) on Runway 7 will have the full 4,857 feet of runway available. A runway length of 4,857 feet is capable of accommodating 75 percent of large airplanes less than 60,000 pounds at 51 percent (approximately) useful loads.

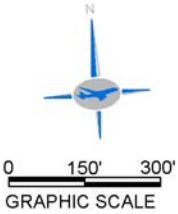
Instrument Approaches

Currently the airport has high visibility minimums for its non-precision instrument approaches. Comments noted in the based aircraft owner's survey and discussion during the first Technical Advisory Committee (TAC) meeting indicated a desire to reduce the approach minimums; specifically the ceiling height. The current GPS approach to Runway 25 has a ceiling height of 700 feet and the VOR approach has a 900-foot ceiling. Both approach procedures have 1 mile visibility. These high minimums are primarily due to terrain located in the vicinity of the airport and the restricted areas west of the airport. However, Highway 1/North 'H' Street, trees, and the power lines east of the airport also impact approach minimums. Through discussions with the FAA Flight Procedures Office, it was discovered that opportunities to improve (lower) the visibility minimums at Lompoc are limited. The current approaches are steep to account for the terrain and other obstacles in the vicinity of the airport.

Next Generation WAAS/LPV (Wide Area Augmentation System/Localizer Performance with Vertical Guidance) approach procedures for Lompoc would not lower minimums. The minimums would likely remain the same, but with an LPV approach, vertical guidance would be available.

Visibility minimums can be reduced at airports through the installation of approach lights. Approach lights would only reduce the visibility, and not the ceiling component of the approach procedure. A full MALSR (medium intensity approach light system with runway alignment indicator lights) would be required at Lompoc to reduce visibility minimums. Approach lights are typically installed at airports with precision approaches (approaches with horizontal and vertical guidance). In order for Lompoc to qualify for a precision approach with approach lights, a benefit cost analysis would be required. It is anticipated that a benefit cost analysis will be unfavorable at current and forecasted activity levels for the airport.

Therefore, even with the newer technologies that are becoming available – due to Lompoc's location with respect to terrain, Vandenberg AFB, Highway 1/North 'H' Street, trees, and nearby power lines – instrument approach minimums at the airport cannot be lowered.



LEGEND		
DESCRIPTION	EXISTING	FUTURE
RUNWAY SAFETY AREA		
RUNWAY OBJECT FREE AREA		
RUNWAY PROTECTION ZONE		
AIRPORT BOUNDARY		SAME
RUNWAY/TAXIWAY PAVEMENT		
100 YEAR FLOOD PLAIN		SAME

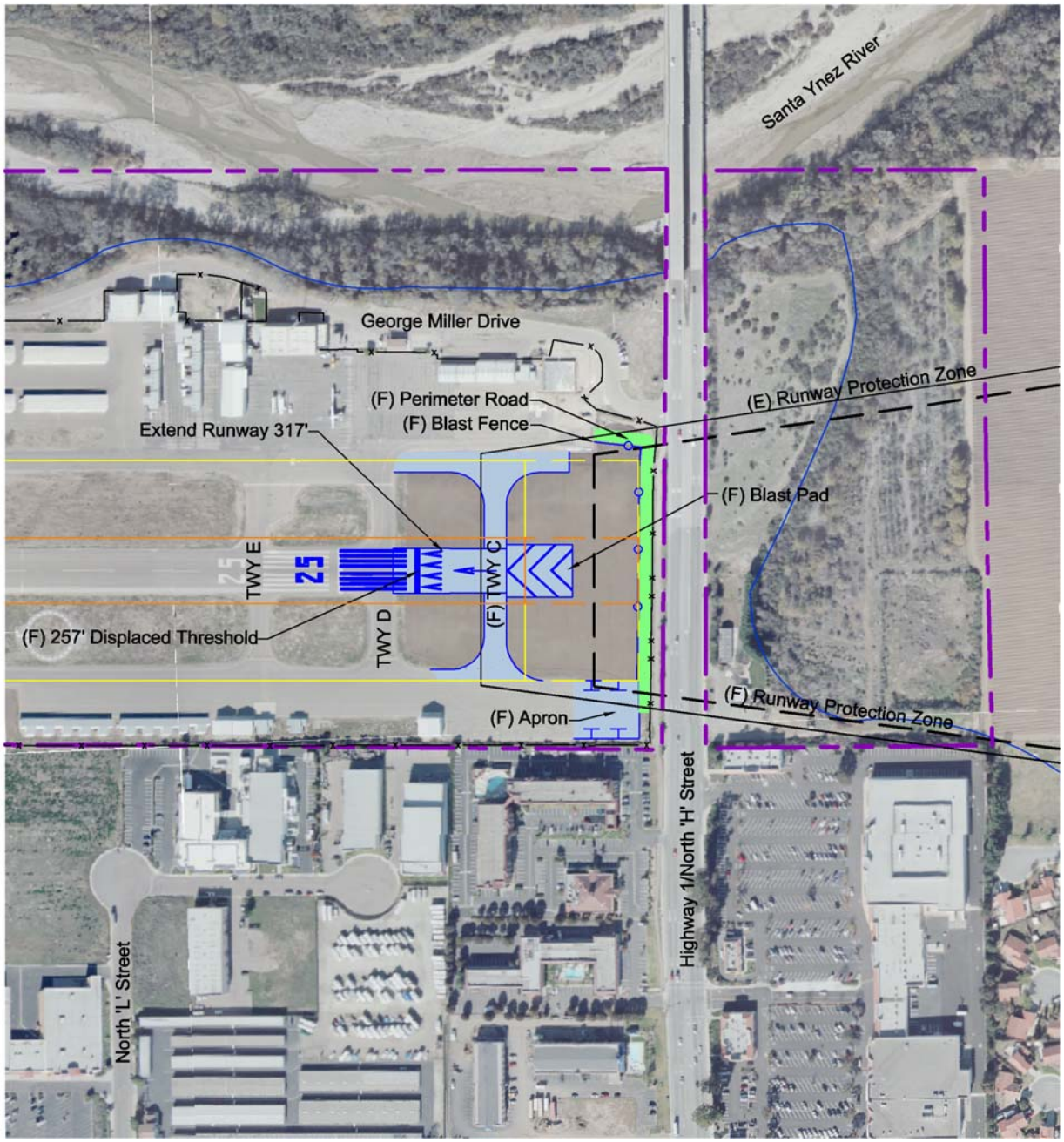


Figure 6-1
Airside Concept

Figure 6-2
Taxiway Designations

Taxiway Designations

As was noted in Chapter 3, Lompoc Airport's taxiways are undesignated. Taxiways at an airport typically receive an alphabetic (letter) designation. Figure 6-2 depicts the proposed taxiway designations at Lompoc for the future airfield configuration. Commensurate with these designations, airfield signage should be installed at the airport to assist pilots in navigating the airfield.

Helipad and Heliport

A helipad was previously available on the northeast apron area, near Highway 1/North 'H' Street. When the skydive facility was erected, the helipad was removed. Location of a heliport (dedicated helicopter take-off and landing facility) was analyzed as part of this master plan. Currently, the airport has one based helicopter; a McDonnell-Douglas Hughes 500. The Hughes 500 is a small helicopter (less than 6,000 pounds max takeoff weight). Table 6-1 depicts separation distances between the center of the heliport and the runway centerline.

Table 6-1
RECOMMENDED DISTANCE BETWEEN HELIPORT CENTER TO RUNWAY CENTERLINE FOR VFR OPERATIONS

	Helicopter		
Fixed Wing Aircraft	**Small (6,000 lbs or less)**	**Medium (6,001 to 12,000 lbs)**	**Heavy (over 12,000 lbs)**
Small Airplane 12,500 lbs or less	300 feet	500 feet	700 feet
Large Airplane 12,500 to 300,000 lbs	500 feet	500 feet	700 feet
Heavy Airplane Over 300,000 lbs	700 feet	700 feet	700 feet

Note: lbs = pounds
Source: FAA AC 150/5390-2B, Heliport Design, September 30, 2004.

As previously noted, Lompoc is an airport reference code B-II airport. This classification includes small to medium sized business jet aircraft which weigh between 12,500 and 300,000 pounds. Therefore, Lompoc accommodates large airplanes. The required heliport to runway centerline separation for small to medium sized helicopters is 500 feet (see Table 6-1).

Opportunities to provide a heliport north of the airport, near existing service facilities (fuel and maintenance) are limited. To provide 500 feet of heliport to runway centerline separation, the heliport would be located north of the round top hangars, City hangars, and George Miller Drive. The Santa Ynez River flood plain is north of, and adjacent to, George Miller Drive, precluding heliport development in this area.

With the exception of the 13-acre parcel, the south airport property line is approximately 400 feet from the runway centerline. A heliport could be provided on the south 13-acre parcel, as there is sufficient room from the runway centerline. However, a heliport in this area is undesirable because:

- Helicopter operations would traverse over or near the Walmart shopping center,
- Residential areas south of the airport would experience an increase in over-flights and noise,
- The heliport would be located on the opposite side of the airport from fuel and maintenance facilities, and

- A heliport in this area would limit uses of the 13-acre parcel for aviation related revenue producing uses (e.g. hangars).

A heliport is not provided in this master plan, as no suitable locations exist on the north side of the airport. Developing a heliport on the south side of the airport moves helicopter operations over populated portions of the City and moves noise closer to residential areas. Helicopters operating at Lompoc will continue to operate along fixed wing traffic patterns and will takeoff and land from/to the runway and hover taxi to designated parking areas.

If desired, one or two tie-downs on the north apron could be removed and a dedicated helipad (helicopter parking position) provided.

Automated Weather Observing Systems (AWOS)

The existing Automated Weather Observing Systems (AWOS) is located adjacent to the southern property line, north of the Walmart shopping center. A winery recently constructed a building adjacent to the AWOS. While the winery submitted FAA form 7460-1, Notice of Proposed Construction, for this construction – and the FAA did not object to the construction (reference airspace case 2008-AWP-5800-OE) – due to the building's proximity to the AWOS there is a chance that the building is affecting wind measurements recorded. Therefore, an alternative location for the AWOS was analyzed.

AWOS siting criteria are outlined in FAA Order 6560.20B Siting Criteria for Automated Weather Observing Systems (AWOS). Chapter 3 of this FAA Order identifies the following siting criteria:

- The sensor should be located 1,000 to 3,000 feet down the primary runway and
- The sensor should be located between 500 and 1,000 feet from the runway centerline.

Figure 6-3 depicts areas on airport that could potentially accommodate the separation distances listed above. The potential areas shown on the figure account for both the existing and future (extended) runway end locations.

The FAA Order further specifies that sensors should not be located in known areas of concentrated local ground fog; such as river banks. Additionally, the wind sensor should be mounted 30 to 33 feet above the average ground elevation within a 500-foot radius of the sensor and the ground within 500 feet of the sensor should be relatively flat. It is also desired that all buildings within 500 feet of the sensor be at least 15 feet lower than the wind sensor, and buildings within 500 to 1,000 feet be no greater than 10 feet above the sensor. The existing AWOS wind sensors are approximately 30 feet above the ground elevation, and the adjacent winery building (within 500 feet of the AWOS) is 33 feet tall.

Based on the above information, siting a new AWOS location at Lompoc is problematic. The AWOS cannot be located on the north side of the runway due to the fact that most of the area is included in the Santa Ynez riverbank or adjacent to the riverbank, in which there are significant changes in ground elevation and the potential for localized fog.

While, locating the AWOS south of the runway, in the undeveloped 13-acre parcel, is feasible; doing so would severely limit future development at the site. All development would need to be below 15 feet of the wind sensor within a 500-foot radius, limiting most of the site to smaller T-hangar type facilities. Figure 6-3 shows two potential locations for the AWOS along with 500-foot radii denoting building height limits (building height is to be 15 feet lower than the wind sensor). As can be seen in the figure, either location places approximately 71 to 75 percent of the 13-acre parcel within the 500-foot radius (where buildings are to be 15 feet lower than the wind sensor).

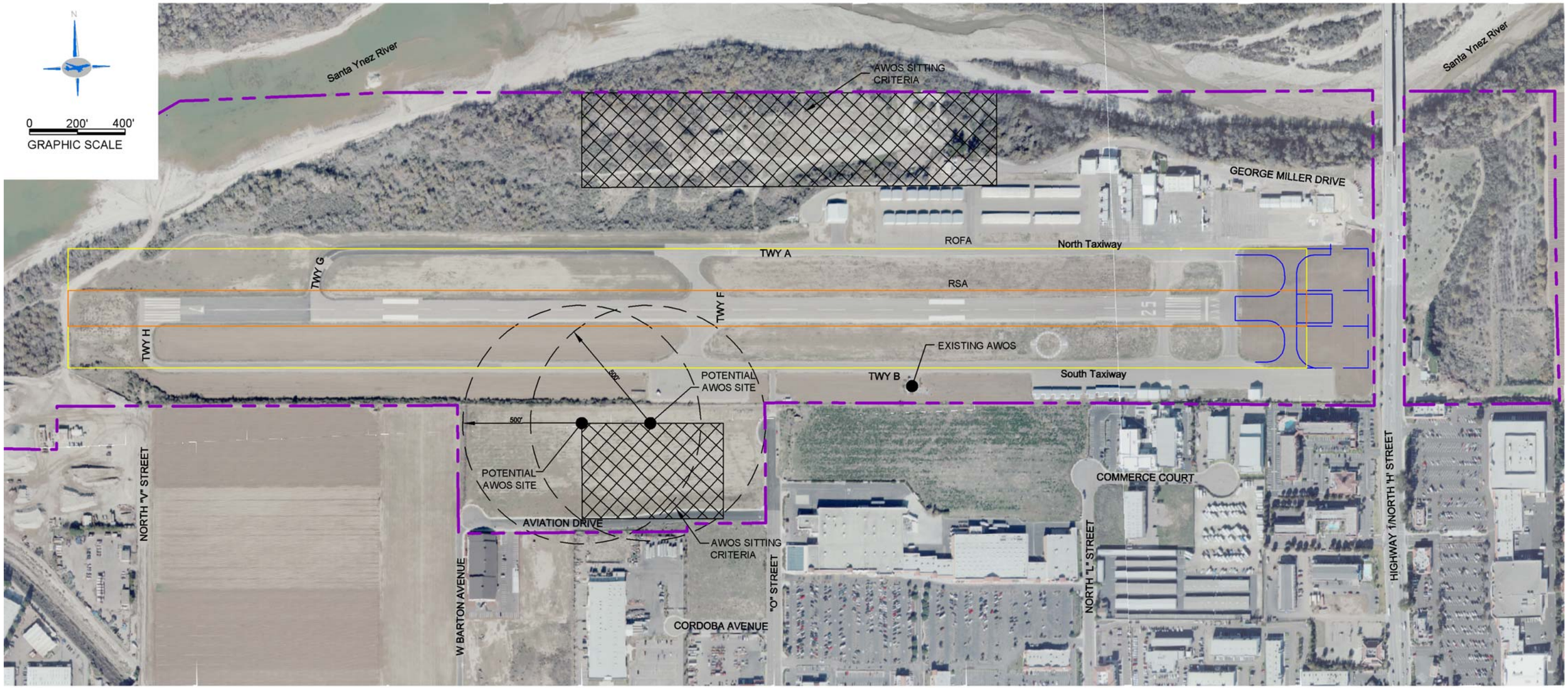


Figure 6-3
AWOS Siting

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Relocating the AWOS within the 13-acre parcel is not preferred nor does it represent a "best use" of developable airport land. Therefore, it is recommended to either leave the existing AWOS in its present location, or install a SuperAWOS at the airport. Siting criteria for a SuperAWOS are less restrictive. A SuperAWOS can be installed on a fixed structure outside of the runway and taxiway object free areas, or on a frangible structure (such as the existing wind sock) outside of the runway obstacle free zone (but within the runway object free area).

It is noted that the SuperAWOS is only FAA certified as an AWOS A and AWOS A-V; meaning that the SuperAWOS is only certified for altimeter and visibility. While the SuperAWOS records temperature, dew point, and wind, these data are provided as advisories only.

Other Features

Figure 6-1 depicted a blast fence and airport perimeter road along Highway 1/North 'H' Street. The blast fence will provide blast and dust blowing protection to motorists on Highway 1/North 'H' Street and the airport perimeter road. This fence is proposed 300 feet from the Runway 25 threshold, and is approximately 500 feet long. Adjacent to, and immediately east of, the proposed blast fence is a 24-foot wide airport perimeter road. This road will provide airport users with direct access to both the north and south sides of the airport. Currently, vehicle traffic on the airport must cross the runway to traverse from one side of the airport to the other. This paved perimeter road will be located on airport property, within the existing airport perimeter fence, and be available only to airport users.

LANDSIDE DEVELOPMENT CONCEPT

Table 6-2 summarizes baseline landside facilities required. To provide a flexible plan, the landside concepts described below also accommodate High Growth Forecast facility requirement levels.

Table 6-2
SUMMARY OF BASELINE LANDSIDE FACILITY REQUIREMENTS

					Additional Facilities	
Item	**Existing**	**2015**	**2020**	**2030**	**BASELINE 2030**	**HGF (2030)**
GA Terminal (square feet)	1,165	2,205	2,450	3,087	1,922	3,735
Transient Apron (number of tie-downs)						
Single engine/Multi-engine	44	10	13	16	0*	0*
Turboprops/Business jets	0	0	0	1	0*	0*
Individual hangars (spaces)	73	81	91	110	37	73
Conventional Hangar Space (square feet) (fixed wing)	15,022	6,120	6,120	12,240	0	4,500
Auto Parking (spaces)	74	59	65	82	8	55
Fuel Storage (gallons)						
Avgas	10,000	3,080	3,444	4,200	0	0
Jet A	10,000	3,276	6,524	11,760	1,760	11,924
Oil Recycling Center	1	1	1	2	1	1
Fixed Base Operator (acres)	0.2	7	7	7	6.8	6.8
Airport Maintenance	1,000	1,000	1,000	2,000	1,000	1,000

* Existing tie-downs are underutilized. Tie-downs could be used as transient or based aircraft tie-downs.
Source: AECOM.

Landside Development Concept 1

Figure 6-4 depicts Landside Development Concept 1. This concept proposes to demolish the 24 existing City hangars and replace them with 36 nested T-hangars oriented perpendicular to the runway. As seen in the table below, the City hangars vary in size from 885 square feet to 1,160 square feet, for an average of 994 square feet per hangar.

Hangar Size	Quantity	Total (square feet)
885 square feet	8	7,080
1,000 square feet	8	8,000
1,035 square feet	4	4,140
1,160 square feet	4	4,640
Total	24	23,860

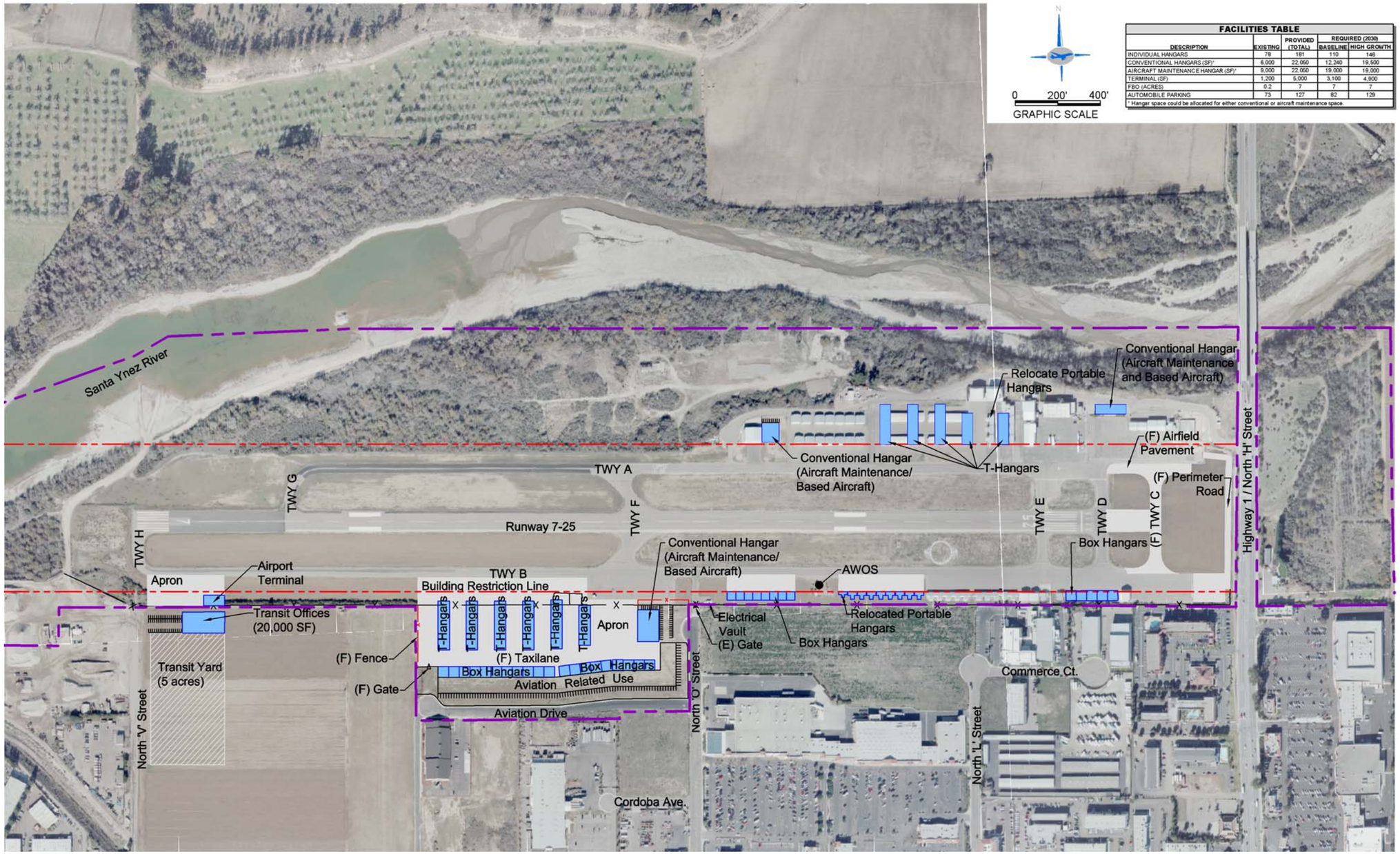
Three 8-unit hangar buildings and two 6-unit hangar buildings are proposed to replace the City hangars. The proposed hangars are nested T-hangars, measuring 1,071 square feet. Therefore, approximately 38,556 square feet of hangar space is provided. In order to accommodate the eastern most 6-unit hangar building, the nine existing portable hangars are relocated to the south side of the airport between the AWOS and the existing T-hangars, adjacent to the southern airport fence. Apron is required for the relocated portable hangars. Due to the electrical service along the southern property line, portable hangars are to be located 20 feet from the airport perimeter fence. To maintain access by larger aircraft to the box hangars along George Miller Drive, a 118-foot wide taxilane is provided. The proposed taxilane width is greater than existing conditions (99-foot wide taxilane). It is also noted that the proposed hangars maintain the current ramp area in front of the larger box hangars.

Two conventional hangars are proposed on the north side of the airport. A 6,700-square foot hangar is proposed where the existing terminal/administration building is located (as discussed below, this concept relocates the terminal building) and a 7,400-square foot hangar is proposed adjacent to the western most box hangar (west of the round tops) on the north side of the airport.

Additional hangar development is proposed on the south side of the airport. Five 50-foot by 50-foot box hangars are proposed abeam of the existing Runway 25 threshold. These hangars do not intrude upon the electrical easement along the southern airport perimeter fence. West of the existing AWOS eight 40-foot by 40-foot box hangars are proposed. These hangars are also located to remain clear of the electrical easement.

For this concept, the undeveloped 13-acre parcel is primarily devoted to hangar development. This can include leasing the area (land lease) to be developed by FBO(s). Aviation related uses are shown along Aviation Drive and North ‘O’ Street. Approximately 4 acres of the parcel is allocated for aviation related uses. The remaining 9 acres are designated for hangars. A 15,000-square foot hangar is located along North ‘O’ Street, along with associated ramp and auto parking areas. This large hangar can support small to medium size business jets. Along the southern edge, twenty 50-foot by 50-foot hangars are proposed. Additionally, 58 nested T-hangars (1,134 square feet each) and associated taxilanes are recommended within the undeveloped parcel. Nested T-hangars are oriented perpendicular to the runway, and the box hangars primarily parallel to the runway.

Lastly, this concept proposes relocating the general aviation terminal building near North ‘V’ Street. A 5,000-square foot terminal building is proposed and located adjacent to the future City Transit Offices and Yard. The City has expressed interest in developing a Transit Facility along North ‘V’ Street, adjacent to the airport.



FACILITIES TABLE

DESCRIPTION	EXISTING	PROVIDED (TOTAL)	REQUIRED (2030) BASELINE	REQUIRED (2030) HIGH GROWTH
INDIVIDUAL HANGARS	78	181	110	146
CONVENTIONAL HANGARS (SF)*	6,000	22,050	12,340	19,500
AIRCRAFT MAINTENANCE HANGAR (SF)*	9,000	22,050	19,000	19,000
TERMINAL (SF)	1,200	5,000	3,100	4,900
FBO (ACRES)	0.2	7	7	7
AUTOMOBILE PARKING	73	127	82	129

* Hangar space could be allocated for either conventional or aircraft maintenance space.

Figure 6-4
Landside Development Concept 1

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In summary this concept recommends:

Description	Hangar Size (square feet)	Quantity	Total (square feet)
Individual Hangars			
Nested T-Hangars (North Side)	1,071	36	38,556
Box Hangars (South Side)	1,600	8	12,800
	2,500	5	12,500
Undeveloped 13-acre Parcel			
Nested T-Hangars	1,134	58	75,772
Box Hangars	2,500	20	50,000
Total		121	183,202
Conventional Hangars			
North Side (east)	6,700	1	6,700
North Side (west)	7,400	1	7,400
Undeveloped 13-acre Parcel	15,000	1	15,000
Total		3	29,100
GA Terminal	5,000	1	5,000

It is noted that conventional hangars can be used for based aircraft storage and/or aircraft maintenance.

Vehicle access to the hangar areas will be similar to existing conditions. North hangars will be accessed from the existing vehicle gate just east of the round top hangars. Access to the south hangars will be from the North 'O' Street gate. A vehicle gate is also proposed on the west end of the 13-acre parcel to facilitate access to the proposed hangar development. Additionally, the perimeter road on the east end of the airport will increase ease of access to hangars by vehicles and will also reduce the opportunities for runway incursions by vehicles.

Landside Development Concept 2

Landside Development Concept 2 features some commonality with Concept 1. Concept 2 also proposes demolishing the 24 City owned T-hangars, relocating 9 portable hangars to the south side, and erecting 36 nested T-hangars (1,071 square feet each). Additionally, Concept 2 proposes a 7,400-square foot conventional hangar west of the round top hangars, 13 box hangars on the south side of the airport (eight 40-foot by 40-foot and five 50-foot by 50-foot).

As seen in Figure 6-5, the existing terminal/administration building is expanded to 5,200 square feet. A Transit Facility is proposed west of the undeveloped 13-acre parcel (off airport property); west of West Barton Avenue. A mix of aviation and aviation related uses is recommended for the 13-acre parcel. Approximately 2.4 acres of the 13-acre parcel are proposed to be aviation related/non-aviation uses. Also included on the undeveloped parcel is a 24,000-square foot conventional hangar, 14 small box hangars (41 feet by 48 feet), 6 large box hangars (62 feet by 56 feet), and 56 individual hangars.

As previously noted, conventional hangars can be used for based aircraft storage and/or aircraft maintenance.

Vehicle access to the hangar areas will be similar to existing conditions. North hangars will be accessed from the existing vehicle gate just east of the round top hangars. Access to the south hangars will be from the North 'O' Street gate. The perimeter road on the east end of the airport will increase ease of access to hangars by vehicles and will also reduce the opportunities for runway incursions by vehicles.

In summary this concept recommends:

Description	Hangar Size (square feet)	Quantity	Total (square feet)
Individual Hangars			
Nested T-Hangars (North Side)	1,071	36	38,556
Box Hangars (South Side)	1,600	8	12,800
	2,500	5	12,500
Undeveloped 13-acre Parcel			
Nested T-Hangars	1,134	56	75,772
Box Hangars (Small)	1,968	14	27,552
Box Hangars (Large)	3,472	6	20,832
Total		70	185,522
Conventional Hangars			
North Side (west)	7,400	1	7,400
Undeveloped 13-acre Parcel	24,000	1	24,000
Total		2	31,400
GA Terminal	5,200	1	5,200

Landside Development Concept 3

Landside Development Concept 3 does not recommend demolishing the City owned T-hangars. Rather, it is proposed that the hangars be rehabilitated. Improvements on the north side of the airport are limited to a 6,700-square foot conventional hangar and four additional “round top” hangars (approximately 1,550 square feet each).

Substantial hangar development is proposed on the south side of the airport. Five 50-foot by 50-foot box hangars are proposed abeam of the existing Runway 25 threshold. The existing AWOS is proposed to be relocated closer to the electrical vault, and 23 box hangars (40-foot by 40-foot) are located along the southern property line.

The undeveloped 13-acre parcel is primarily devoted to hangars (see Figure 6-6). Four 15,000-square foot conventional hangars are located along the eastern half of the parcel. The western half is reserved for individual hangars: 15 box hangars (50-foot by 50-foot) and 24 nested T-hangars (1,134 square feet each). Approximately 4.2 acres of the undeveloped parcel are available for aviation related/non-aviation uses.

Lastly, this concept proposes relocating the general aviation terminal building near North ‘V’ Street. A 5,000-square foot terminal building is proposed and located adjacent to future City Transit Offices and Yard. The City has expressed interest in developing a Transit Facility along North ‘V’ Street, adjacent to the airport.

FACILITIES TABLE				
DESCRIPTION	EXISTING	PROVIDED (TOTAL)	REQUIRED (2030) BASELINE	REQUIRED (2030) HIGH GROWTH
INDIVIDUAL HANGARS	78	181	110	148
CONVENTIONAL HANGARS (SF)*	6,000	23,200	12,240	19,500
AIRCRAFT MAINTENANCE HANGAR (SF)*	9,000	23,200	19,000	19,000
TERMINAL (SF)	1,200	5,200	3,100	4,900
FBO (ACRES)	0.2	7	7	7
AUTOMOBILE PARKING	73	157	82	129

* Hangar space could be allocated for either conventional or aircraft maintenance space.

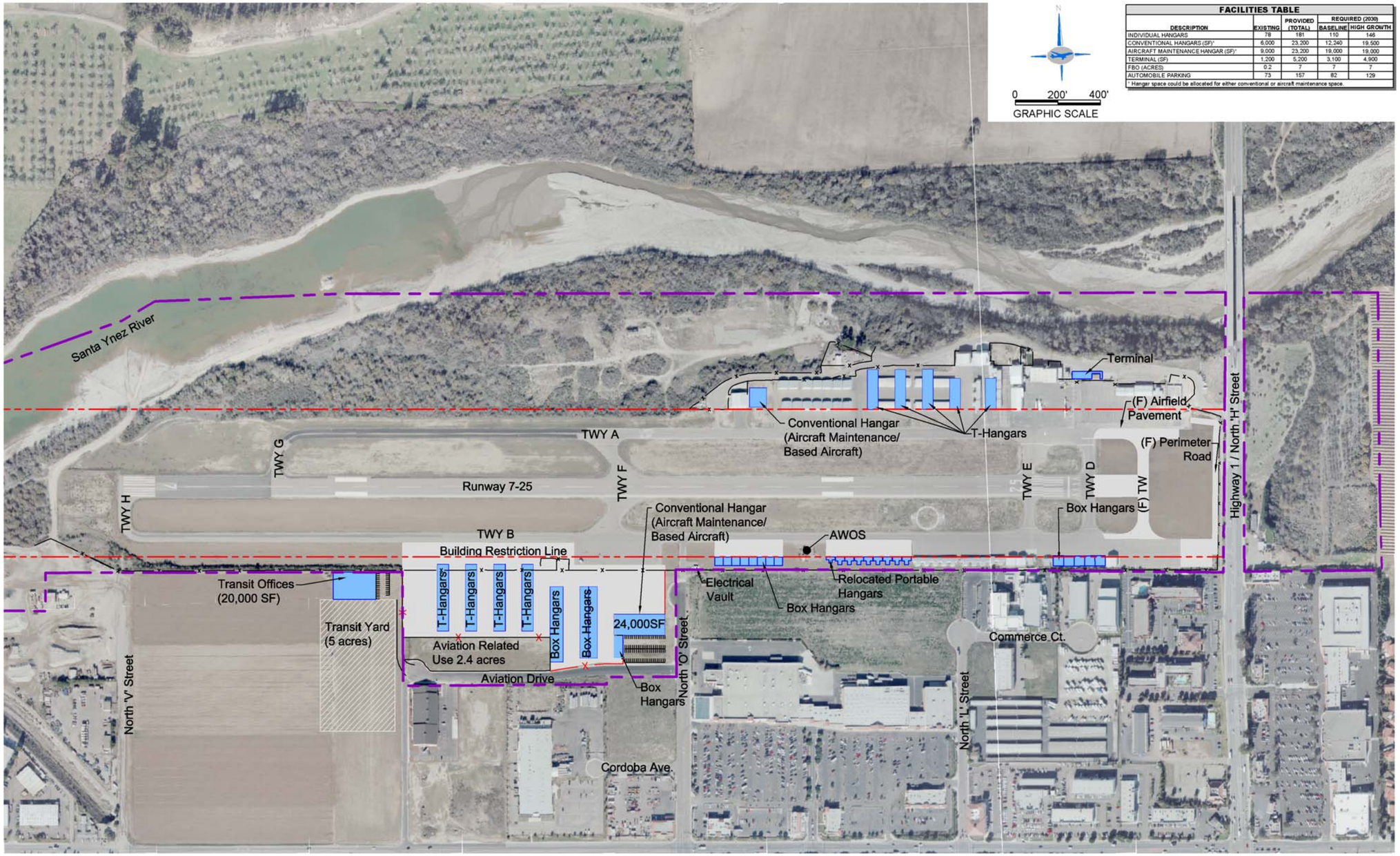

Figure 6-5
Landside Development Concept 2

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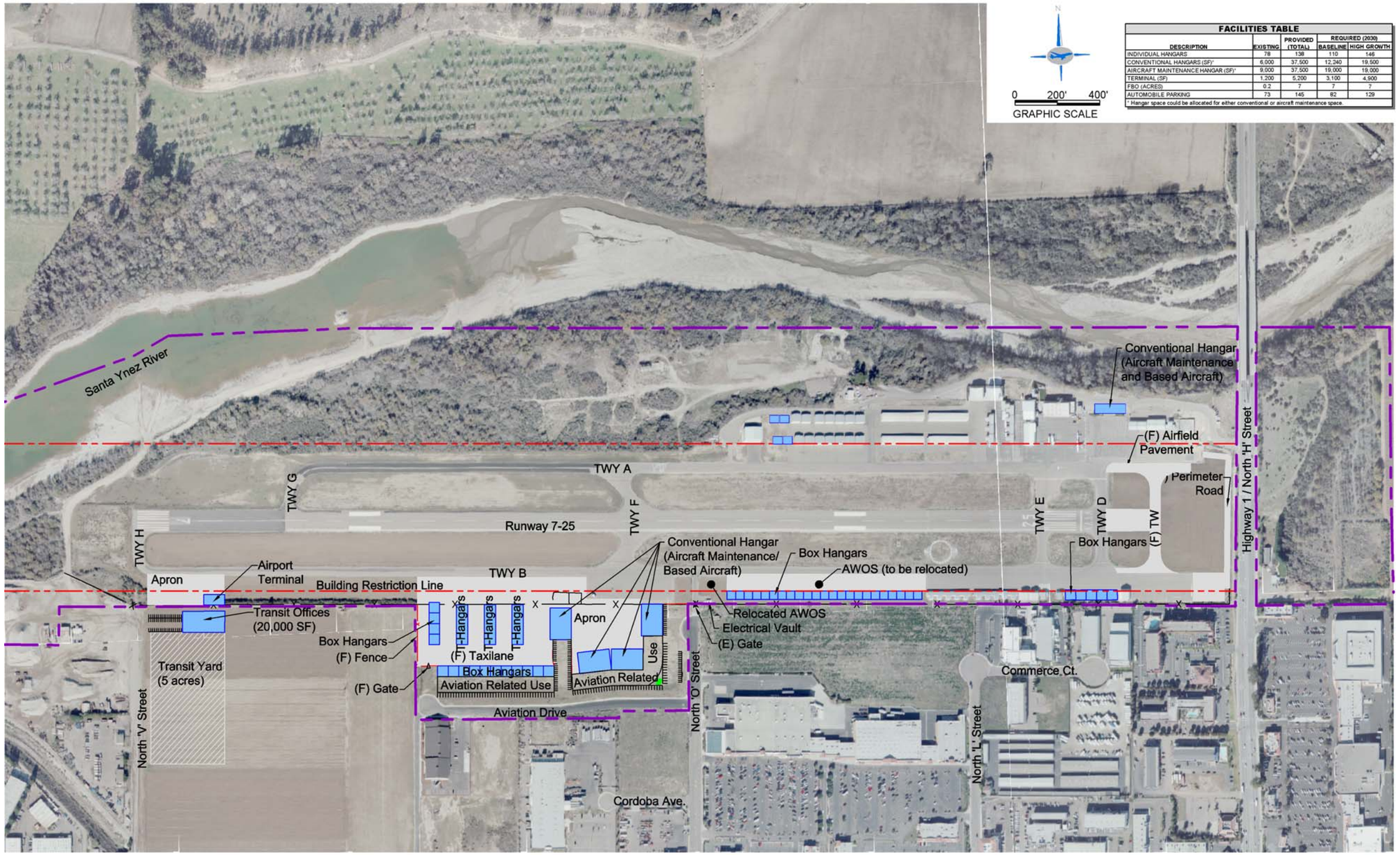

Figure 6-6
Landside Development Concept 3

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In summary this concept recommends:

Description	Hangar Size (square feet)	Quantity	Total (square feet)
Individual Hangars			
Round Top Hangars (North Side)	1,550	4	6,200
Box Hangars (South Side)	1,600	23	36,800
	2,500	5	12,500
Undeveloped 13-acre Parcel			
Nested T-Hangars	1,134	24	27,216
Box Hangars	2,500	15	37,500
Total		72	120,216
Conventional Hangars			
North Side	6,700	1	6,700
Undeveloped 13-acre Parcel	15,000	4	60,000
Total		2	66,700
GA Terminal	5,000	1	5,000

As previously noted, conventional hangars can be used for based aircraft storage and/or aircraft maintenance.

Vehicle access to the hangar areas will be similar to existing conditions. North hangars will be accessed from the existing vehicle gate just east of the round top hangars. Access to the south hangars will be from the North 'O' Street gate. A vehicle gate is also proposed on the west end of the 13-acre parcel to facilitate access to the proposed hangar development. Additionally, the perimeter road on the east end of the airport will increase ease of access to hangars by vehicles and will also reduce the opportunities for runway incursions by vehicles.

Recommended Landside Development

The Recommended Landside Development Concept is depicted in Figure 6-7. This concept was developed based on input from the City and the various stakeholders represented on the Technical Advisory Committee (TAC). Preliminary versions of Landside Development Concepts 1 through 3 were presented to the TAC at the August 27, 2009 meeting. As a result of this meeting, the Recommended Landside Development Concept was formed.

This concept is a compilation of the Concepts 1 through 3. The City owned T-hangars are proposed to be rehabilitated and a conventional hangar is to be located on the north side of the airport, west of the round top hangars. Development along the southern property line includes 23 box hangars (40-foot by 40-foot each) and an apron area abeam of the existing Runway 25 threshold. In order to accommodate the 23 box hangars, the AWOS will be relocated adjacent to the electrical vault.

This concept focuses on development of the 13-acre parcel for long-term aviation uses. A two-story restaurant is proposed in the north-eastern corner of the parcel, set back from the runway to clear the FAR Part 77 transitional surface. Adjacent to the restaurant is ramp area and a 21,000-square foot conventional hangar. The proposed development also includes 16 box hangars (50-foot by 50-foot) and 58 nested T-hangars (1,134 square feet each). Approximately 4.1 acres of the undeveloped parcel are reserved for aviation related uses.

Lastly, the City has expressed interest in developing a City Transit Facility along North 'V' Street, adjacent to the airport. The recommended concept reflects this potential development adjacent to the airport.

In summary this concept recommends:

Description	Hangar Size (square feet)	Quantity	Total (square feet)
Individual Hangars			
Round Top Hangars (North Side)	1,550	4	6,200
Box Hangars (South Side)	1,600	23	36,800
Undeveloped 13-acre Parcel			
Nested T-Hangars	1,134	58	75,772
Box Hangars	2,500	16	40,000
Total		101	158,772
Conventional Hangars			
North Side (west)	7,400	1	7,400
Undeveloped 13-acre Parcel	21,000	1	21,000
Total		2	28,400
GA Terminal	5,000	1	5,000

As previously noted, conventional hangars can be used for based aircraft storage and/or aircraft maintenance.

Vehicle access to the hangar areas will be similar to existing conditions. North hangars will be accessed from the existing vehicle gate just east of the round top hangars. Access to the south hangars will be from the North 'O' Street gate. A vehicle gate is also proposed on the west end of the 13-acre parcel to facilitate access to the proposed hangar development. Additionally, the perimeter road on the east end of the airport will increase ease of access to hangars by vehicles and will also reduce the opportunities for runway incursions by vehicles.

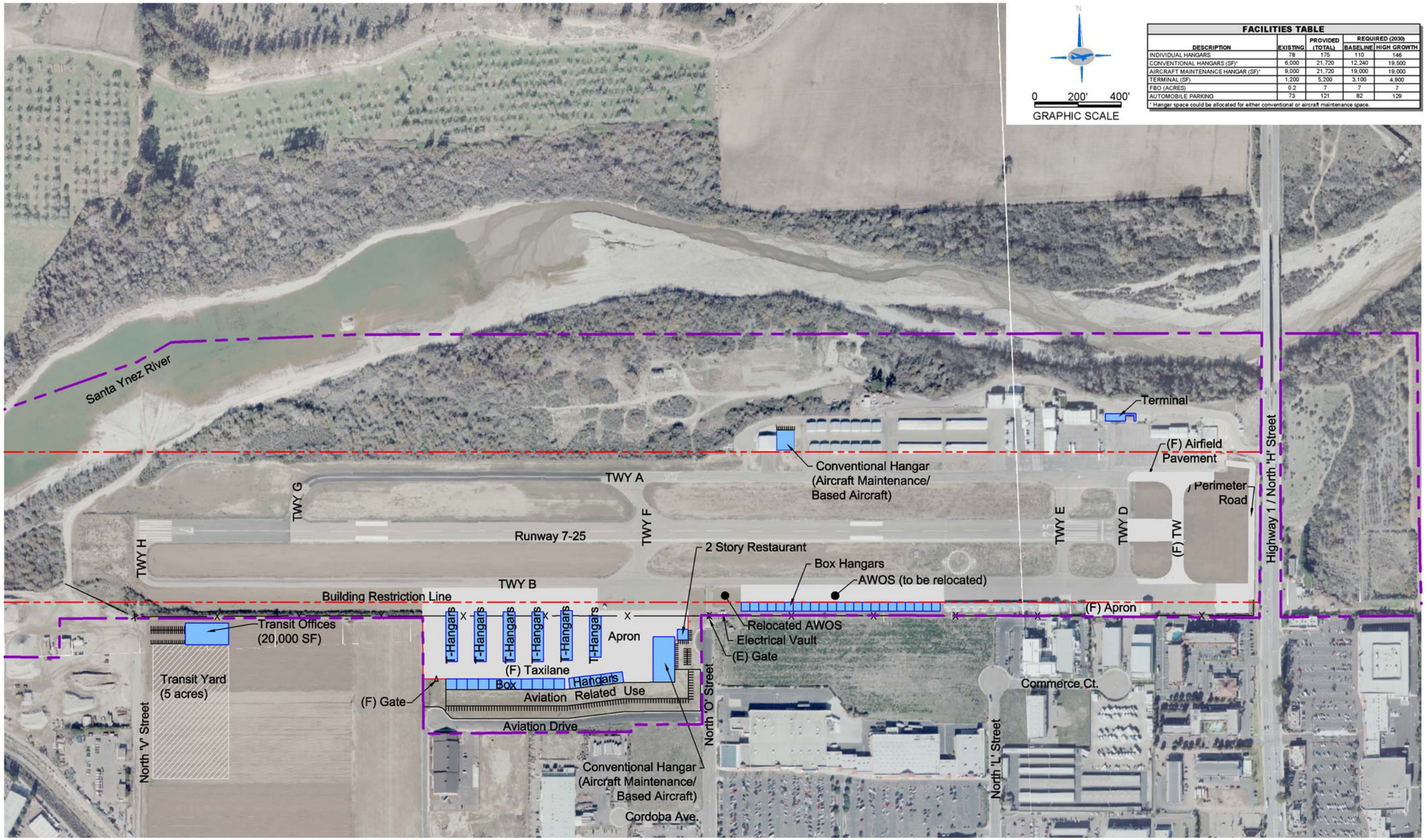
ENVIRONMENTAL EVALUATION OF ALTERNATIVES

A review of key environmental issues for the development concepts was conducted. This evaluation is not a comprehensive or quantitative environmental analysis, but is a comparative review of environmental issues with a qualitative analysis. The focus of this analysis was on nine specific topics: noise, cultural resources, air quality, land use, population, housing, hazards, flood zones, and aesthetics.

Noise

The most significant noise impacts at airports are generally caused by aircraft operations and construction activities and affect sensitive land uses such as residences, churches, and schools. Community Noise Equivalent Level (CNEL) noise contours often indicate the areas that will experience the most severe noise impacts. Impacts are considered severe if sensitive receptors experience average noise levels above 75 CNEL, significant if between 65 and 75 CNEL, moderate if between 55 and 65 CNEL, and minimal if below 55 CNEL.

All of the landside concepts and the no build alternative are expected to have moderate noise impacts due to aircraft operations. The current Santa Barbara County Airport Land Use Plan (ALUP) contains noise contours for Lompoc Airport that indicate some sensitive receptors located within the 60 dB contour. These sensitive receptors include residences located southeast of the airport and several hotels located directly south and adjacent to the airport. Although these contours were based on 250 operations per day, and the airport currently has 83 operations per day, there are sensitive receptors located near enough to the airport that they may experience moderate impacts.



FACILITIES TABLE

DESCRIPTION	EXISTING	PROVIDED (TOTAL)	REQUIRED (2030) BASELINE	REQUIRED (2030) HIGH GROWTH
INDIVIDUAL HANGARS	78	175	110	146
CONVENTIONAL HANGARS (SF)*	6,000	21,720	12,240	19,500
AIRCRAFT MAINTENANCE HANGAR (SF)*	9,000	21,720	19,000	19,000
TERMINAL (SF)	1,200	5,200	3,100	4,900
FBO (ACRES)	0.2	7	7	7
AUTOMOBILE PARKING	73	121	82	129

* Hangar space could be allocated for either conventional or aircraft maintenance space.

Figure 6-7
Recommended Landside Development Concept

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The No Build alternative would have the least potential for noise impact because there would not be any construction noise. All four landside development concepts could have potential noise impacts resulting from temporary construction activities along the southern portion of the airport, which is nearer to sensitive receptors (residences located south of West Central Avenue). Of the four concepts, Landside Development Concept 4 has the least potential for temporary noise impacts because box hangars are not proposed as close to the hotel as the other concepts.

Cultural Resources

Although there are no known historic, architectural, or cultural sites located on or near the airport, construction activity that disturbs land could uncover artifacts. Impacts are considered significant if the City provides surveys that indicate resources are present or the land impacted has not been cultivated in the past 5 years, potentially significant if the City indicates surveys are not available or land has not been disturbed in the past year, or no impact if the City provides surveys that indicate no resources are present or land has been disturbed in the past year.

All four landside concepts propose construction of hangars and transit offices on land that is currently undeveloped. Aerial photographs indicate this land is either currently cultivated or has been recently cultivated and therefore no impacts are expected. The No Build alternative would have the least potential for impacts because land would not be disturbed. Landside Development Concepts 1 and 3 have the most potential because they include construction of an airport terminal on the southwest portion of the airport property, in addition to the hangars and transit offices, and would be disturbing the most undeveloped land.

Air Quality

Determination of air quality impacts depends upon the attainment status of the air district for criteria pollutants, the number and type of aircraft operations, and location of sensitive receptors near the airport. The airport is located within the Santa Barbara County Air Pollution Control District, which indicates that the South Central Coast Air Basin is nonattainment for ozone and particulate matter. In general, a subjective determination of degree of impacts is defined by location of sensitive receptors. Impacts are considered significant if receptors are located within 50 feet, moderate if between 51 and 300 feet, slight if within 301-1,000 feet, and none if greater than 1,000 feet.

There are several sensitive receptors located near the airport. There are residences located 800 feet away, and commercial, office, and several hotels located little more than 50 feet away from the impact area. These receptors may be impacted by construction activities along the southern portion of the airport for all landside concepts, although this is considered a temporary impact. The No Build alternative would have the least potential for air quality impacts because there would not be construction activity. There would be less construction impacts created by Landside Development Concepts 3 and 4 because the existing T-hangars located on the northern portion of the airport will be rehabilitated and not demolished.

Land Use

Land use impacts criteria is very closely related to safety, airspace protection, over-flights, noise, and air quality impacts. In general, land uses adjacent to airports are considered compatible if residential, institutional, and recreational (arts/instructional) will experience average noise levels less than 65 CNEL and recreational (sports/play, camping) less than 75 CNEL, incompatible if these uses experience noise greater than 65 and 75 CNEL, respectively, and compatible if commercial, industrial, and agricultural are located adjacent to the airport.

All landside concepts and the No Build alternative are considered compatible for land use impacts. Although there are residential and institutional land uses located near the airport site, they are not expected to experience noise levels above 65 CNEL.

Furthermore, based upon the alternative concepts, there are no homes or other structures located within the runway protection zone (RPZ).

Population

Determination of population impacts relate to the type of population affected by airport environmental impacts. The impacts are considered significant if the percentage of low-income and minority population affected is greater than 50 percent of the total, and insignificant if it is less than 50 percent.

None of the landside concepts are expected to significantly impact population surrounding the airport. Although aerial photographs are not the most accurate or reliable way of determining population impacts, they indicate that most of the residences located near the airport are larger than average and constructed in recent decades. Therefore, all landside concepts and the No Build alternative are expected to have insignificant population impacts.

Housing

Housing impacts are closely related to noise impacts. In general, impacts are considered significant if receptors will experience greater than 65 CNEL, moderate if between 55 and 65 CNEL, and minimal if less than 55 CNEL.

All landside concepts and the No Build alternative are expected to have moderate housing impacts because, as discussed in the noise section, residential land uses are expected to fall within the 60 dB noise contour. The No Build alternative would have the least potential for housing impacts because no development and construction noise would occur on the airport property.

Furthermore, based upon the alternative concepts, there are no homes or other structures located within the RPZ.

Hazards

Airport hazards are typically related to runway layout and significance can be estimated based on accident data. Impacts are considered significant if greater than 3 incidents per year are related to runway layout or hazards, moderate if 1 to 3 incidents per year, and insignificant if less than one accident per year.

A review of accident reports for Lompoc Airport show there were 3 accidents reported for the past 10 years. Of those 3, none of them were caused by airport or runway layout, but by pilot error or equipment malfunction. Therefore, all landside concepts and the No Build alternative are expected to have insignificant impacts.

Flood Zones

Lompoc Airport is located within Flood Zone X, which is outside the 100- and 500-year floodplains and is characterized as having a 0.2 to 1 percent annual flood chance. Flood zone impacts are considered significant if flood zone maps indicate an impact area is within a flood prone area, potentially significant if maps are not available, and none if maps do not indicate a flood prone area.

All landside concepts and the No Build alternative are not expected to have flood zone impacts because the airport is not located in a flood prone area. However, improvements at the airport for any of the landside concepts have the potential to alter drainage patterns.

Aesthetics

Aesthetic impacts are based on subjective criteria. Impacts are considered significant if the alternative design negatively affects the integrity of the existing airport and insignificant if it does not affect, positively affects, or enhances the integrity of the existing airport.

All landside concepts and the No Build alternative are expected to have insignificant aesthetic impacts. Landside Development Concept 1, however, has the most potential for aesthetic impacts because it proposes demolition and reconstruction of hangars located on the northern portion of the airport and a relocation of the terminal building. Landside Development Concept 4 has the least potential because it proposes rehabilitation of the northern hangars and an expansion of the existing terminal building.

Summary of Environmental Evaluation

As seen in the previous sections, environmental concerns are not a significant discriminator of the concepts. No one concept causes significantly greater or lesser environmental impacts than the others. However, generally speaking, Landside Development Concept 4 has slightly less potential for environmental impacts because it rehabilitates existing facilities (hangars and terminal) as opposed to constructing new facilities and slightly less construction activity near the hotel.

BASIS OF THE AIRPORT LAYOUT PLAN

The recommendations outlined above in the Airside Development Concept and Landside Development Concept 4 will define the basis of the Airport Layout Plan. Specifically:

- Runway 25 will be extended 257 feet.
- After the runway extension, the landing threshold for Runway 25 will be displaced 197 feet.
- There will be no changes to instrument approach minimums.
- Taxiways will be designated A through H.
- There will not be a designated helicopter landing pad; helicopters will operate on the runway.
- The AWOS may need to be relocated and potentially a SuperAWOS installed.
- A perimeter road is provided to allow vehicles to transition from one side of the airport to the other and a blast fence installed to protect the perimeter road and Highway 1/North ‘H’ Street.
- Facilities reflected in the Recommended Landside Development Concept (101 additional individual hangars; 28,400 additional square feet of conventional hangar space; and expansion of the existing terminal/administration building to 5,000 square feet).

OTHER CONSIDERATIONS

Airport Administration Offices

Since the airport manager also serves as the transit manager, there may be some efficiencies with locating the new City Transit Yard adjacent to the airport and allocating space for airport administration uses. Should this occur, direct access to the airport through a controlled gate should be provided. The City may also consider coordinating with the FAA for funding assistance for aviation facilities included in the City Transit Yard.

Space may also be provided in the City Transit Yard for airport maintenance equipment.

Sustainability

The City has a desire to minimize its environmental footprint of the airport. As such, the City should consider developing a sustainability plan. This plan will focus on using resources more efficiently and opportunities to implement green technology. For example, should the opportunity exist, the City can install solar panels on hangar roofs and ensuring that all new facilities are “solar ready”.

CHAPTER 7

Airport Plans

Chapter 7

Airport Plans

INTRODUCTION

This chapter, Airport Plans, is intended to detail the 20-year development program, as recommended by this master plan for Lompoc Airport. The design of the airport system, as described herein, is based upon the facility requirements discussed in Chapter 5 and the recommended development concept presented in Chapter 6. This airport development program is intended to integrate existing facilities and improvements needed over the next twenty years within the framework of an implementation schedule. In order to provide a robust and flexible plan, facilities to accommodate the High Growth Forecast are included.

This chapter is comprised of a text discussion and accompanying graphics, some of which are reductions of large-scale plans prepared during the course of this study, which graphically depict the recommended development plan for Lompoc Airport. The overall development plan for the airport is depicted on the Airport Layout Plan (ALP). The ALP is a graphic presentation of existing and ultimate airport facilities and is a key document that serves as a reference of aviation requirements, as well as land use and financial planning. In order to receive federal funding assistance, proposed projects must be consistent with the ALP, and thus the ALP must be revised and periodically updated.

Many development recommendations contained in this report, and indicated on the airport plans, are based on projected traffic levels and attainment of these levels. It cannot be overemphasized that where development is recommended based upon demand or traffic levels (such as hangars), it is ***actual***, not forecast, demand that dictates the timing of construction. This is true except in the case where hangars are recommended to be replaced due to poor, deteriorated conditions. For planning purposes, a schedule must be provided, and this schedule is based upon the forecasts of aviation demand presented in Chapter 4.

It is also important to point out the schedule of improvements proposed in this plan is contingent upon the availability of Federal, State, and local funds, and investment from the private sector. While improvements are scheduled for specific years in this report, it must be remembered the programming of the Airport Improvement Program by the FAA will determine the timing of many projects. Development projects at Lompoc Airport must be reconciled with development priorities of other airports in the region. Therefore, implementation of projects will then depend on the availability of funds and FAA programming, as well as attainment of activity levels. Chapter 8 addresses financial aspects of the plan, including FAA funding, and presents a funding plan to implement improvements shown on the ALP.

In addition to the ALP, three other drawings are included in the set of plans prepared as part of this Master Plan. These are the Airport Airspace Drawing, Inner Portion of the Approach Surface Drawing, and “Exhibit A” – Property Map.

AIRPORT LAYOUT PLAN

The Airport Layout Plan, Figure 7-1, delineates the overall development plan for Lompoc Airport as recommended in this master plan. This section discusses, by phase, the projects shown on the ALP. Project phasing is not depicted on the ALP drawing, which gives the City additional flexibility with the FAA to program projects as needed to satisfy demand. However, the phasing of the development presented herein is used to assess funding described in Chapter 8. The development phases used within this study are as follows: the short-term or Phase 1 (1-5 years); the intermediate-term or Phase 2 (6-10 years); the long-term or Phase 3 planning period (11-20 years); and the High Growth Forecast (as needed beyond the 20 year planning period).

As a graphic overview of the recommended airport development, the ALP is supported by the other plans discussed in this section. The Airport Layout Plan conforms to guidelines set forth by the FAA for the preparation of this plan. The ALP is the principal plan depicting the recommended improvements and changes to the airport configuration, and support areas. The recommended development program shown on the ALP is summarized below on a phase-by-phase basis.

Phase 1 Development (2011 – 2015)

Phase 1 development at Lompoc Airport encompasses the first five-year period (2011-2015) of the overall plan. The improvements discussed below are considered to be of the highest priority in the total development plan, but are coordinated with the remainder of the plan and are supported by findings reached during previous portions of the study. The primary focus of Phase 1 improvements is to rehabilitate George Miller Drive, reconstruct the north apron, install airfield signs and electrical upgrading, and construct box hangars. Improvements for Phase 1 are summarized in Table 7-1.

Table 7-1
RECOMMENDED PHASE 1 DEVELOPMENT

Project	Timing
Rehabilitate George Miller Drive	2010
Pavement Management Plan	2011
Reconstruct Apron	2012
Sustainability Plan	2014
Install Airfield Signs & Airfield Electrical Upgrade & Replacement	2015
Construct Perimeter Road	2015
Construct Box Hangars	2015

Source: AECOM analysis.

Rehabilitate George Miller Drive (2011)

George Miller Drive is a public road and only serves Lompoc Airport. The road is in poor condition featuring large potholes. This project reconstructs the area of asphalt from Highway 1/North 'H' Street to the end of the road; approximately 2,500 linear feet.

Pavement Management Plan (2011)

The Pavement Management Plan will determine the current condition of all pavement areas on the airport and how conditions have changed since the last pavement assessment has been made. After the assessment, current and future maintenance needs are determined including projected costs. All maintenance needs should follow local and global maintenance policies as will be outlined in the plan.

RUNWAY DATA

DESCRIPTION			RUNWAY 7 - 25 EXISTING	RUNWAY 7 - 25 FUTURE
EFFECTIVE GRADIENT (IN %)			0.2	SAME
MAXIMUM GRADIENT (IN %)			1.0	SAME
WIND COVERAGE % (13 KNOTS)			98.74	SAME
APPROACH VISIBILITY MINIMUMS			VISUAL/1 MILE	SAME
DESIGN AIRCRAFT	MAKE AND MODEL		CITATION 550 (II)	SAME
	WINGSPAN (FEET)		51.7	SAME
	UNDERCARRIAGE WIDTH		12.58	SAME
	APPROACH SPEED (KNOTS)		108	SAME
	MAX. TAKEOFF WEIGHT (LBS)		13,300	SAME
RUNWAY MARKING			NON-PRECISION	SAME
APPROACH CATEGORY (FAR PART 77)		RUNWAY 7	VISUAL	SAME
		RUNWAY 25	NON-PRECISION	SAME
RUNWAY ℄ TO PARALLEL TAXIWAY ℄			240'-250'	SAME
TAXIWAY ℄ TO FIXED OR MOVABLE OBJECT			65.5'	SAME
TAXIWAY OBJECT FREE AREA WIDTH			131'	SAME
TAXIWAY SAFETY AREA WIDTH			79'	SAME
TAXIWAY WINGTIP CLEARANCE			26'	SAME
RUNWAY ELEVATIONS (NAVD 88) (See Note 4)	TOUCHDOWN ZONE (TDZ)		NONE/88'	SAME
	HIGH POINT		88.1'	88.6'
	LOW POINT		78.8'	SAME
	END POINT (RUNWAY 7/25)		78.8'/88.1'	78.8'/88.6'
LINE OF SIGHT REQUIREMENT MET			YES	SAME
RUNWAY LENGTH			4,600'	4,857'
RUNWAY WIDTH			100'	SAME
RUNWAY/TAXIWAY PAVEMENT MATERIAL			ASPHALT	SAME
APPROACH SLOPE			20:1/34:1	SAME
PAVEMENT STRENGTH (S/D/DT) (000 LBS)			170/0	SAME
RUNWAY LIGHTING			MIRL	SAME
NAVIGATIONAL AIDS			GPS	SAME
VISUAL AIDS			VASI	SAME
RUNWAY SAFETY AREA	LENGTH[1]		300'	SAME
	WIDTH		150'	SAME
RUNWAY OBJECT FREE AREA	LENGTH[1]		500'	SAME
	WIDTH		300'	SAME
OBSTACLE FREE ZONE	LENGTH[1]		200'	SAME
	WIDTH		400'	SAME
RUNWAY CENTERLINE TO HOLD LINE			200'	SAME

[1]Length from runway end

WIND COVERAGE

RUNWAY	CROSSWIND COVERAGE ALL WEATHER 10.5 Kts.	13 Kts.	16 Kts.	20 Kts.	IFR 10.5 Kts.	13 Kts.	16 Kts.	20 Kts.
7	76.19%	77.25%	77.84%	77.99%	88.32%	88.43%	88.47%	88.49%
25	41.72%	42.18%	42.54%	42.65%	40.89%	41.01%	41.15%	41.22%
7-25	97.23%	98.74%	99.70%	99.95%	99.47%	99.70%	99.88%	99.98%

Source: National Climatic Data Center Asheville, NC. Based on 73,704 observations (1999 - 2008) taken at Lompoc, CA.

RUNWAY END DATA

RUNWAY		EXISTING	FUTURE
7	LATITUDE	34°39'56.61"N	SAME
	LONGITUDE	120°28'30.54"W	SAME
	ELEVATION[1]	78.8'	SAME
25	LATITUDE	34°39'55.85"N	34°39'55.79"N
	LONGITUDE	120°27'35.48"W	120°27'31.73"W
	ELEVATION[1]	88.1'	88.6'

[1] See Note 5.

LEGEND

DESCRIPTION	EXISTING	FUTURE
AIRPORT BOUNDARY		SAME
AIRFIELD PAVEMENT (RW/TW AND APRON)		
BUILDING RESTRICTION LINE (BRL)		SAME
RUNWAY OBJECT FREE AREA (ROFA)		
RUNWAY SAFETY AREA (RSA)		
OBSTACLE FREE ZONE (OFZ)		
RUNWAY PROTECTION ZONE (RPZ)		
BUILDINGS		
GROUND CONTOURS	65'	SAME
AIRPORT REFERENCE POINT (ARP)		
THRESHOLD SITING SURFACE		
FENCE	X	XX XX XX
ROAD		
ROTATING BEACON		SAME
MONUMENT		SAME
HOLDLINE		SAME
RUNWAY LIGHTS		
LIGHTED WIND SOCK		SAME
WIND SENSOR 500-FOOT RADIUS	NOT SHOWN	

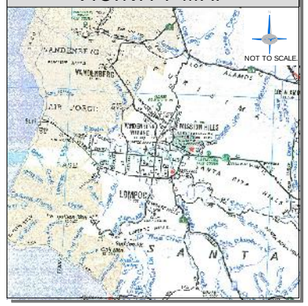
AIRPORT DATA

DESCRIPTION		EXISTING	FUTURE
AIRPORT ELEVATION (MSL)		88.1'	88.6'
AIRPORT REFERENCE POINT (ARP) COORDINATES (NAD 83)	LATITUDE	34°39'56.23"N	34°39'56.20"N
	LONGITUDE	120°28'03.01"W	120°28'01.14" W
NAVAIDS (i.e. ILS, BEACON)		BEACON/GPS	SAME
MEAN MAX. TEMP. OF HOTTEST MONTH		75.2° (September)	SAME
AIRPORT REFERENCE CODE		B-II	SAME
GPS AT AIRPORT		YES	SAME

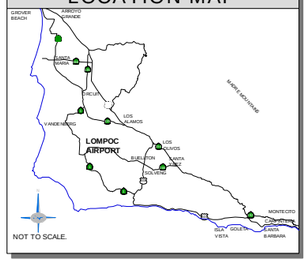
ABBREVIATIONS:

ARP	Airport Reference Point	NPI	Non-Precision Instrument Approach
AWOS	Automated Weather Observing System	OFZ	Obstacle Free Zone
		Pt.	Point
BRL	Building Restriction Line	REIL	Runway End Identifier Light
DT	Displaced Threshold	ROFA	Runway Object Free Area
(E)	Existing	RPZ	Runway Protection Zone
Elev.	Elevation	RSA	Runway Safety Area
Est.	Estimated	RW	Runway
(F)	Future	TDZE	Touchdown Zone Elevation
GPS	Global Positioning System	TOFA	Taxiway Object Free Area
IFR	Instrument Flight Regulations	TSS	Threshold Siting Surface
Lat.	Latitude	TW	Taxiway
Long.	Longitude	VASI	Visual Approach Slope Indicator
MSL	Mean Sea Level		

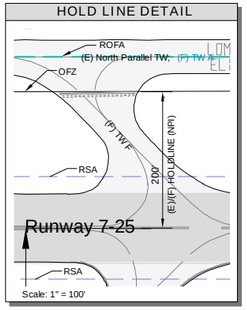
VICINITY MAP



LOCATION MAP

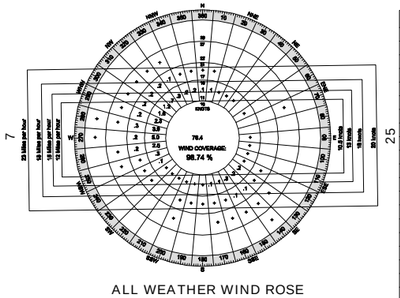


HOLD LINE DETAIL

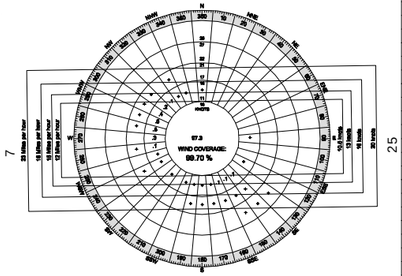


NOTES:

1. California Coordinate System, Zone 5 NAD 83. All elevations are in NAVD 88.
2. There are no Obstacle Free Zone (OFZ) penetrations.
3. Hangar layouts shown are conceptual to depict potential future capacities. Future configurations will be determined based on demand.
4. Existing runway end elevations are from the Runway Extension As-Built drawings. All future elevations are estimated.
5. The City of Lompoc has not been sectioned. The nearest section corner is approximately two (2) miles SE of the Airport.
6. The monuments are protected by a 2" brass cap are secured in a monument well. Additional monuments are shown on Sheet 4.
7. The RPZ areas off airport property are within the 100-year flood zone of the Santa Ynez River. No development is permitted within the flood zone. Additional airport control is not proposed.
8. The winery was evaluated under 2008-AWP-5800-OE.
9. The change to the future end point of Runway 27 (approach end) will require an amendment to the current Instrumental Flight Procedures. The ADO will need to contact the Flight Procedures Office to coordinate the desired publication date and any changes to that date.
10. The flood plain zone line delineates the boundary of the Lower Bench.



ALL WEATHER WIND ROSE



IFR WIND ROSE

BUILDING / FACILITY TABLE

#	DESCRIPTION	TOP ELEVATION
1	HANGAR 700	105'
2	HANGAR 660	98'
3	HANGAR 650	98'
4	HANGAR 640	98'
5	HANGAR 630	98'
6	HANGAR 620	98'
7	HANGAR 610	98'
8	HANGAR 600	100'
9	HANGAR 662	97'
10	HANGAR 652	97'
11	HANGAR 642	97'
12	HANGAR 632	98'
13	HANGAR 622	98'
14	HANGAR 612	98'
15	HANGAR 602	98'
16	BUILDING D	99'
17	BUILDING B	99'
18	BUILDING C	99'
19	BUILDING A	99'
20	HANGAR 434	106'
21	HANGAR 408	106'
22	OIL RECYCLING CENTER	91'
23	F HANGARS	97' - 99'
24	HANGARS 376 AND 378	103'
25	HANGARS 370, 372, 374, 380, 382, AND 384	103'
26	HANGAR 1801	109'
27	TERMINAL/ADMINISTRATIVE BUILDING	98'
28	HANGAR G1	100'
29	HANGAR G2	100'
30	HANGAR G3	100'
31	HANGAR G4	100'
32	T-HANGAR	96' - 99'
33	HANGAR 211	103'
34	HANGAR 361	99'
35	HANGAR 365	101'
36	HANGARS 401, 403, 405, 407, AND 409	98'
37	HANGARS 415, 417, 419, 421, AND 423	98'
38	FUTURE BOX HANGARS	95'* - 100'*
39	FUTURE RESTAURANT	97'*
40	FUTURE CONVENTIONAL HANGARS	102'* - 104'*
41	FUTURE T-HANGARS	95'* - 97'*
42	FUTURE TERMINAL/ADMINISTRATIVE BUILDING	98'*
43	FUEL FARM	94'
44	AWOS	113'
45	FUTURE AWOS	111'*
46	CONVENTIONAL HANGAR	100'
47	ELECTRICAL VAULT	92'

* Estimated

FAA APPROVAL

Approved conditionally _____ MAR 16 2011

Subject to comments contained in our letter dated MAR 16 2011

FEDERAL AVIATION ADMINISTRATION
Western-Pacific Region

By _____
Manager, LAX/ADO

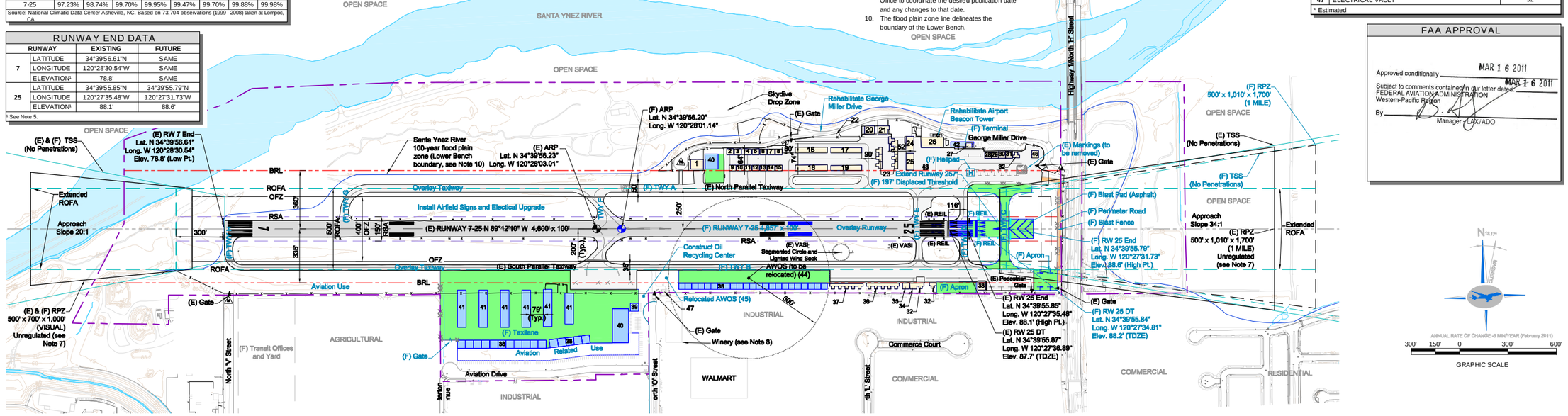


Figure 7-1
Airport Layout Plan

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Reconstruct Apron (2012)

The north apron is in poor condition and features significant alligator cracking. This development completely removes and reconstructs the north apron near the terminal/administrative building and individual hangars. Approximately 165,890 square feet of apron will be reconstructed. This project requires excavation and importing base material for the reconstructed apron. The north apron should be of sufficient strength to support single engine aircraft and an occasional business jet. The area by the fuel tanks should be designed to support more frequent jet traffic. This project includes the removal of the name and elevation markings on the north parallel taxiway and painting the airport name and elevation on the north apron (a non-movement area).

Sustainability Plan (2014)

This project creates a plan that outlines the potential options the airport has in creating a greener and more sustainable existence. This could include different goals the airport could strive for within a certain time period and should include a vision and key impacts. These goals will focus on valuation, appreciation, and restoration of nature. By using sustainable energy, not only could the airport reduce its carbon footprint, but may also reduce its energy costs.

Install Airfield Signs & Airfield Electrical Upgrade & Replacement (2015)

Upgrading of the airfield electrical was noted in the City's CIP list. This project involves replacement of direct buried cables with cables in conduits and connecting all avigation equipment to the electric vault on the south side of the airport. As part of this project, additional airfield signs should be installed including holding position signs along with taxiway location signs on all taxiways that intersect the runway, runway exit signs for both runway directions at all taxiway exits, taxiway designation signs, runway distance remaining signs, and location signs for aircraft taxiing from the runway ends toward the terminal. The airfield electrical vault will also be renovated and improved as necessary with new constant current regulators.

Construct Perimeter Road (2015)

Currently there is no perimeter road at the airport, which means all maintenance and service vehicles must cross the active runway to access the opposite side of the airport. To mitigate this, a perimeter road will be constructed parallel to Highway 1/North 'H' Street. This reduces possible runway incursions and provides additional safety at the airport by separating vehicle and aircraft traffic. The new perimeter road will be 24 feet wide and covers approximately 22,000 square feet.

Construct Box Hangars (2015)

Facility requirements show a potential demand of eight additional individual hangars by the end of Phase 1. These eight 40-foot by 40-foot box (1,600 square feet) hangars are to be built along the south parallel taxiway next to the existing T-hangars. In addition, approximately 28,000 square feet of apron should be constructed to connect these hangars to the south parallel taxiway.

Phase 2 Development (2016 – 2020)

Development for Phase 2, or the intermediate-term development phase, encompasses the second five-year period (2016 – 2020). Phase 2 improvements are listed in Table 7-2 and focus on runway/taxiway overlay and extension, expanding the terminal and connecting it to the City sewer system, and constructing more individual hangars.

Runway/Taxiway Overlay and Extension (2016)

This project overlays the runway and both parallel taxiways. This project requires milling and grinding down 2-3 inches of the pavement surfaces of the runway/taxiways and adding a new layer of asphalt on top. The runway and south parallel taxiway are approximately 4,600 feet long and the north parallel taxiway is approximately 3,700 feet long. The runway and both taxiways cover an area of approximately 940,000 square feet.

Table 7-2
RECOMMENDED PHASE 2 DEVELOPMENT

Project	Timing
Runway/Taxiway Overlay and Extension	2016
Construct Blast Fence	2016
Recertify Instrument Approach/Upgrade to WAAS/LPV Approach	2017
Rehabilitate City Owned Hangars	2018
Relocate AWOS/Install SuperAWOS	2019
Expand Terminal and Connect to City Sewer System	2020
Construct Individual Hangars	2020

Source: AECOM analysis.

In addition, as part of this project the runway will be extended 257 feet to the east. Runway 25 requires a displaced threshold of 197 feet due to Highway 1/North 'H' Street. A runway extension of 257 feet will allow most small to medium sized business jets to operate near maximum loading factors. In addition, extending the runway will result in less of a weight penalty for larger aircraft.

This development includes additional entrance taxiways on both the north and south side. Visual aids such as the runway end identifier lights (REILs), visual slope approach indicator (VASI), and associated signs will need to be relocated with the new runway threshold and displaced threshold. New runway and taxiway edge lights will be installed for the extended portions of the runway and taxiways. The south-side apron will be extended toward Highway 1/North 'H' Street by approximately 19,700 square feet. This project also includes adding shoulders along the entire runway length and an 18,000-square foot blast pad on the Runway 25 end.

As previously noted, if floor plain conditions have changed, extension of Runway 7 to the west should also be considered.

Construct Blast Fence (2016)

A blast fence will be installed 300 feet from the future Runway 25 threshold. The blast fence will be approximately 10 feet tall and approximately 530 feet long. This blast fence will prevent dirt, debris, and jet blast from affecting the Highway 1/North 'H' Street and the airport perimeter road. Consideration should be given to painting a mural on the public side of the blast fence, consistent with the City art and mural programs.

Recertify Instrument Approach/Upgrade to WAAS/LPV Approach (2017)

With the shift in the runway threshold and relocated displaced thresholds, the instrument approach procedure for Runway 25 requires recertification. This includes the recertification for approaches RNAV (GPS) RWY 25 and VOR/DME-A. This project also includes an upgrade to a WAAS/LPV approaches at Lompoc Airport. This would allow approaches with vertical guidance at Lompoc. As previously noted, due to surrounding terrain, ceiling heights will not be reduced.

Rehabilitate City Owned Hangars (2018)

The City owned hangars on the north side of the airport are in poor condition and require rehabilitation. This includes four buildings of six hangars each. The roofs of the hangars leak. This project is to reroof the hangars. The City may also give consideration to "reskinning" the hangars.

Relocate AWOS/Install SuperAWOS (2019)

To allow for additional space for hangar and apron development, the AWOS should be relocated from its current position closer to the electrical vault and the south apron. Tenants noted that the existing AWOS is unreliable at times. The City may decide to install a new AWOS or a SuperAWOS by the vault instead of relocating the existing equipment.

Expand Terminal and Connect to City Sewer System (2020)

Facility requirement forecasts project the need for a larger terminal/administrative building. This development includes the expansion of the existing building by approximately 4,000 square feet, bringing the total terminal size to approximately 5,200 square feet. The terminal facility will need to be rehabilitated to meet Americans with Disability Act (ADA) requirements. Specifically, the existing bathrooms are not ADA compliant.

This project also includes connection of the terminal building to the City sewer system. This could be done in two ways: install sewer pump station and force the main system to connect to the existing 6-inch sewer line under Highway 1/North 'H' Street or use a gravity system to connect with the existing 8-inch sewer line located at North 'O' Street. Costs noted in Chapter 8 assume that a pressurized system is installed.

Construct Individual Hangars (2020)

This development constructs ten additional 40-foot by 40-foot box hangars along the south parallel taxiway. This construction includes approximately 32,200 square feet of apron space in front of the hangars.

Phase 3 Development (2021 – 2030)

The long-term developments are outlined in Phase 3. This phase focuses on construction of an airport café/restaurant, oil recycling center, individual hangars, and an airport maintenance facility. These projects will occur between 2021 and 2030. Table 7-3 summarizes Phase 3 projects.

Table 7-3
RECOMMENDED PHASE 3 DEVELOPMENT

Project	Timing
Construct Airport Café/Restaurant and Automobile Parking	Long-Term
Construct Individual Hangars	Long-Term
Construct Airport Maintenance Facility	Long-Term
Construct Oil Recycling Center	Long-Term
Rehabilitate Airport Beacon Tower	Long-Term
Provide Additional Automobile Parking	Long-Term/ As needed

Source: AECOM analysis.

Construct Airport Café/Restaurant and Automobile Parking (Long-Term)

The based aircraft owner's survey indicated a desire for an Airport Café/Restaurant. This development in the long-term provides a two-story restaurant of approximately 2,500 square feet, which will be built adjacent to the south apron and North 'O' Street. This restaurant would be open to the public, provide dedicated automobile parking, and allow a view of the airfield and aircraft operations.

Construct Individual Hangars (Long-Term)

This development proposes the construction of individual hangars on the south side of the airport. In the long-term there may be a need for an additional 19 hangars. Five box hangars and associated apron area (approximately 16,100 SF) will be added to the row of box hangars along the south parallel taxiway developed in Phases 1 and 2. The remaining 14 hangars will be provided by T-hangar and box hangar developments near the south apron. A building of eight (8) T-hangars and an additional six box hangars will be built on the south apron. This includes approximately 78,200 square feet of apron space for taxilane access.

Construct Airport Maintenance Facility (Long-Term)

The long-term facility requirements project a need for an additional 1,000 square feet of airport maintenance facility. Presently the airport maintenance facility is located near the AWOS and in a T-hangar. In the long-term, airport maintenance could use open space along the south parallel taxiway adjacent to the south property fence. Alternatively, the airport maintenance facility could be co-located with the proposed City Transit Yard on the south-west side of the airport along North 'V' Street.

Construct Oil Recycling Center (Long-Term)

In the long-term, the need for an additional oil recycling center may arise. This oil recycling center will be built on the south side of the airport near the North 'O' Street access to the airport and serve the south side tenants.

Rehabilitate Airport Beacon Tower (Long-Term)

The existing airport beacon tower is covered with lead based paint. The paint is in poor condition and peeling. This project removes the lead based paint and refinishes the existing tower with environmentally safe paint. The City may decide to replace the existing tower structure with a more modern pole.

Provide Additional Automobile Parking (Long-Term/As Needed)

Facility requirements in the long-term show a need for eight additional automobile parking spaces and an additional 56 automobile parking spaces should the High Growth Forecast occur. Space for approximately 40 automobile parking spaces will be provided along the restaurant and future conventional hangar next to the aviation related use building on the south airport parcel.

High Growth Forecast/As Needed (Beyond the 20-Year Planning Period)

The projects on an as-needed basis are projects that are needed to meet the High Growth Forecast facility requirements. These projects will only be built should the need arise and are listed in Table 7-4.

Table 7-4
RECOMMENDED AS NEEDED DEVELOPMENT

Project	Timing
Construct Individual Hangars	As needed
Construct Conventional Hangars	As needed
Construct Aviation Related Use Building and Associated Parking	As needed
Install Jet A Tank	As needed
Construct Apron	As needed
Enhance Airport Security	As needed

Source: AECOM analysis.

Construct Individual Hangars (As Needed)

The south parcel has enough space to accommodate 10 additional box hangars and 50 additional T-hangars. Aircraft parking apron and taxilanes associated with this development cover approximately 222,000 square feet. This project would fulfill individual hangar requirements for the High Growth Forecast.

Construct Conventional Hangars (As Needed)

On the south parcel, an approximately 21,000-square foot conventional hangar will be erected adjacent to the restaurant and aviation related use building. Apron associated with this development covers approximately 65,000 square feet. Another conventional hangar covering approximately 7,400 square feet will be built on the north side of the airport adjacent to the conventional hangar and box hangars near the west end of George Miller Drive. This project would fulfill conventional hangar requirements.

Construct Aviation Related Use Building and Associated Parking (As Needed)

The aviation related use building spans approximately 89,000 square feet and is located on the south airport parcel. Along the building a single row of approximately 101 automobile parking spaces will be built. This development will have direct access to the 16 box hangars proposed on the 13-acre parcel.

Install Jet A Tank (As Needed)

The need for an additional Jet A tank may arise within the 20-year planning period. This additional 10,000-gallon above ground tank will be located adjacent to the existing fuel tanks on the north apron.

Construct Apron (As Needed)

This project develops apron of approximately 17,200 square feet along the southern property line, abeam of the existing Runway 25 threshold. This apron will be used as additional transient aircraft parking and will provide extra paved apron for the annual Piper Cub event.

Enhance Airport Security (As Needed)

Should conditions at Lompoc expand to include more than 101 based aircraft and more than 50,000 annual operations, enhancements in airport security should take place. These security

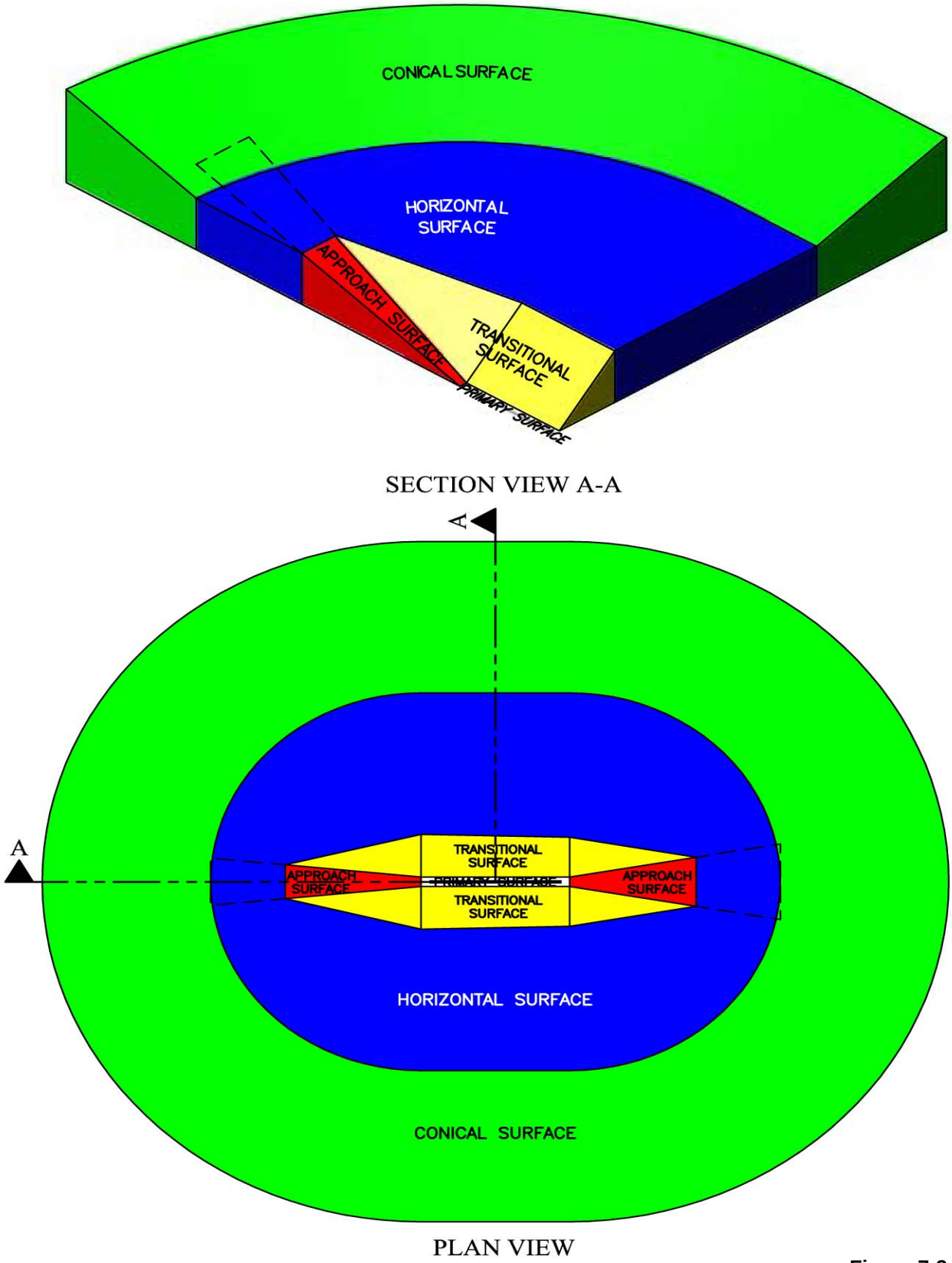
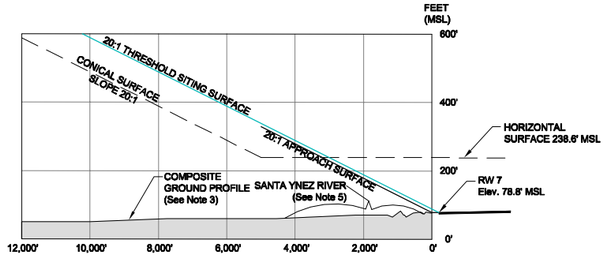
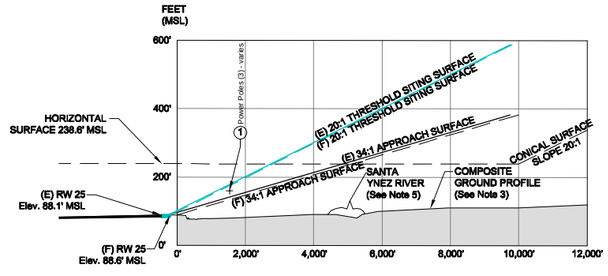


Figure 7-2
Isometric View of FAR Part 77 Surfaces



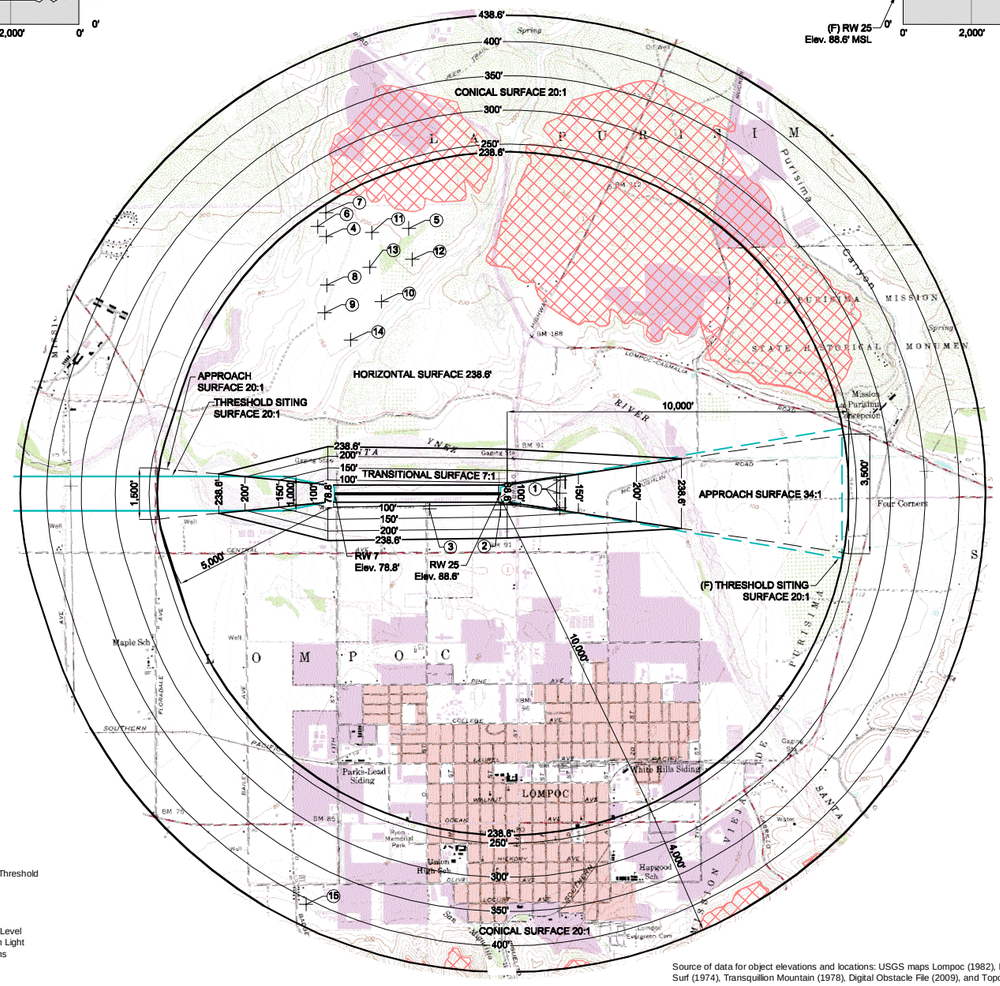
Runway 7

SCALE: HORIZONTAL 1" = 2,000'
VERTICAL: 1" = 200'



Runway 25

SCALE: HORIZONTAL 1" = 2,000'
VERTICAL: 1" = 200'



SURFACE ELEVATION	
SURFACE	**ELEVATION**
END OF RUNWAY 7	78.8'
END OF RUNWAY 25	88.6'*
HORIZONTAL SURFACE	238.6'
CONICAL SURFACE (UPPER LIMIT)	438.6'
APPROACH SURFACE 7 (UPPER LIMIT)	328.8'
APPROACH SURFACE 25 (UPPER LIMIT)	382.7'*
* Estimated	

SURFACE DIMENSION	
SURFACE	**DIMENSION**
PRIMARY SURFACE WIDTH	500'
APPROACH SURFACE 7 (INNER WIDTH)	500'
APPROACH SURFACE 25 (INNER WIDTH)	500'
APPROACH SURFACE 7 (OUTER WIDTH)	1,500'
APPROACH SURFACE 25 (OUTER WIDTH)	3,500'
APPROACH SURFACE 7 (LENGTH)	5,000'
APPROACH SURFACE 25 (LENGTH)	10,000'
CONICAL SURFACE WIDTH	4,000'

USGS MAPS USED FOR BASE
7.5 MIN. QUAD
LOMPOC (1982)
LOMPOC HILLS (1971)
LOS ALAMOS (1974)
SANTA ROSA HILLS (1978)
SURF (1974)
TRANSQUILLON MOUNTAIN (1978)

FAR PART 77 OBSTRUCTIONS					
#	DESCRIPTION	ELEV.	PEN.	SURFACE	PROPOSED ACTION
1	POWER POLES (3)	160'	26'	RW 25 APPROACH	PLACE UNDERGROUND/LOWER
2	HOTEL	147'*	26'	TRANSITIONAL	PROVIDE OL
3	WINERY	120'*	7'	TRANSITIONAL	PROVIDE OL
4	TOWER	300'	61'	HORIZONTAL	PROVIDE OL
5	TOWER	320'	81'	HORIZONTAL	PROVIDE OL
6	TOWER	310'	71'	HORIZONTAL	PROVIDE OL
7	TOWER	320'	81'	HORIZONTAL	PROVIDE OL
8	TOWER	273'	34'	HORIZONTAL	PROVIDE OL
9	TOWER	270'	31'	HORIZONTAL	PROVIDE OL
10	TOWER	270'	31'	HORIZONTAL	PROVIDE OL
11	TOWER	280'	41'	HORIZONTAL	PROVIDE OL
12	TOWER	295'	56'	HORIZONTAL	PROVIDE OL
13	TOWER	293'	54'	HORIZONTAL	PROVIDE OL
14	TOWER	265'	26'	HORIZONTAL	PROVIDE OL
15	TOWER	330'	51'	CONICAL	PROVIDE OL
* Estimated					

ABBREVIATIONS:

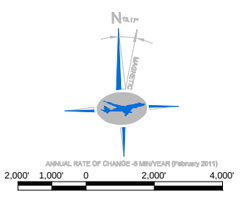
DT	Displaced Threshold
(E)	Existing
ELEV.	Elevation
Est.	Estimated
(F)	Future
MSL	Mean Sea Level
OL	Obstruction Light
PEN.	Penetrations
RT	Right
RW	Runway

LEGEND

Terrain Penetration to Part 77 Surfaces

NOTES:

1. FAR Part 77 surfaces are based on the ultimate runway location.
2. All elevations are in feet above mean sea level (MSL).
3. A composite ground profile is created by using the highest point at any given distance from the runway within the approach surface.
4. There are no threshold siting surface penetrations.
5. Santa Ynez River traverses through the approach surfaces of Runways 7 and 25. The traverse way is exaggerated as the profile reflects a composite ground profile.
6. Close in obstructions are shown on Sheet 3.
7. Power Lines are marked with white and orange spherical markers.



Source of data for object elevations and locations: USGS maps Lompoc (1982), Lompoc Hills (1971), Los Alamos (1974), Santa Rosa Hills (1978), Surf (1974), Transquillion Mountain (1978), Digital Obstacle File (2009), and Topographical Survey (2009).

Figure 7-3
Airport Airspace Drawing

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enhancements include access controls, lighting system to deter theft and vandalism, personnel identification system, vehicle identification system, and challenge procedures.

AIRPORT AIRSPACE DRAWING

The Airport Airspace Drawing depicts the Part 77 imaginary surfaces on and around Lompoc Airport. The dimensions and criteria employed in determining the Part 77 surfaces are those contained in Federal Aviation Regulations (FAR), Part 77, Objects Affecting Navigable Airspace (Section 77.25). These surfaces are defined for the purpose of identifying natural (terrain or trees) and man-made objects that could affect air navigation at an airport. An isometric view of these surfaces is found in Figure 7-2. These surfaces are defined for the purpose of identifying natural (terrain or trees) or man-made objects that could affect air navigation at an airport. Figure 7-3 shows the Airport Airspace Drawing for Lompoc Airport.

FAR Part 77 Imaginary Surfaces

The dimensions of the FAR Part 77 imaginary surfaces depend on the size of aircraft using the airport and the type of instrument approach procedures. The FAR Part 77 criteria applied to each Runway 25 is "other than utility" runway with non-precision instrument approach and visibility minimums greater than ¾ mile. The FAR Part 77 criteria applied to Runway 7 is "other than utility" runway with a visual approach.

The descriptions of the surfaces and their dimensions for Lompoc Airport, along with a description of how to determine the height of the surface at any point follows.

Horizontal Surface

The horizontal surface is a horizontal plane 150 feet above the established airport elevation. The airport elevation, measured at the highest point along the runway, is 88.6 feet above mean sea level (MSL). This point occurs at the future Runway 25 threshold. Therefore, the elevation of the horizontal surface at Lompoc Airport is approximately 239 feet MSL.

The perimeter of the horizontal surface is delineated by arcs with radii of either 5,000 feet or 10,000 feet from the center of the ends of the primary surface, depending on the type of runway. Runway 7 is a visual runway and therefore has a 5,000-foot radius, whereas Runway 25 is equipped with a non-precision instrument approach and the radius of the horizontal surface is 10,000 feet from that primary surface end. Adjacent arcs are connected by lines that are tangent to these arcs. All points on the horizontal surface have an elevation of approximately 239 feet MSL.

Conical Surface

The conical surface extends outward and upward from the edge of the horizontal surface at a slope of 20:1, for a horizontal distance of 4,000 feet. The elevation of the conical surface at its outermost edge is approximately 439 feet MSL.

The elevation of any point on the conical surface is found by starting at the intersection of the horizontal surface and conical surfaces (where the elevation is approximately 239 feet MSL) and increasing one foot in elevation for every 20 feet measured laterally from the intersection.

Primary Surface

The primary surface is defined as being longitudinally centered on the runway, with a width dependent on the type of runway, and extending 200 feet beyond each end of the runway. The

width of the primary surface at Lompoc Airport is 500 feet. The elevation of any point on the primary surface is the same as the closest point on the runway centerline.

Approach Surfaces

The slope and configuration of a runway approach surface varies as a function of the type of aircraft served and availability of instrument approach procedures. Approach surfaces terminate at the primary surface, where their width is equal to the width of the primary surface. The approach surface for Runway 7 is 1,500 feet wide at its beginning point, 5,200 feet from the runway. This approach surface extends upward and outward at a slope of 20:1 feet. Runway 25 approach surface is 3,500 feet wide at its beginning point, 10,200 feet from the runway end. This non-precision approach surface extends outward and upward at a slope of 34:1 feet.

The elevation of any point on the Runway 7 approach surface is found by starting at the intersection of the approach and primary surface (where the elevation is approximately 79 feet MSL) and increasing one foot in elevation for every 20 feet measured laterally from the intersection. Once the approach surface elevation reaches the horizontal surface elevation (239 feet MSL), the horizontal surface is controlling. Similarly, the elevation of any point on the Runway 25 approach surface is found by starting at the intersection of the approach and primary surface (where the elevation is approximately 89 feet MSL) and increasing one foot in elevation for every 34 feet measured laterally from the intersection until intercepting the horizontal surface (239 feet MSL), after which the horizontal surface is controlling.

Transitional Surfaces

The transitional surfaces extend outward and upward at right angles to the runway centerline (and the extended runway centerline) at a slope of 7:1 from the edges of the primary and approach surfaces.

The elevation of any point on a transitional surface is found by starting at the intersection of the transitional surface with the approach or primary surface and increasing one foot in elevation for every 7 feet measured laterally from the intersection. Once the transitional surface reaches the horizontal surface elevation (239 feet MSL), the horizontal surface is controlling.

Obstructions Identified Under FAR Part 77

The airport imaginary surfaces shown on Figure 7-3 are superimposed on United States Geological Survey (USGS) topographic maps. The USGS map was reviewed, as was the NGS Aeronautical Data file for Lompoc Airport and the digital topographic files obtained as part of this master plan study. The following obstructions were identified. These are also found on Figure 7-3.

Obstructions within the Horizontal Surface

Eleven towers located penetrate the horizontal surface by between 26 and 81 feet. These towers are located between 4,500 and 8,200 feet north and west of the runway. Two areas of terrain penetrate the horizontal surface between 91 and 97 feet. These areas occur north of the airport and the terrain penetration extends into the conical surface. The towers may remain but should be lighted with obstruction lights. Terrain obstructions are expected to remain in place.

Obstructions within the Conical Surface

A tower located approximately 12,000 feet southwest of the runway penetrates the conical surface by approximately 51 feet. This tower may remain but should be lighted with obstruction lights. In addition, eight areas of terrain penetrate the conical surface. These areas are located all directions and distances from the runway and penetrate the conical surface anywhere from 11 to 171 feet. Six of the eight terrain penetrations are minor and located along the southern most edge of the conical surface. It is expected that these obstructions will remain.

Obstructions within Transitional Surfaces

The hotel and newly constructed winery penetrate the transitional surface 26 and 7 feet, respectively. Both obstructions are within less than 500 feet of the runway centerline and located south of the airport. It is recommended that these buildings be equipped with obstruction lights.

Obstructions within the Primary Surface

Visual aids, such as the windsock and segmented circle are located within the primary surface. Runway and taxiway signs will also be located within the primary surface. These are fixed by function and will remain.

Obstructions within the Approach Surfaces

Runway 7 approach surface is penetrated by a dirt road. It is assumed that the dirt road, which penetrates in three locations by approximately 2 to 10 feet, remains in place. Use of the dirt road is limited to the sand and gravel company.

Highway 1/North 'H' Street and three power poles along a dirt road approximately 1,500 feet from the future Runway 25 end. In addition, the future perimeter/service road will penetrate the future Runway 25 approach surface by approximately 6 to 7 feet. The power line should be placed underground or lighted with obstruction lights. The power lines currently feature spherical markers. Highway 1/North 'H' Street penetrates the Runway 25 approach surface in three locations by approximately 11 to 13 feet. The three power poles penetrate by approximately 26. The roads are expected to remain in place while the power poles may be lowered or placed underground.

Threshold Siting Surfaces

Threshold siting surfaces are imaginary inclined planes extending outward and upward from the ends of the runways that are used to establish the location of landing thresholds. They are not specified in FAR Part 77, but since they are similar in concept to Part 77 imaginary surfaces, they are shown on the Airport Airspace Drawing (Figure 7-3).

Threshold siting standards are applied for the following runway types as defined in AC 150/5300-13:

- Runway 7: "Approach end of runways expected to serve large airplanes (visual day/night); or instrument minimums greater than or equal to 1 statute mile (day only)."

- Runway 25: "Approach end of runways expected to support instrument straight-in night operations, serving approach category A and B aircraft only."

Based on a review of known obstacles, the future threshold siting surfaces are clear of obstructions. As previously indicated in Chapter 5, the existing threshold of Runway 25 is not required. Once the runway is extended, a 197-foot displaced threshold is required.

INNER PORTION APPROACH SURFACE DRAWING

Figure 7-4 depicts the Inner Portion Approach Surface Drawing. This sheet is otherwise known as the Runway Protection Zone, or RPZ, Plan. Also depicted on this figure are the land uses within the RPZs. The RPZ for Runway 7 has an inner width of 500 feet, an outer width of 700 feet, is 1,000 feet long, and encompasses 13.77 acres. The RPZ for Runway 25 has an inner width of 500 feet, an outer width of 1,010 feet, is 1,700 feet long, and encompasses 29.465 acres.

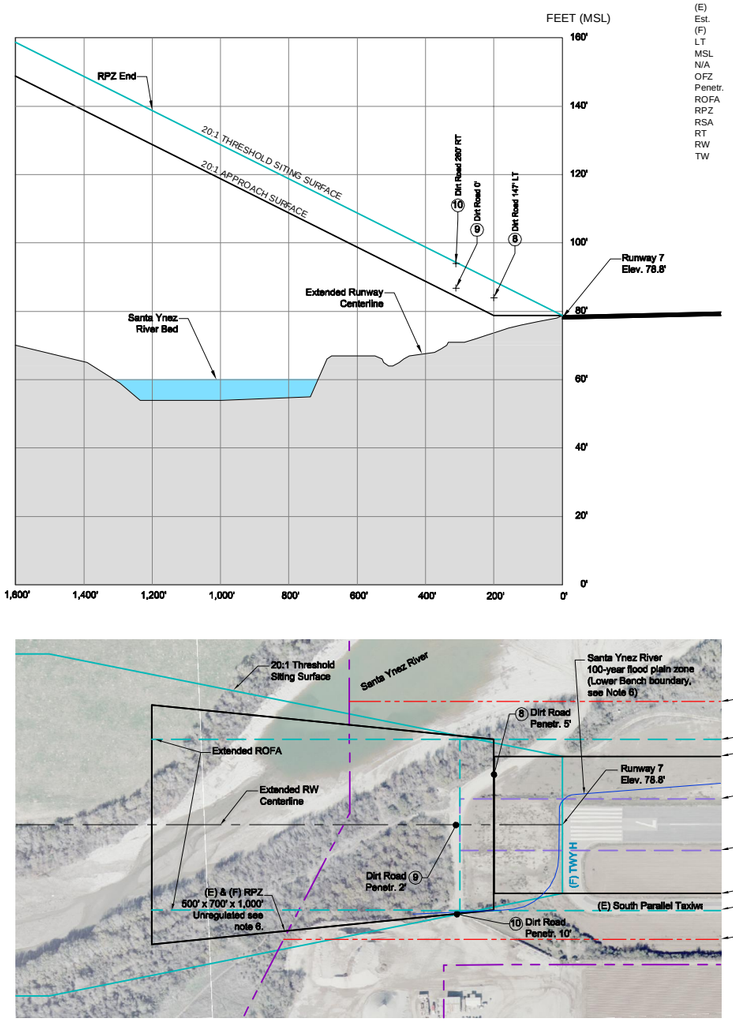
Approximately 7.8 acres of the Runway 7 RPZ are not within airport property and the RPZ includes a portion of the Santa Ynez River. The off-airport portion of the Runway 7 RPZ lies within the Santa Ynez flood plain, which prevents development. Approximately 40 percent of the Runway 25 RPZ extends beyond airport property. The RPZ includes a detention basin and animal shelter (which are located on airport property) along with a section of Highway 1/North 'H' Street. The portion of the RPZ that extends beyond airport property is part of the Santa Ynez flood plain, preventing development. Runway 25 features a larger than required RPZ for enhanced land use protection, should larger jet aircraft use the airport on a regular basis.

EXHIBIT "A" – PROPERTY MAP

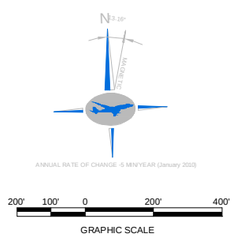
The Exhibit "A" – Property Map for the airport is illustrated on Figure 7-5. The primary intent of the Exhibit "A" property map is to identify all land which is designated airport property and to provide an inventory of all parcels which make-up the airport. Acquisition of properties – in fee or easement – is not recommended in this master plan.

ABBREVIATIONS:

BRL	Building Restriction Line
Clr.	Clear
DT	Displaced Threshold
(E)	Existing
Est.	Estimated
(F)	Future
LT	Left
MSL	Mean Sea Level
N/A	Not Applicable
OFZ	Obstacle Free Zone
Penetr.	Penetrations
ROFA	Runway Object Free Area
RPZ	Runway Protection Zone
RSA	Runway Safety Area
RT	Right
RW	Runway
TW	Taxiway



RUNWAY 7



RUNWAY 25

OBSTRUCTION IDENTIFICATION TABLE - RUNWAY 7				
OBS. No.	DESCRIPTION	ELEVATION	PENETR.	PROPOSED ACTION
8	DIRT ROAD	84'	5'	TO REMAIN
9	DIRT ROAD	87'	2'	TO REMAIN
10	DIRT ROAD	94'	10'	TO REMAIN

NOTES:

1. All elevations are in feet above mean sea level (MSL).
3. Existing Runway end elevations are from the Runway Extension As-Built drawings. All future elevations are estimated.
4. Existing and future penetrations to the Perimeter Road refer to the existing and future runway ends.
5. Power Lines are marked with white and orange spherical markers.

Source of data for object elevations and locations: USGS maps Lompoc (1982), Lompoc Hills (1971), Los Alamos (1974), Santa Rosa Hills (1978), Surf (1974), Transquillion Mountain (1978), Digital Obstacle File (2009), and Topographical Survey (2009).

Source of picture: Aerial Photo used for Topographical Survey (2009).

OBSTRUCTION IDENTIFICATION TABLE - RUNWAY 25					
OBS. No.	DESCRIPTION	ELEVATION	(E) PENETR.	(F) PENETR.	PROPOSED ACTION
1	(F) PERIMETER ROAD	99'	NA	7'	TO REMAIN
2	(F) PERIMETER ROAD	99'	NA	7'	TO REMAIN
3	(F) PERIMETER ROAD	98'	NA	6'	TO REMAIN
4	HIGHWAY 1/N 'H' ST.	106'	5'	13'	TO REMAIN
5	HIGHWAY 1/N 'H' ST.	105'	4'	11'	TO REMAIN
6	HIGHWAY 1/N 'H' ST.	106'	5'	12'	TO REMAIN
7	POWER POLES (3)	160'	19'	26'	PLACE UNDERGROUND/LOWER

Figure 7-4
Inner Portion of the Approach Surface

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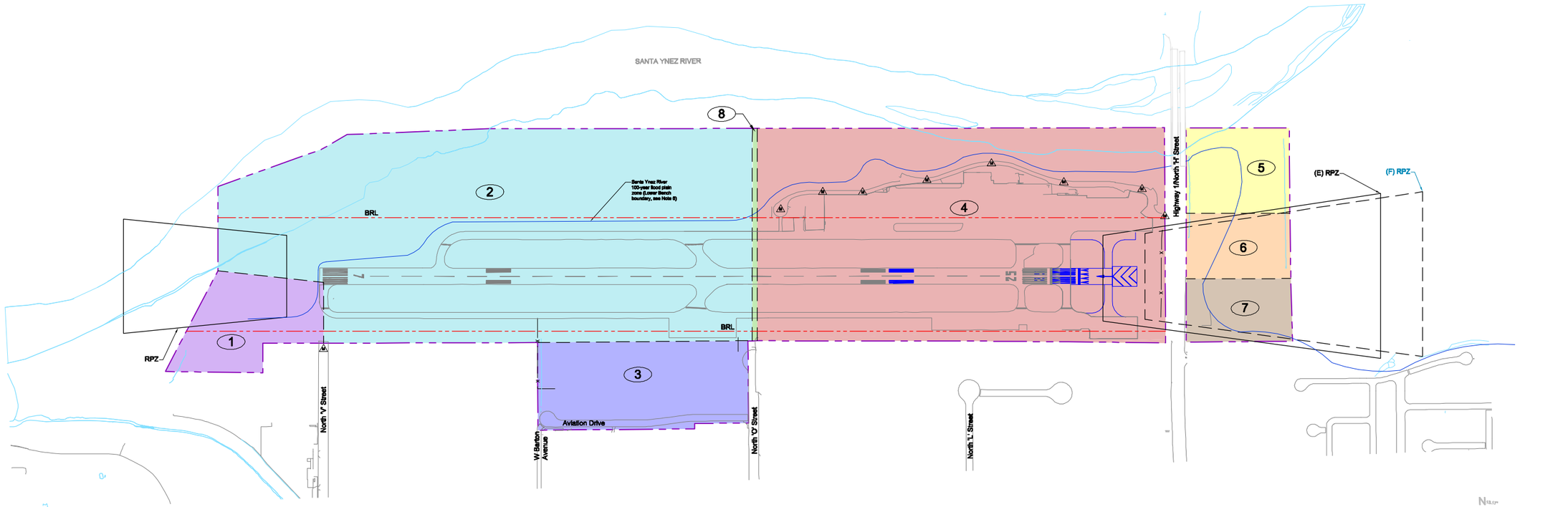
NOTES:

1. California Coordinate System, Zone 5 NAD 83. All elevations are in NAVD 88.
2. Future airfield is shown.
3. The City of Lompoc has not been sectioned. The nearest section corner is approximately two (2) miles SE of the Airport.
4. The monuments are protected by a 2" brass cap are secured in a monument well.
5. Parcel lines were derived from the City GIS.
6. The flood plain zone line delineates the boundary of the Lower Bench.

LEGEND	
DESCRIPTION	**EXISTING**
AIRPORT PROPERTY (ORIGINAL)	
SANTA YNEZ RIVER	
FUTURE AIRFIELD PAVEMENT	
MONUMENT	
BUILDING RESTRICTION LINE (BRL)	



PROPERTY TABLE								
#	TYPE OF INTEREST	GRANTOR	GRANTEE	BOOK/PAGE	PARCEL	ACREAGE*	DATE OF RECORDING	COMMENTS
1	FEE	SANTA BARBARA COUNTY	CITY OF LOMPOC	093/04/20	093-040-020	10	1991	Original transfer from Santa Barbara County
2	FEE	SANTA BARBARA COUNTY	CITY OF LOMPOC	093/45/12	093-450-012	88	1991	Original transfer from Santa Barbara County
3	FEE	UNKNOWN	CITY OF LOMPOC	093/45/40	093-450-040	16	1997	AIP 3-06-0125-03
4	FEE	SANTA BARBARA COUNTY	CITY OF LOMPOC	093/45/13	093-450-013	75	1991	Original transfer from Santa Barbara County
5	FEE	UNKNOWN	CITY OF LOMPOC	093/05/12	093-051-012	7	1994	No FAA monies used to purchase parcel
6	FEE	UNKNOWN	CITY OF LOMPOC	093/05/13	093-051-013	6	1994	No FAA monies used to purchase parcel
7	FEE	UNKNOWN	CITY OF LOMPOC	093/05/14	093-051-014	5	1994	No FAA monies used to purchase parcel
8	FEE	SANTA BARBARA COUNTY	CITY OF LOMPOC	N/A	N/A	0.9	1991	Original transfer from Santa Barbara County North 'O' Street extension right-of-way easement

* ACREAGE IS CALCULATED

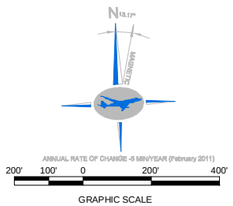


Figure 7-5
Exhibit "A" - Property Map

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CHAPTER 8

Cost & Funding Considerations

Chapter 8

Cost and Funding Considerations

INTRODUCTION

This chapter presents financial information related to the recommended improvements of the Lompoc Airport master plan update, as discussed in previous chapters of this report. It identifies the sequencing of costs and the financial obligations to be assumed by Federal, State, and local government. The financial data consists of two basic elements – the capital improvement costs associated with recommended development and the staging of development and improvement costs. As previously noted, development is planned in three phases: Phase 1 is from 2011 to 2015, Phase 2 from 2016 to 2020, and Phase 3 from 2021 to 2030. The estimated costs for this study are stated in constant 2010 dollars.

The aviation demand forecasts presented in Chapter 4 of this study selected the Baseline Forecast. In order to develop a flexible plan, facility requirements were also calculated for the High Growth Forecast. Should the economy recover quickly, and aviation demands at the airport far exceed Baseline Forecasts, the High Growth Facility requirements may be needed in the long-term planning period. Recommended improvements shown on the ALP, and noted in Chapter 7, also accommodate the High Growth Forecast. Costs for all developments shown on the ALP have been prepared. Projects that are intended to meet aviation demands of the High Growth Forecast are categorized as “As Needed” projects throughout this chapter. It is not anticipated that these costs will be incurred during the planning period (20 years), but are presented as additional information to assist the City in planning and decision making processes.

CAPITAL COST ESTIMATES AND PHASING

A summary of capital improvements is presented in Table 8-1 and the schedule of capital improvements is included Table 8-2. As seen in Table 8-1, public investment accounts for approximately $22.8 million for Phase 1 through 3 improvements. Private investment for the same period is approximately $8.2 million. For projects beyond 2030 (As Needed), public investment is approximately $1.7 million and private investment accounts for approximately $20.5 million. This is largely due to the number of hangars and areas of aviation related use areas shown for the extended planning period. In total, improvements are approximately $53.2 million, of which approximately $24.6 million and approximately $28.7 million are public and private investment, respectively.

Table 8-2 describes in detail the proposed investment in construction and expansion activities as described in Chapter 7 of this study. For each of the three development phases and the As Needed projects, it presents the estimated development costs and the projected timing. These costs were developed based on recent construction costs at similar airports, contacting suppliers, and construction

experience including recent projects throughout the state. Project costs include estimated architectural and engineering design fees, mobilization, and contingency allowances. Mobilization and contingency allowances are generally 30 percent and architectural/engineering allowances are 20 percent of project cost. For detailed cost information, reference Appendix D.

Table 8-1
SUMMARY OF CAPITAL COSTS
(2010 Dollars)

Timing	Public Investment	Private Investment	Total Investment
Phase 1	$6,319,500	$1,838,000	$8,157,500
Phase 2	$15,610,200	$1,925,200	$17,535,400
Phase 3	$915,500	$4,404,200	$5,319,700
Sub Total	**$22,845,200**	**$8,167,400**	**$31,012,600**
As Needed	$1,726,200	$20,498,500	$22,224,700
Total	**$24,571,400**	**$28,665,900**	**$53,237,300**

Source: AECOM analysis.

As can be seen in Table 8-2, Phase 1 improvements total $8.1 million and focus on rehabilitating existing pavements of George Miller Drive and the north tie-down apron. Phase 1 also upgrades the airfield electrical and installation of airport signage. Improvements scheduled for Phase 2 total $17.5 million. Phase 2 extends the runway and taxiways 257 feet, and overlays existing airfield pavements (runway and taxiways). Phase 3 focuses on long-term development such as additional hangars, a café, and an airport maintenance facility. Development beyond 2030 (As Needed projects) total $22.2 million. Primary improvements include additional individual and conventional hangars along with development of the aviation related use area. As noted above, the majority of the development shown beyond 2030 would be funded by private investment.

Recommended improvements are illustrated on Figure 8-1. This figure depicts the location of each project along with the source of funding. Included in the graphic are tables identifying City costs for the projects and project schedule. City costs can be funded through cash or borrowing.

It is important to remember that the real determinant of the specific timing of demand-related improvements (capacity oriented) is the actual traffic experienced. Therefore, the schedule presented does not commit the sponsor to provide such development until traffic levels reach those projected in this study. The costs projected for each phase are divided into public and private sector portions. The public investment items outlined qualify for Federal AIP (Airport Improvement Program) and California Aid to Airports Program (CAAP) funding. All public investment construction is to be financed by the public sector. Various funding sources are described in the section below.

FUNDING SOURCES

Funding sources available to finance the master plan capital improvement program (CIP) include: the FAA's Airport Improvement Program (AIP), private capital, airport revenues, and City funds.

FAA Airport Improvement Program (AIP)

On the federal level, the FAA's Aid to Airports Program provides funding for planning, construction, or rehabilitation at any public airport. The current grant program, known as the AIP, was established by the Airport and Airway Improvement Act of 1982 and amended most recently by the Vision 100 – Century of Aviation Reauthorization Act of 2003. The AIP provides funding from the Airport and Airway Trust Fund for

airport development, airport planning, noise compatibility planning, and to carrying out noise compatibility programs.

Table 8-2
SCHEDULE OF IMPROVEMENTS
(2010 Dollars)

	Project	Cost	Timing
	Phase 1 (2011 - 2015)		
1	Rehabilitate George Miller Drive	$ 1,319,500	2011
2	Pavement Management Plan	$ 200,000	2011
3	Reconstruct Apron	$ 1,748,000	2012
4	Sustainability Plan	$ 75,000	2014
5	Install Airfield Signs & Airfield Electrical Upgrade & Replacement	$ 2,670,000	2015
6	Construct Perimeter Road	$ 307,000	2015
7	Construct Box Hangars	$ 1,838,000	2015
	Phase 1 Total	**$ 8,157,500**	
	Phase 2 (2016 - 2020)		
8	Runway/Taxiway Overlay and Extension	$12,087,200	2016
9	Construct Blast Fence	$ 252,000	2016
10	Recertify Instrument Approach/Upgrade to WAAS/LPV Approach	$ 250,000	2017
11	Rehabilitate City Owned Hangars	$ 450,000	2018
12	Relocate AWOS/Install SuperAWOS	$ 506,000	2019
13	Expand Terminal and Connect to City Sewer System	$ 2,065,000	2020
14	Construct Individual Hangars	$ 1,925,200	2020
	Phase 2 Total	**$17,535,400**	
	Phase 3 (2021 - 2030)		
15	Construct Airport Café/Restaurant and Automobile Parking	$ 1,125,000	Long-Term
16	Construct Individual Hangars	$ 3,279,200	Long-Term
17	Construct Airport Maintenance Facility	$ 199,500	Long-Term
18	Construct Oil Recycling Center	$ 90,000	Long-Term
19	Rehabilitate Airport Beacon Tower	$ 90,000	Long-Term
20	Provide Additional Automobile Parking	$ 536,000	Long-Term/ As needed
	Phase 3 Total	**$ 5,319,700**	
	Total Phases 1 through 3	**$31,012,600**	
	As Needed (Beyond 2030)		
21	Construct Individual Hangars	$ 7,791,000	As needed
22	Construct Conventional Hangars	$ 3,180,000	As needed
23	Construct Aviation Related Use Building and Associated Parking	$ 9,527,500	As needed
24	Install Jet A Tank	$ 811,000	As needed
25	Construct Apron	$ 465,200	As needed
26	Enhance Airport Security	$ 450,000	As needed
	As Needed (Beyond 2030) Total	**$22,224,700**	
	Total	**$53,237,300**	

Source: AECOM analysis.

The Trust Fund provides the revenues used to fund AIP projects. The Trust Fund concept guarantees a stable funding source whereby users pay for the services they receive. Taxes or user fees are collected from the various segments of the aviation community and placed in the Trust Fund.

The Airport and Airway Improvement Act of 1982, as amended, authorized the use of monies from the Airport and Airway Trust Fund to make grants under the Airport Improvement Program through fiscal year 2007, which ended on September 30, 2007. Since then, a series of short-term extensions authorized and provided AIP funding through September 30, 2010. Congress is in the process of reauthorizing FAA funding as reauthorization is necessary for funding after September 30, 2010.

Under the Act, the authorization for funds not obligated in a fiscal year carries forward to future fiscal years unless the Congress takes specific action to limit such amounts. During the annual appropriations process, Congress may also limit the funding for grants to an amount that differs from the above authorization.

Projects eligible for AIP funding consist of: capital outlays for land acquisition; site preparation; construction, alteration, and repair of runways, taxiways, aircraft parking aprons, and roads within airport boundaries (except for access to areas providing revenue, such as parking lots and aviation industrial areas); construction and installation of lighting, some utilities, navigational aids, and aviation-related weather reporting equipment and safety equipment; security equipment required of the sponsor by the Secretary of Transportation; limited terminal development at commercial service airports; and equipment to measure runway surface tension. Grants may not be made for the construction of automobile parking facilities, buildings not related to the safety of persons in the airport, landscaping or art work, or routine maintenance and repair. Technical advisory services are also provided.

The Airport Improvement Program provides a maximum federal share of 90 percent for all eligible projects at Lompoc Airport. The recently expired reauthorization temporarily increased the maximum share to 95 percent through 2010. It is unknown if this share increase will be carried forward in future reauthorization bills and for purposes of this analysis it is assumed that the share will remain at 90 percent. Because of the large number of projects competing for AIP funds, not all eligible projects can be funded.

California Aid to Airports Program (CAAP)

The CAAP has an acquisition and development grant (A&D) program available to commercial service airports. Acquisition and development grants provide discretionary funds for airport projects included in the adopted State Capital Improvement Program (CIP). The CIP is an element of the California Aviation System Plan (CASP).

Acquisition and development grants can be used to fund any capital improvements on an airport and for aviation purposes with runway maintenance projects receiving the highest priority for funding. Additionally, funds can be used for servicing general obligation or revenue bonds issued to finance airport capital improvements. Funds cannot be used for operations or general maintenance. Grants range from $20,000 to $500,000.

On July 28, 2009, the State of California passed a budget that suspended state grant funding programs for fiscal years 2009 and 2010. Through discussions with Caltrans Aeronautics staff, it is believed that funding will resume next fiscal year. Therefore, for planning purposes, it is assumed that this program will resume in the short-term (2012).

The California Transportation Commission annually established a local matching requirement which ranges from 10 to 50 percent of the non-Federal funded portion of the project cost. Since 1977/78, recipients have provided a minimum match of 10 percent of eligible project costs for acquisition and development projects.

FUNDING SOURCES KEY

- 1.X FAA and Local Funds
- 1.X FAA, State, and Local Funds
- 1.X Local Funds
- 1.X Private Party Funds

LEGEND

- Phase 1 (2010 - 2015)
- Phase 2 (2016 - 2020)
- Phase 3 (2021 - 2030)
- As needed (Beyond 2030)

	Project	City Cost	Project Cost	Timing
	Phase 1 (2010 - 2015)			
1.1	Rehabilitate George Miller Drive	$ 131,950	$ 1,319,500	2011
1.2	Pavement Management Plan	$ 20,000	$ 200,000	2011
1.3	Reconstruct Apron	$ 131,100	$ 1,748,000	2012
1.4	Sustainability Plan	$ 7,500	$ 75,000	2014
1.5	Install Airfield Signs & Airfield Electrical Upgrade & Replacement	$ 200,250	$ 2,670,000	2015
1.6	Construct Perimeter Road	$ 23,025	$ 307,000	2015
1.7	Construct Box Hangars	$ -	$ 1,838,000	2015
	Phase 1 Total	**$ 513,825**	**$ 8,157,500**	
	Phase 2 (2016 - 2020)			
2.1	Runway/Taxiway Overlay and Extension	$ 906,540	$ 12,087,200	2016
2.2	Construct Blast Fence	$ 18,900	$ 252,000	2016
2.3	Recertify Instrument Approach/Upgrade to WAAS/LPV Approach	$ 25,000	$ 250,000	2017
2.4	Rehabilitate City Owned Hangars	$ 450,000	$ 450,000	2018
2.5	Relocate AWOS/Install SuperAWOS	$ 37,950	$ 506,000	2019
2.6	Expand Terminal and Connect to City Sewer System	$ 492,375	$ 2,065,000	2020
2.7	Construct Individual Hangars	$ -	$ 1,925,200	2020
	Phase 2 Total	**$ 1,930,765**	**$ 17,535,400**	

	Project	City Cost	Project Cost	Timing
	Phase 3 (2021 - 2030)			
3.1	Construct Airport Café/Restaurant and Automobile Parking	$ -	$ 1,125,000	Long-Term
3.2	Construct Individual Hangars	$ -	$ 3,279,200	Long-Term
3.3	Construct Airport Maintenance Facility	$ 199,500	$ 199,500	Long-Term
3.4	Construct Oil Recycling Center	$ 90,000	$ 90,000	Long-Term
3.5	Rehabilitate Airport Beacon Tower	$ 90,000	$ 90,000	Long-Term
3.6	Provide Additional Automobile Parking	$ 536,000	$ 536,000	Long-Term/ As needed
	Phase 3 Total	**$ 915,500**	**$ 5,319,700**	
	Total Phases 1 through 3 (2010 - 2030)	**$ 3,352,590**	**$ 30,937,600**	
	As Needed (Beyond 2030)			
A.1	Construct Individual Hangars	$ -	$ 7,791,000	As needed
A.2	Construct Conventional Hangars	$ -	$ 3,180,000	As needed
A.3	Construct Aviation Related Use Building and Associated Parking	$ -	$ 9,527,500	As needed
A.4	Install Jet A Tank	$ 60,825	$ 811,000	As needed
A.5	Construct Apron	$ 34,890	$ 465,200	As needed
A.6	Enhance Airport Security	$ 33,750	$ 450,000	As needed
	As Needed (Beyond 2030) Total	**$ 129,465**	**$ 22,224,700**	
	Total	**$ 3,482,055**	**$ 53,162,300**	

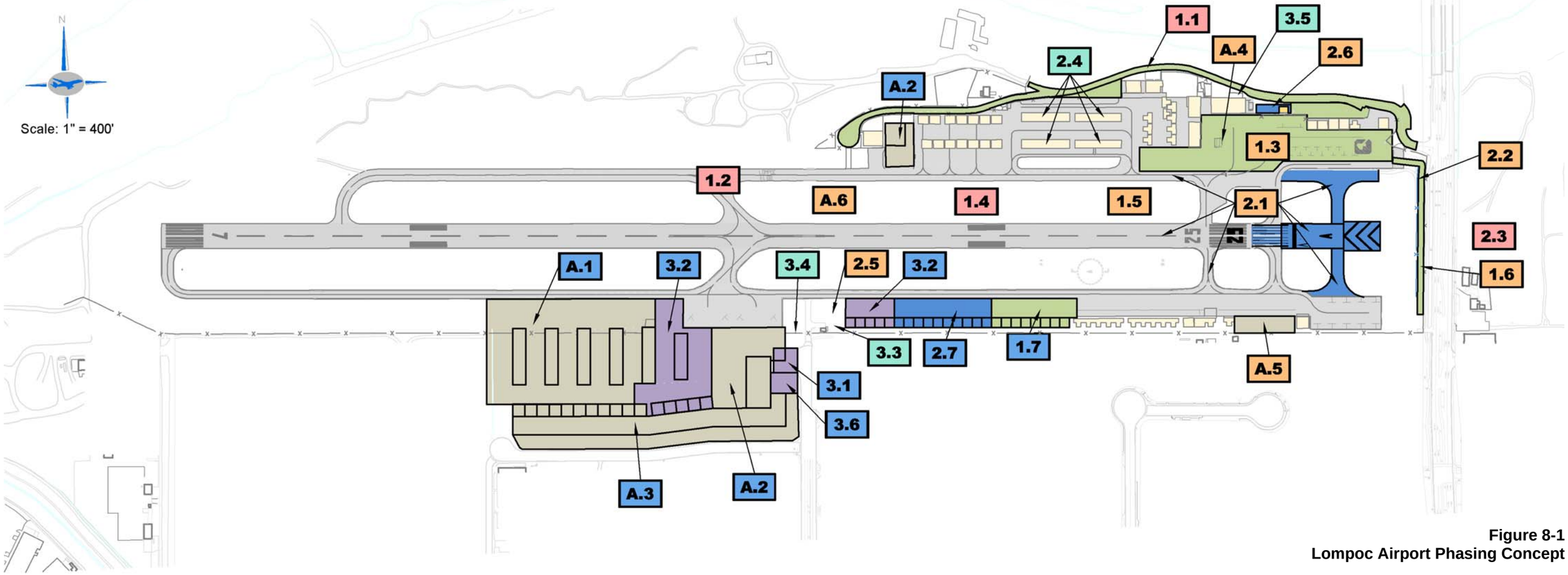

Figure 8-1
Lompoc Airport Phasing Concept

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In addition to A&D grants, the CAAP provides financial assistance in the form of low interest loans, repayable over a period not to exceed 25 years. Two types of loans are available: Revenue Generating Loans and Matching Funds loans. The interest rate for these loans is based on the most recent issue of State of California bonds sold prior to approval of the loan.

Funds from Revenue Generating Loans may be used for any projects not eligible for funding under other programs and which are designed to improve airport self-sufficiency. Loans of this type cannot be used for 'land banks,' automobile access roads, automobile parking facilities, and facilities to accommodate airlines. The loan amounts are based upon an analysis of each individual application and subject to availability of funds. Matching fund loans may be used for securing Federal AIP grants and the loan amount equals the sponsor's share of project costs required to match a federal grant. Requests for matching fund loans are given highest priority.

Private Capital

Private funding is often available for certain airport improvements, including FBO site development, aviation industrial site development, and aircraft hangar construction.

Airport Revenues and City Funds

Finally, the City may fund some capital improvements with City funds. The airport generates revenue through leases, fuel sales, and hangar fees.

PROJECT COST SHARES

Project cost shares were allocated among various sources under the following assumptions and criteria: 1) all FAA AIP eligible projects will be funded at their maximum eligible level (generally 90 percent of project costs); 2) beginning 2012, eligible projects are also funded with state CAAP funds; and 3) the balance of project costs were assigned to local responsibility.

At the local level, project cost shares were further allocated among two funding sources: private capital and City/airport contributions.

Summary of Funding Program

The schedule of master plan improvement costs (in constant 2010 dollars) by phase and source under these assumptions and criteria are summarized in Table 8-3. In summary, for Phases 1 through 3 ($31.0 million in constant 2010 dollars), master plan capital improvement program is anticipated to be funded by FAA AIP grants ($19.0 million – 61.2 percent of the total); state ($491,000 thousand – 1.6 percent of the total); private capital ($8.2 million – 26.3 percent of the total); and City/airport contributions ($3.4 million – 10.8 percent of the total). For improvements beyond 2030 (As Needed projects) it is anticipated that of the $22.2 million it is anticipated that most will be funded by private investments ($20.5 million – 92.2 percent). The remaining 7.8 percent will be funded by the FAA ($1.6 million – 7.0 percent); state ($43,000 – 0.2 percent); and, City/airport contributions ($129,000 – 0.6 percent). Improvements beyond 2030 represent 41.8 percent of the total improvement cost of $53.2 million.

It is estimated that the FAA will contribute $20.5 million (38.6 percent); the state will contribute $534,000 (1.0 percent); private investment will account for $28.7 million (53.8 percent); and the City/airport will add $3.5 million (6.6 percent) of the overall project costs of $53.2 million. Detailed allocations of project costs by funding source are shown in Table 8-4.

Table 8-3
SUMMARY OF CAPITAL IMPROVEMENT PLAN FUNDING
BY PHASE AND SOURCE
(thousands of 2010 Dollars)

Phase		FAA	State	Local	Private	Total	% Total
1	(2010 - 2015)	$ 5,688	$ 118	$ 514	$ 1,838	$ 8,158	15.3%
2	(2016 - 2020)	$ 13,307	$ 373	$ 1,931	$ 1,925	$ 17,535	32.9%
3	(2021 - 2030)	$ -	$ -	$ 916	$ 4,404	$ 5,320	10.0%
Phase 1 - 3 Total		**$ 18,994**	**$ 491**	**$ 3,360**	**$ 8,167**	**$ 31,013**	**58.3%**
	% Total	**61.2%**	**1.6%**	**10.8%**	**26.3%**	**100.0%**	
As Needed	(Beyond 2030)	$ 1,554	$ 43	$ 129	$ 20,499	$ 22,225	41.7%
	Total	**$ 20,548**	**$ 534**	**$ 3,490**	**$ 28,666**	**$ 53,237**	**100.0%**
	% Total	**38.6%**	**1.0%**	**6.6%**	**53.8%**	**100.0%**	

Source: AECOM analysis.

Total average annual investment for the 20 year planning period (Phases 1 through 3) is $1.5 million with the City/airport contributing approximately $167,000 annually. Pavement rehabilitation (George Miller Drive and the north apron area) in Phase 1 cost approximately $3.1 million. These pavements feature significant cracking and pot holes (on George Miller Drive) and are high priority projects. These projects represent 38 percent of Phase 1 costs. Phase 1 also upgrades the existing airfield electrical system and installs airfield signage. This project represents $2.7 million dollars, or 33 percent of Phase 1 costs. Phase 1 represents 26.1 percent of the project costs for the 20 year planning period (Phases 1 through 3) and 15.2 percent of total improvement costs.

Phase 2 includes the runway extension project. This project extends the runway and taxiways. Additionally, runway and taxiway pavements receive an overlay. Other projects associated with this extension are the construction of the blast fence and recertification of the instrument approach procedures. In total, the runway extension and associated projects cost $12.6 million or 61.8 percent of Phase 2 costs. The City owned T-hangars are also rehabilitated during this phase. Phase 2 represents 56.7 percent of the 20 year planning period (Phases 1 through 3) project costs and 33.0 percent of the total improvement costs.

The majority of Phase 3 (long-term) costs are associated with the proposed café and individual hangars on the south side of the airport. These projects total $4.4 million or 82.8 percent of Phase 3 costs. Other improvements planned in Phase 3 are the airport maintenance facility, additional oil recycling center on the south side of the airport, and rehabilitation of the airport beacon tower. Phase 3 represents the lowest percentage of costs at 17.2 percent for the 20 year planning period (Phases 1 through 3) and 10.0 percent of the total improvement costs.

Improvements for Phases 1 through 3 total $30.9 million or 58.2 percent of total project costs.

Projects beyond 2030 are meant to accommodate the High Growth Forecast. As such, these projects are primarily hangar developments account for 49.4 percent of the As Needed project costs. The other large (42.9 percent) project cost beyond 2030 is the development of the aviation related use area on the 13-acre parcel. Remaining projects beyond 2030 include the installation of a Jet A fuel tank, additional apron area, and enhanced airport security. As Needed projects account for 41.8 percent of total improvement costs.

Table 8-4
SCHEDULE OF MASTER PLAN IMPROVEMENTS AND ESTIMATED COSTS BY FUNDING SOURCE
(2010 Dollars)

Year	Project	FAA	State	Local	Private	Total
2011	Rehabilitate George Miller Drive	$ 1,187,550	$ -	$ 131,950	$ -	$ 1,319,500
2011	Pavement Management Plan	$ 180,000	$ -	$ 20,000	$ -	$ 200,000
2012	Reconstruct Apron	$ 1,573,200	$ 43,700	$ 131,100	$ -	$ 1,748,000
2014	Sustainability Plan	$ 67,500	$ -	$ 7,500	$ -	$ 75,000
2015	Install Airfield Signs & Airfield Electrical Upgrade & Replacement	$ 2,403,000	$ 66,750	$ 200,250	$ -	$ 2,670,000
2015	Construct Perimeter Road	$ 276,300	$ 7,675	$ 23,025	$ -	$ 307,000
2015	Construct Box Hangars	$ -	$ -	$ -	$ 1,838,000	$ 1,838,000
2016	Runway/Taxiway Overlay and Extension	$10,878,480	$ 302,180	$ 906,540	$ -	$12,087,200
2016	Construct Blast Fence	$ 226,800	$ 6,300	$ 18,900	$ -	$ 252,000
2017	Recertify Instrument Approach/Upgrade to WAAS/LPV Approach	$ 225,000	$ -	$ 25,000	$ -	$ 250,000
2018	Rehabilitate City Owned Hangars	$ -	$ -	$ 450,000	$ -	$ 450,000
2019	Relocate AWOS/Install SuperAWOS	$ 455,400	$ 12,650	$ 37,950	$ -	$ 506,000
2020	Expand Terminal and Connect to City Sewer System	$ 1,521,000	$ 51,625	$ 492,375	$ -	$ 2,065,000
2020	Construct Individual Hangars	$ -	$ -	$ -	$ 1,925,200	$ 1,925,200
Long-Term	Construct Airport Café/Restaurant and Automobile Parking	$ -	$ -	$ -	$ 1,125,000	$ 1,125,000
Long-Term	Construct Individual Hangars	$ -	$ -	$ -	$ 3,279,200	$ 3,279,200
Long-Term	Construct Airport Maintenance Facility	$ -	$ -	$ 199,500	$ -	$ 199,500
Long-Term	Construct Oil Recycling Center	$ -	$ -	$ 90,000	$ -	$ 90,000
Long-Term	Rehabilitate Airport Beacon Tower	$ -	$ -	$ 90,000	$ -	$ 90,000
Long-Term/ As needed	Provide Additional Automobile Parking	$ -	$ -	$ 536,000	$ -	$ 536,000
As needed	Construct Individual Hangars	$ -	$ -	$ -	$ 7,791,000	$ 7,791,000
As needed	Construct Conventional Hangars	$ -	$ -	$ -	$ 3,180,000	$ 3,180,000
As needed	Construct Aviation Related Use Building and Associated Parking	$ -	$ -	$ -	$ 9,527,500	$ 9,527,500
As needed	Install Jet A Tank	$ 729,900	$ 20,275	$ 60,825	$ -	$ 811,000
As needed	Construct Apron	$ 418,680	$ 11,630	$ 34,890	$ -	$ 465,200
As needed	Enhance Airport Security	$ 405,000	$ 11,250	$ 33,750	$ -	$ 450,000
	Total All Phases	**$20,547,810**	**$ 534,035**	**$ 3,489,555**	**$28,665,900**	**$53,237,300**

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CHAPTER 9

Environmental Overview

Chapter 9

Environmental Overview

INTRODUCTION

This environmental overview is based on the aviation activity forecasts and recommended improvements presented in preceding chapters of this report. The analysis covers the 20-year planning period of the master plan (2011 through 2030). It consists of an overview of the environmental constraints for the purposes of facilitating the preparation of environmental documentation under the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). The master plan identifies airport improvements for three defined development phases: Phase 1 (2010-2015); Phase 2 (2016-2020); and Phase 3 (2021-2030).

Lompoc Airport is located in the City of Lompoc in Santa Barbara County. Lompoc Airport is a 208-acre airport, owned and operated by the City of Lompoc, and is the site of Skydive Santa Barbara. Vandenberg Air Force Base (AFB), Santa Maria Airport, and Santa Ynez Airport are located nearby.

SUMMARY OF IMPROVEMENTS

The proposed improvements identified in the master plan consist of the following three phases of development:

Phase 1 Projects (2011 to 2015)

- Rehabilitate George Miller Drive
- Pavement Management Plan
- Reconstruct Apron
- Sustainability Plan
- Install Airfield Signs and Airfield Electrical Upgrade and Replacement
- Construct Perimeter Road
- Construct Box Hangars

Phase 2 Projects (2016 to 2020)

- Runway/Taxiway Overlay and Extension
- Construct Blast Fence
- Re-certify Instrument Approach/Upgrade to WAAS/LPV Approach
- Rehabilitate City Owned Hangars
- Relocate AWOS/Install SuperAWOS
- Expand Terminal and Connect to City Sewer System
- Construct Individual Hangars

Phase 3 Projects (2021 to 2030)

- Construct Airport Café/Restaurant and automobile parking
- Construct Individual Hangars
- Construct Airport Maintenance Facility
- Construct Oil Recycling Center
- Rehabilitate Airport Beacon Tower
- Provide Additional Automobile Parking
- Construct Individual Hangars
- Construct Conventional Hangars
- Construct Aviation Related Use Building and Associated Parking
- Install Jet A Tank
- Construct Apron
- Enhance Airport Security

AIRCRAFT ACTIVITY

Lompoc Airport is classified as an airport reference code B-II airport. Aircraft operations are projected to increase from present levels of approximately 30,200 annual takeoffs and landings to 62,600 annual operations by 2030 under the Baseline Forecast. The airport has one based helicopter, a McDonnel-Douglas Hughes 500. A heliport does not currently exist nor is planned at the airport; therefore, helicopter takeoffs and landings occur directly on the runway.

TOPICS FOR ENVIRONMENTAL ANALYSIS

The topics for the environmental overview are based on federal guidelines contained in FAA Orders 1050.1E and 5050.4B, effective April 28, 2006, "Airport Environmental Handbook" (FAA, 1985) and include 19 specific impact categories (these impact categories are similar to CEQA guidelines). The FAA Environmental Desk Reference for Airport Actions (October 2007) and the FAA Environmental Handbook were also consulted. Some of the following discussions are also based on the City of Lompoc's General Plan Draft Update, dated October 2010.

- Air Quality
- Coastal Barriers
- Coastal Zone
- Compatible Land Use
- Construction Impacts
- Department of Transportation (DOT) Act: Section 4(f)
- Farmlands
- Fish, Wildlife, and Plants
- Floodplains
- Hazardous Materials
- Historical, Architectural, Archeological and Cultural Resources
- Light Emissions and Visual Impacts
- Natural Resources and Energy Supply
- Noise
- Socioeconomic Impacts, Environmental Justice, and Children's Health and Safety Risks
- Solid Waste
- Water Quality
- Wetlands, Jurisdictional or Non-Jurisdictional
- Wild and Scenic Rivers

Air Quality

Lompoc Airport is located in the South Central Coast Air Basin (SCCAB), which includes San Luis Obispo, Santa Barbara, and Ventura Counties. Although air quality in Santa Barbara County continues to improve, it is classified as non-attainment for ozone 8-hour State standards and non-attainment for particulate matter less than 10 microns in diameter (PM10) State standards. The Air Quality Procedures for Civilian Airports & Air Force Bases outlines the air quality assessment processes for non-attainment areas, which is consistent with FAA Orders 1050.1E and 5050.4B and the Clean Air Act (CAA).

According to this document, if the action is exempt or presumed to conform, then an air quality assessment is not applicable. It is unlikely that the project's pollutant concentrations would exceed the National Ambient Air Quality Standards (NAAQS). However, an assessment of the emissions inventory is required in order to determine conformity. The FAA Airports Desk Reference indicates that for airports located in attainment areas, if aircraft activity is less than 180,000 annual general aviation operations, an air quality assessment is not required. For airports located in non-attainment or maintenance areas, conformity must be determined first. If the project conforms, then a more detailed air quality study is not required.

The Santa Barbara County Air Pollution Control District (SBCAPCD) is responsible for preparing clean air plans to demonstrate how clean air standards will be met. The 2007 Clean Air Plan was adopted on August 16, 2007, and is currently being updated per the Clean Air Act (CAA), which requires clean air plans to be updated every three years to attain the State 1-hour ozone standard. According to the 2007 Clean Air Plan, aircraft are listed as mobile source contributors of Reactive Organic Compounds (ROC) and Oxides of Nitrogen (NOx), which are ozone precursors. Aircraft are listed as the fourth highest mobile source contributors of ROC and sixth highest of NOx. The SBCAPCD has adopted emission control measures, as listed in the 2007 Clean Air Plan, which includes surface coating of aircraft and aerospace vehicle parts and products.

It is anticipated that the increase in aircraft operations will not result in a violation of State or regional air quality standards. The master plan's long-term forecast projects a total of 62,600 annual aircraft operations in the year 2030. An assessment of the airport's emissions inventory should be conducted in order to confirm compliance with federal, State, and regional standards.

Coastal Barriers

Impacts expected on coastal barriers are either non-substantial or non-existent because the airport is located approximately 9 miles inland.

Coastal Zone

Impacts expected on coastal zone management are either non-substantial or non-existent because Lompoc Airport is located approximately 9 miles inland.

Compatible Land Use

The Santa Barbara County Airport Land Use Plan (ALUP), reprinted in October 1993, establishes procedures and criteria that allow the County to address compatibility issues when making planning decisions regarding airports and the land use around them. State aeronautics law requires all airport-vicinity land use designations specified in local plans to be consistent with the airport land use compatibility criteria that are to be applied to development proposals in the vicinity of Santa Barbara County airports, including Lompoc Airport. According to the Santa Barbara County ALUP, the supporting compatibility criteria include building height restrictions, noise, and safety.

According to the City of Lompoc Zoning Map, shown in Figure 9-1, the airport is surrounded by existing land uses such as public facilities, open space, business park development, planned commercial development, and residential land uses. Land uses, shown on the General Plan Land Use Element Map (Figure 9-2), designate the airport area as "Community Facilities". Surrounding land use in the General Plan Land Use Element designations include industrial, open space, business park, and general commercial. There are also some residential land uses located near the airport. Future development near the airport is subject to Airport Land Use Commission (ALUC) review, which should ensure that future land uses are compatible with airport operations.

Santa Barbara ALUP Safety Compatibility Zone Guidelines

This subsection introduces the safety zones currently associated with the airport. Safety compatibility policies consist of two components:

- Zones indicating locations around an airport with differing levels of aircraft accident risk
- Criteria indicating the compatibility or incompatibility of various types of land uses within these zones

The purpose of developing such policies is to limit the consequences that aircraft accidents can have on people and property near airports.

The ALUP identifies the three zones that make up the Airport Influence Area (AIA), which are shown in Figure 9-3:

- Zone I – regulations based on height restrictions
- Zone II – regulations based on safety and height restrictions
- Zone III – regulations based on noise, safety, and height restrictions

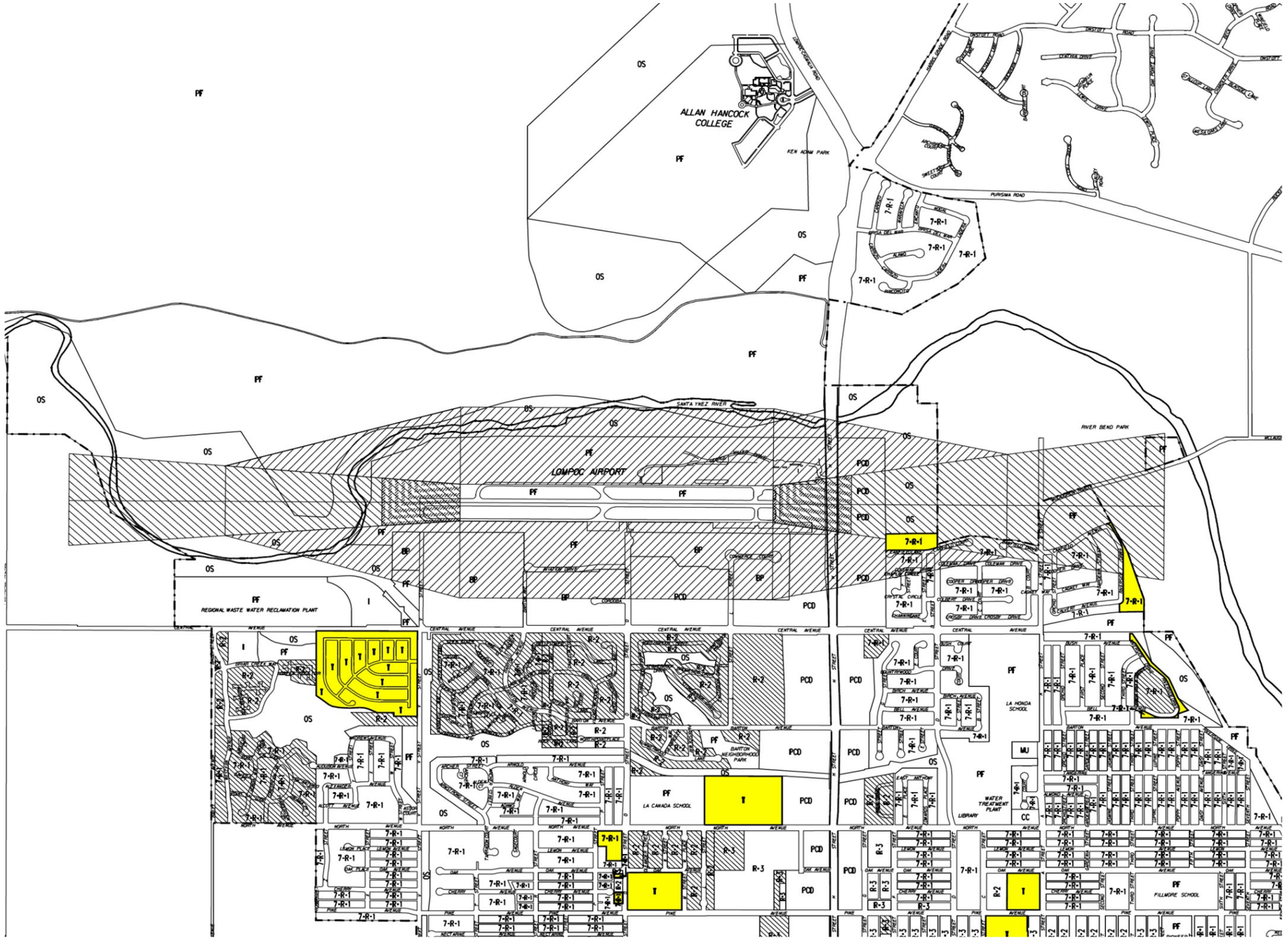
According to the ALUP, height restrictions in Zone I do not pose a hardship to any existing or proposed land uses in Santa Barbara County. Zone II is further divided into three safety areas:

- Area 1 – Runway Protection Zone (RPZ)
- Area 2 – Approach Zone
- Area 3 – General

Safety Area 1 must not contain any obstructions that extend into air space. The FAA recommends the airport own or have sufficient interest in the land within the RPZ. Land uses prohibited within the RPZ include residences and places of public assembly such as churches, schools, hospitals, offices, shopping centers, and other similar developments. The master plan improvements include a 257-foot eastern extension of Runway 25, causing the associated RPZ to shift a corresponding distance to the east. All of the land within the proposed RPZ is currently open space or agricultural land uses, which are compatible land uses within the RPZ. A portion of this land, which is part of the North 'H' Street Corridor Infill Area, is designated General Commercial in the City of Lompoc General Plan Map, however it is airport property and should remain clear. The existing western RPZ, which is zoned open space and extends over the Santa Ynez River, will not be affected by master plan improvements.

Safety Area 2 is an extension of the RPZ. Land uses that do not result in concentrations of people or fire hazards are allowed. Height restrictions exist for structures within this zone, however some residential, industrial, commercial, and industrial land uses are permitted. Safety Area 3 is the area in which traffic patterns occur and few land uses are prohibited. Lompoc Airport flight paths generally occur north of the airport, over open space land uses and the Santa Ynez River.

Zone III land use compatibility is determined by the Community Noise Equivalent Level (CNEL) contour. Residences, schools, hospitals, and institutions are incompatible if noise levels are above 65 dB. The noise contours for Lompoc Airport that are included in the ALUP and the previous Airport Master Plan indicate sensitive land uses are not located within the 65 dB noise contour. Noise impacts are discussed further in the noise section below.



CITY OF LOMPOC
Zoning Map

Note: See "List of Amendments to the Zoning Map" for information regarding amendments to this map. Most recent amendment on December 16, 2008, Ordinance No. 1554 (08).

10-R-1	Single Family Residential 10,000 SF	R-2	Medium Density Residential
7-R-1	Single Family Residential 7,000 SF	R-3	High Density Residential
BP	Business Park	RA	Residential Agriculture
C-2	Central Business	SP	Specific Plan
CC	Convenience Center	T	Mobile Home Park
CO	Commercial Office		
I	Industrial		Airport Approach Zone (Overlay)
MU	Mixed Use		Airport Clear Zone (Overlay)
OS	Open Space		Cultural Resources (Overlay)
OTC	Old Town Commercial		Planned Development
PCD	Planned Commercial Development		Inconsistent with General Plan
PF	Public Facilities		

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Figure 9-1
City of Lompoc Zoning Map

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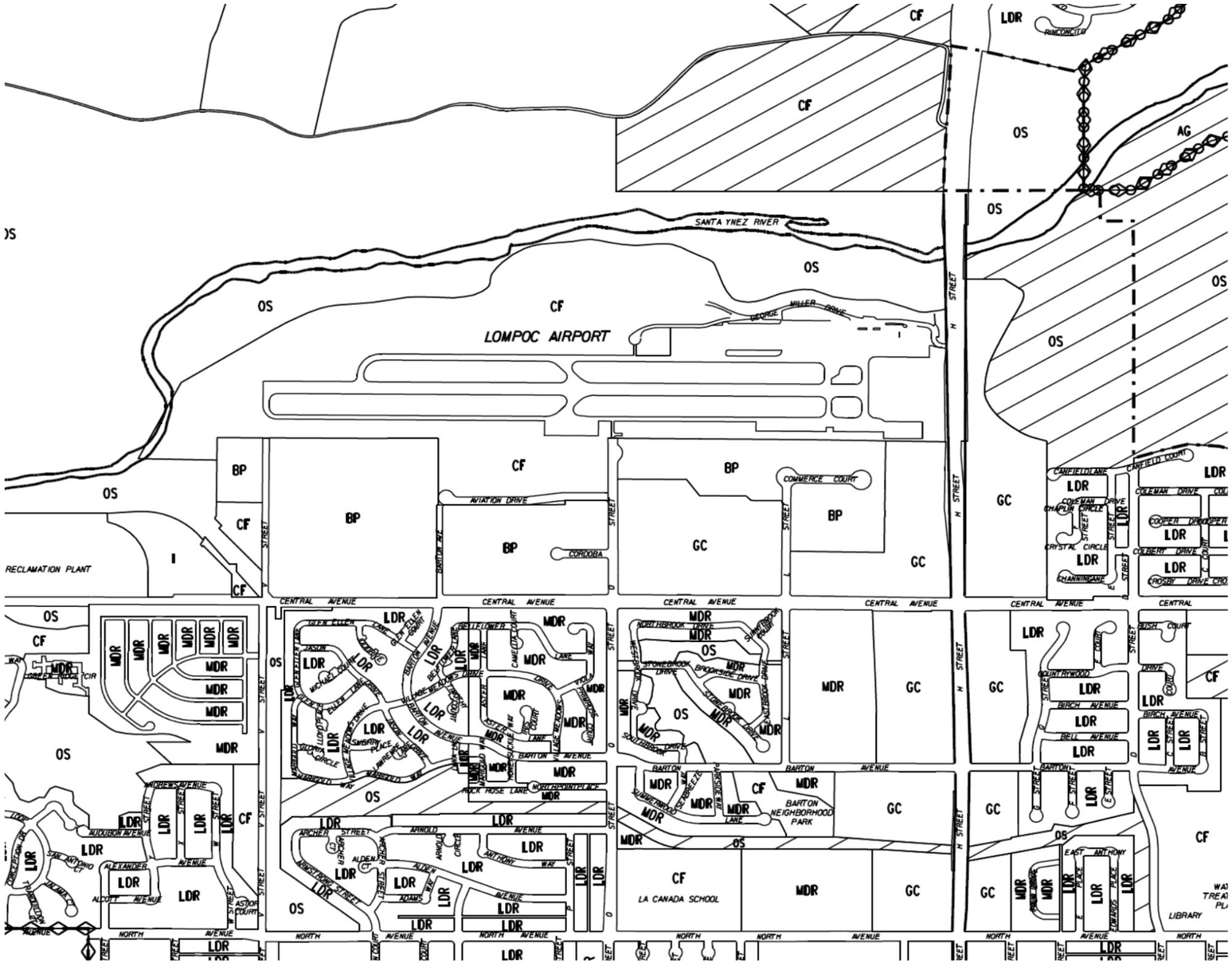

CITY OF LOMPOC
Land Use Element Map

Note: This is one of a series of maps and textual material which, combined, constitute the development policies of the City of Lompoc. Allowable land uses for given parcels of land cannot be determined solely by reference to this map.

Approved by City Council on October 28, 1997, Resolution No. 4641 (97).
Most recent amendment on December 2, 2008, Resolution No. 5508 (08).

AG	Agriculture	LDR 4.6	Low Density Residential, 4.6 Dwelling Units per Acre
BP	Business Park		
CF	Community Facility	MDR	Medium Density Residential
GC	General Commercial	MU	Mixed Use
HDR	High Density Residential	NC	Neighborhood Commercial
I	Industrial	OC	Office Commercial
LDR	Low Density Residential	OS	Open Space
LDR 2.5	Low Density Residential, 2.5 Dwelling Units per Acre	OTC	Old Town Commercial
		VLDR	Very Low Denisty Residential

- City Limits
- Sphere of Influence
- Urban Limit Line
- Park Overlay

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Figure 9-2
City of Lompoc
General Plan Land Use Map

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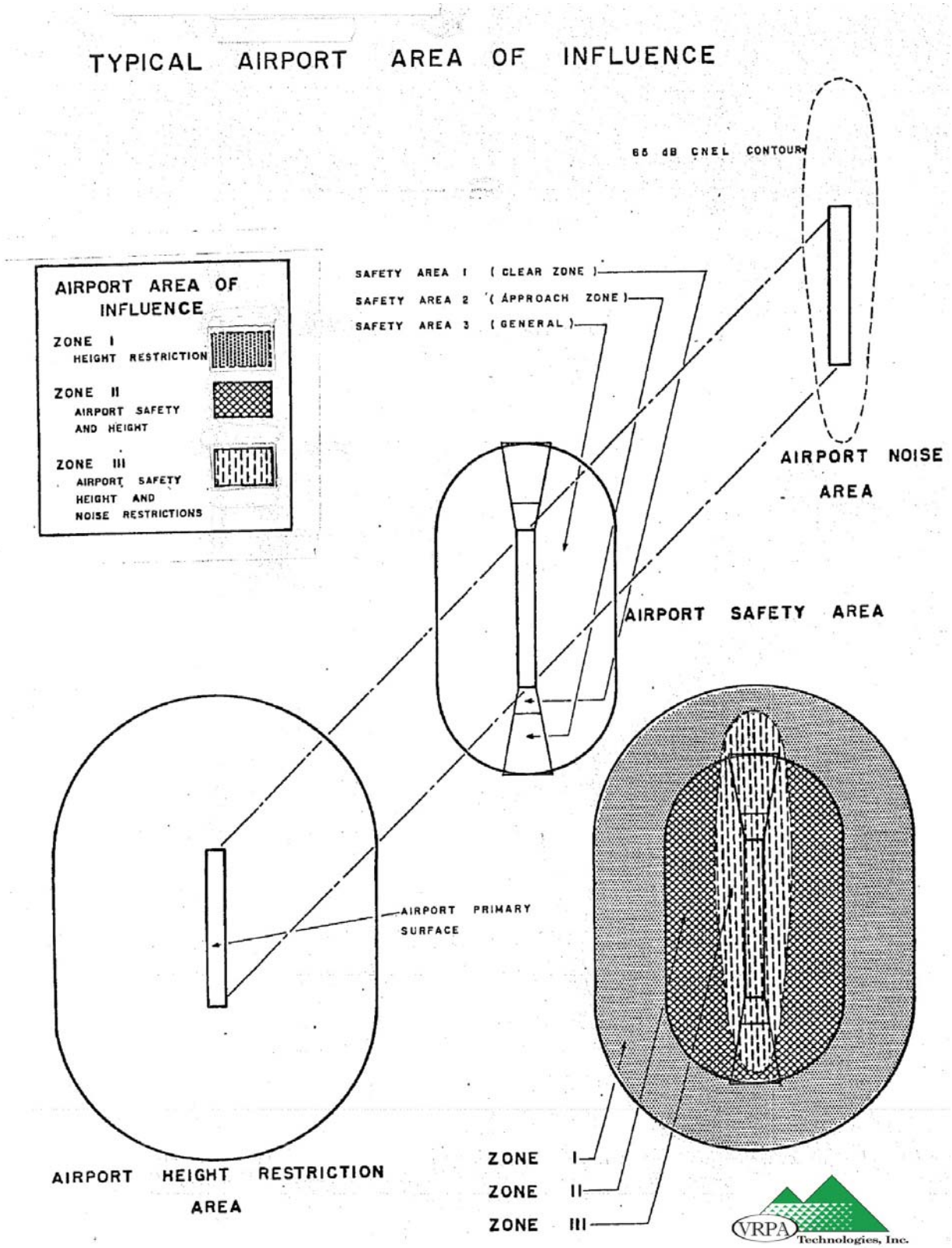

Figure 9-3
Santa Barbara ALUP
Airport Influence Area

Future development near the airport is subject to Airport Land Use Commission (ALUC) review, which should ensure that future land uses are compatible with airport operations. Master plan improvements are consistent with the Santa Barbara ALUP.

Caltrans Safety Compatibility Zone Guidelines

The State of California, Department of Transportation, Division of Aeronautics, in January 2002 published the California Airport Land Use Planning Handbook (Handbook), which contains updated guidance for developing airport compatibility plans. The Handbook provides guidelines regarding the establishment of land use compatibility polices related to aircraft noise and off-airport accident potential and safety. The Handbook defines several safety zones to apply at an airport (defined below). The primary basis for the delineation of safety zones around airports is the category of runway, based on length. Runways are categorized based on the following lengths:

- Runway lengths less than 4,000 feet
- Runway lengths of 4,000 to 5,999 feet
- Runway lengths of 6,000 feet or more.

With the planned 257-foot extension of Runway 7 to the east, an ultimate runway length of 4,857 feet is proposed in this master plan. Therefore, future safety zones for runway lengths of 4,000 to 5,999 feet should be applied.

The 2002 edition of the Handbook identifies six safety zones. Table 9-1 identifies the Handbook safety zones and compares them to the current zones used in the Santa Barbara ALUP. The intent of the safety zones is that risk levels be relatively uniform across each zone, but distinct from the other zones. The Handbook description of these zones is contained in Appendix E (Handbook Table 9B).

Table 9-1
COMPARISON OF STATE AND SANTA BARBARA ALUP SAFETY ZONES

California Airport Land Use Planning Handbook		Santa Barbara ALUP	
Zone	**Description**	**Equivalent Zone(s)**	**Comments**
1	Runway Protection Zone	Zone II – Area 1	
2	Inner Approach/Departure Zone	Zone II – Area 2	
3	Inner Turning Zone	-	No equivalent zone in Santa Barbara ALUP
4	Outer Approach/Departure Zone	Zone II – Area 2	
5	Sideline Zone	Zone II – Area 3 / Zone III	Sides of the runway
6	Traffic Pattern Zone	Zone I / Zone II – Area 3	

Source: AECOM analysis.

Safety compatibility zone examples are contained in the Handbook for runway categories applicable to Lompoc Airport are shown in Appendix E (Figure 9K of the Handbook). Handbook

Example 4: Medium General Aviation Runway with Single Sided Traffic Pattern best represents the airport, as Lompoc's traffic pattern is only to the north of the airport. Lompoc Airport generally follows Example 4 in Figure 9K of the Handbook. Therefore, Example 4 is applied to the airport with adjustments as described below.

Adjustments to Caltrans Safety Zones for Lompoc Airport

The Handbook provides that adjustments to the safety zones depicted in Figure 9K of the Handbook may be appropriate when applying them to an individual airport due to the operating characteristics of the airport. The Handbook describes several operational variables which could affect the shape of one or more safety zones:

- Instrument approach procedures
- Other special flight procedures or limitations
- Runway use by special purpose aircraft
- Small aircraft using long runways
- Runways used predominantly in one direction
- Displaced landing thresholds

The discussion of these variables is reproduced in Appendix E (Table 9A of the Handbook).

Santa Barbara County Airport Land Use Commission has the responsibility for developing land use policies related to the airport, including modification of safety zones to address 2002 Handbook guidelines. Based on existing operating conditions at the airport adjustments to the Runway Protection Zone and Traffic Pattern Zone were made.

Runway Protection Zones were adjusted to reflect visibility minimums for each runway end. Runway 7 is a visual runway serving approach category A and B aircraft, and therefore the Runway Protection Zone has an inner width of 500 feet, an outer width of 700 feet and is 1,000 feet long. The Runway Protection Zone for Runway 25 included in this master plan protects for approach category C and D aircraft and has an inner width of 500 feet, an outer width of 1,010 feet, and is 1,700 feet long.

The Traffic Pattern Zone should reflect actual traffic patterns flown at the airport. As described above, traffic is north of the runway; therefore, the traffic pattern zone is principally north of the airport.

Comparison with Existing Compatibility Zones

Figure 9-4 depicts safety zones for the airport based on the Handbook with the adjustment described above made. When comparing the existing compatibility zones shown in Figure 9-3 with those depicted in Figure 9-4, the following is noted:

- The Traffic Pattern Zone shown in Figure 9-4 is only on the north side of the airport; whereas existing traffic pattern zones are shown on both sides of the airport.
- Safety zones encompass similar areas to the north, east, and west.
- With more zones, the Handbook promotes smarter growth near an airport; protecting both aviation interests and the interests of people on the ground.

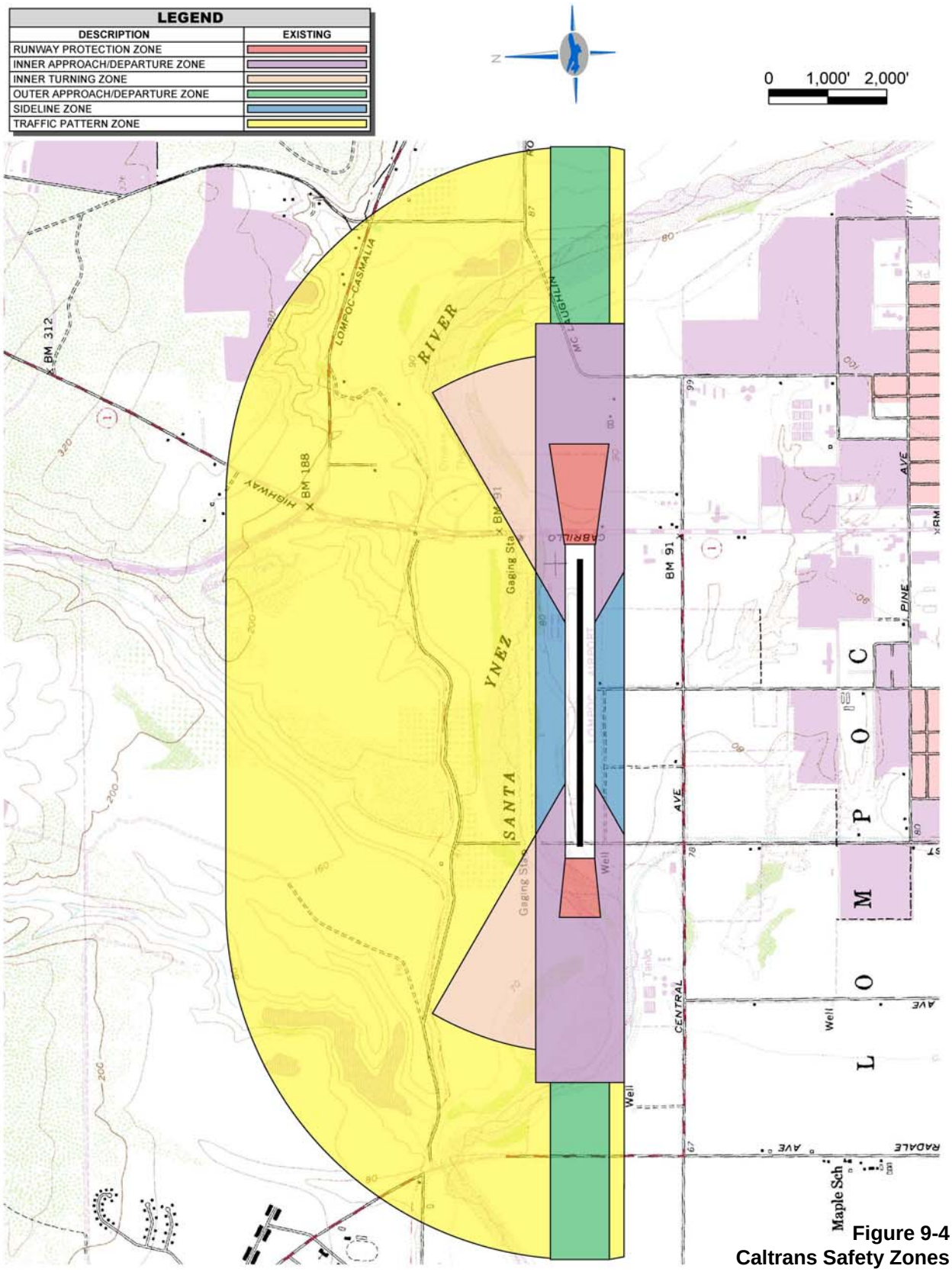

Figure 9-4
Caltrans Safety Zones
Applied to Lompoc Airport

Recommendations

As noted above, the Handbook is to serve as a guide when developing land use compatibility plans. It is recommended that these safety zones be adopted by the City and provided to Santa Barbara County for review and inclusion during the next update of the Santa Barbara ALUP. Safety zones depicted on Figure 9-4 should be considered minimum requirements and do not necessarily limit the City or County in protecting larger areas as they see prudent. Land use densities and intensities established in the Handbook should also be followed (as a minimum standard) are included in Appendix E (Table 9C of the Handbook). Additionally, no new residential developments should occur within the 60 CNEL contour.

At a minimum, the Santa Barbara ALUP should be amended to reflect the 257-foot runway extension.

Aircraft Safety

Due to safety concerns, information regarding land uses that may attract wildlife is critical in FAA decision-making. Locations of solid waste landfills, dredge spoil containment areas, wastewater treatment facilities, wetlands, wildlife refuges, and any other land uses that attract wildlife that is hazardous to aviation should be included in the environmental assessment. For an airport serving piston-powered aircraft, such as Lompoc Airport, any of these land uses that are within 5,000 feet of the airport should be disclosed. The following facilities are located within 5,000 feet of Lompoc Airport:

- City of Lompoc Landfill, located northeast of North Avenue and 'D' Street
- City of Lompoc's Household Hazardous Waste Collection Facility, located northwest of Central Avenue and 'V' Street
- City of Lompoc Wastewater Treatment Facility, located north of Central Avenue and Bailey Avenue
- Two wetlands located north of the airport property (shown in the National Wetlands Inventory Map provided later in this chapter)

Construction Impacts

Construction may create impacts that are subject to local, State, or federal ordinances or regulations. Construction activities may cause various environmental effects primarily due to dust, aircraft and heavy equipment emissions, storm water runoff containing sediment and/or spilled or leaking petroleum products, and noise. Construction activities may temporarily increase the amount of fine particulate matter (PM_{10}), for which the SBCAPCD is a non-attainment area. As discussed in the air quality section above, an emissions inventory is recommended to establish compliance with federal, State, and regional standards, which would include an analysis of construction impacts. As discussed in the noise section below, there are a few sensitive uses near proposed areas of construction.

According to the U. S. Environmental Protection Agency (EPA), excavation of 1-acre of land or more often creates disturbances that cause sediment runoff rates to increase dramatically. Therefore, if 1-acre of land or more will be disturbed during construction, a National Pollutant Discharge Elimination System (NPDES) storm water discharge permit is required.

In addition, construction plans should be reviewed for sensitive receptors near the construction area and where they are present, hours of construction where noise is typically high may be scheduled to lessen the impact.

Department of Transportation Act (DOT), Section 4(f)

Section 4 (f), as part of the 1966 Department of Transportation Act, requires that special efforts be made "to preserve the natural beauty of the countryside and public park and recreations lands, wildlife and waterfowl refuges, and historic sites." As a result, a review of the impacts that the proposed airport improvements may have on these uses is required.

Several parks are located near Lompoc Airport and include Ken Adam Park, River Bend Park, and Barton Park. Ken Adam Park, named after longtime owner and publisher of the Lompoc Record newspaper, is located north of the Santa Ynez River and west of Highway 1, adjacent to Allan Hancock College. The park features a playground, BBQ area, nature trails, a flag monument, and a resident park ranger. River Bend Park is located east of the airport, northeast of 'A' Street and McLaughlin Road. The park features a BBQ area and baseball field and is utilized by Lompoc Babe Ruth and adult baseball programs. Barton Park is located south of the airport, at the southeast corner of Barton Avenue and Parkside Way. This park is currently under development and will feature a playground, basketball court, and access to the East-West Channel Bike Path. Given the distance of these parks from Lompoc Airport, proposed airport improvements would not interfere with the outdoor recreational uses at these parks. As such, no substantial impacts will occur.

Impacts on wetlands and other biological resources are discussed in other sections of this chapter.

Farmlands

Based upon information provided in the Department of Conservation's Santa Barbara County Important Farmland Map, 2008 (reference Figure 9-5), the land located on airport property is designated Urban and Built-up Land and Other Land[1]. There is a parcel of land designated Prime Farmland located directly south of the airport boundary, east of 'V' Street. Impacts expected on the Prime Farmland are either non-substantial or nonexistent because the master plan improvements will not affect or disturb this property.

Fish, Wildlife, and Plants

According to the California Natural Diversity Database (CNDD), several habitat types and species are present in the quadrangle[2] surrounding the airport site including:

- Spea hammondii, or western spadefoot
- Rana draytonii, or California red-legged frog
- Oncorhynchus mykiss irideus, or southern steelhead
- Myotis yumanensis, or Yuma myotis
- Lasiurus cinereus, or hoary bat
- Lasiurus blossevillii, or western red bat
- Antrozous pallidus, or pallid bat
- Neotoma lepida intermedia, or San Diego desert woodrat
- Taxidea taxus, or American badger
- Actinemys marmorata, or western pond turtle
- Anniella pulchra pulchra, or silvery legless lizard
- Phrynosoma blainvillii, or coast horned lizard

[1] According to the Farmland Map, Other Land is land not included in any other mapping category. Common examples include low density rural developments, brush, timber, wetland, and riparian areas not suitable for livestock grazing, confined livestock, poultry, or aquaculture facilities, strip mines, borrow pits, and water bodies smaller than 40 acres. Vacant and nonagricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land.
[2] U.S.G.S. 7.5' topographic area as shown in the CNDDB Quick Viewer maps

- Salvadora hexalepis virgultea, or coast patch-nosed snake
- Southern California Steelhead Stream
- Central Maritime Chaparral
- Central Coast Arroyo Willow Riparian Forest
- Southern Cottonwood Willow Riparian Forest
- Southern Willow Scrub
- Danaus plexippus, or monarch butterfly
- Trimerotropis occulens, or Lompoc grasshopper
- Layia heterotricha, or pale-yellow layia
- Ancistrocarphus keilii, or Santa Ynez groundstar
- Lonicera subspicata var. subspicata, or Santa Barbara honeysuckle
- Arctostaphylos purissima, or La Purisima manzanita
- Arctostaphylos rudis, or sand mesa manzanita
- Arctostaphylos tomentosa ssp. eastwoodiana, or Eastwood's brittle-leaf manzanita
- Chorizanthe rectispina, or straight-awned spineflower
- Delphinium parryi ssp. blochmaniae, or dune larkspur
- Horkelia cuneata ssp. puberula, or mesa horkelia
- Cordylanthus rigidus ssp. littoralis, or seaside bird's-beak
- Mimulus fremontii var. vandenbergensis, or Vandenberg monkeyflower
- Scrophularia atrata, or black-flowered figwort
- Agrostis hooveri, or Hoover's bent grass
- Ambystoma californiense, or California tiger salamander
- Aimophila ruficeps canescens, or southern California rufous-crowned sparrow
- Amphispiza belli belli, or Bell's sage sparrow
- Euphilotes battoides allyni, or El Segundo blue butterfly
- Erigeron sanctarum, or saint's daisy
- Erysimum capitatum var. lompocense, San Luis Obispo wallflower
- Arctostaphylos pechoensis, or Pecho manzanita
- Monardella undulata, curly-leaved monardella
- Abronia maritima, or red sand-verbena
- Mucronea californica, or California spineflower
- Ceanothus cuneatus var. fascicularis, or Lompoc ceanothus
- Prunus fasciculata var. punctata, or sand almond
- Mimulus subsecundus, or one-sided monkeyflower
- Ophioglossum californicum, or California adder's-tongue

The previous Lompoc Airport Master Plan, dated March 10, 1998, indicated the following additional species may be present on or near the airport:

- Yellow-Billed Cuckoo
- Sciurus grisevs, or western gray squirrel
- Felis concolor, or mountain lion

Based on the results of the CNDD search and information above, it is recommended that the site be surveyed and evaluated for potential biological resources that may occur within areas planned for future development and to determine if that future development could potentially impact any biological resources occurring within the defined limits of disturbance.

Floodplains

Lompoc Airport boundary is located within Flood Zones X and AE (reference Figures 9-6 and 9-7). Flood Zone X refers to the insurance rate zone that corresponds to an area that is within the 500-year floodplain. Flood Zone AE corresponds to an area within the 100-year floodplain. All of the proposed

master plan improvements are located within Flood Zone X, and therefore impacts are not expected. However, to reduce potential impacts from flooding in either Zone X or AE, the following mitigation measure is recommended:

- Prior to construction, and when a potential drainage issue is known, a drainage study should be conducted. Drainage systems should be designed to maximize the use of detention basins, vegetated areas, and velocity dissipaters to reduce peak flows where possible.

Hazardous Materials

The EPA has not designated any superfund sites in Lompoc, California. A superfund site is a location of toxic waste contamination that requires clean up. The City of Lompoc's Household Hazardous Waste Collection Facility is located southwest of the airport boundary, however master plan improvements are not located near this facility and impacts are not expected.

Construction and maintenance activities associated with the implementation of master plan improvements could potentially result in solvent and architectural coating activities that may be considered hazardous if not used, stored, or disposed of properly. Any excesses in these materials, which exist upon completion of specific projects, could be considered hazardous materials or wastes that may need to be disposed of properly. While this is a potential impact, these left over materials can likely be stored properly and used for other similar projects or purposes. Such use or re-use would reduce the amount of excess materials that would require disposal. Additionally, steps can be taken to minimize the risk associated with handling hazardous materials in the process of facility construction. Therefore, the potential impact is considered less than significant.

Historic, Architectural, Archeological and Cultural Resources

The City of Lompoc General Plan identifies two locations on airport property where cultural resource surveys have been conducted. There are no known historic, architectural, archaeological, or cultural sites that have been identified near the airport. Much of the project site has been previously disturbed with development of the existing airport. However, there is a possibility that resources may exist in the area. Such resources could be uncovered during project construction as a result of grading and excavation of the site.

Mitigation measures during construction activity can be identified to eliminate or reduce the impacts to any uncovered artifacts and/or additional research can be conducted to determine if any resources exist near the airport. The Central Coast Information Center (CCIC) is one of the eleven regional information centers that comprise the California Historical Resources Information System (CHRIS) and is responsible for the local management of the California Historical Resources Inventory. The Center has cultural resources site files for Santa Barbara County. These files include known and recorded archaeological and historic sites, inventory, and excavation reports and properties listed on the National Register of Historic Places, the California Historical Landmarks, the California Inventory of Historic Resources, and the California Points of Historic Interest. A historic and cultural resources database search of these files should be conducted to establish what, if any, historic resources or cultural resources of value exist on the site. The Native American Heritage Commission and the Santa Ynez Band of Chumash Indians should also be consulted to establish if there are any known resources near the project site.

In addition to the database search, a preliminary Phase I archaeological study can be prepared to identify the potential for other valuable resources in the project area.

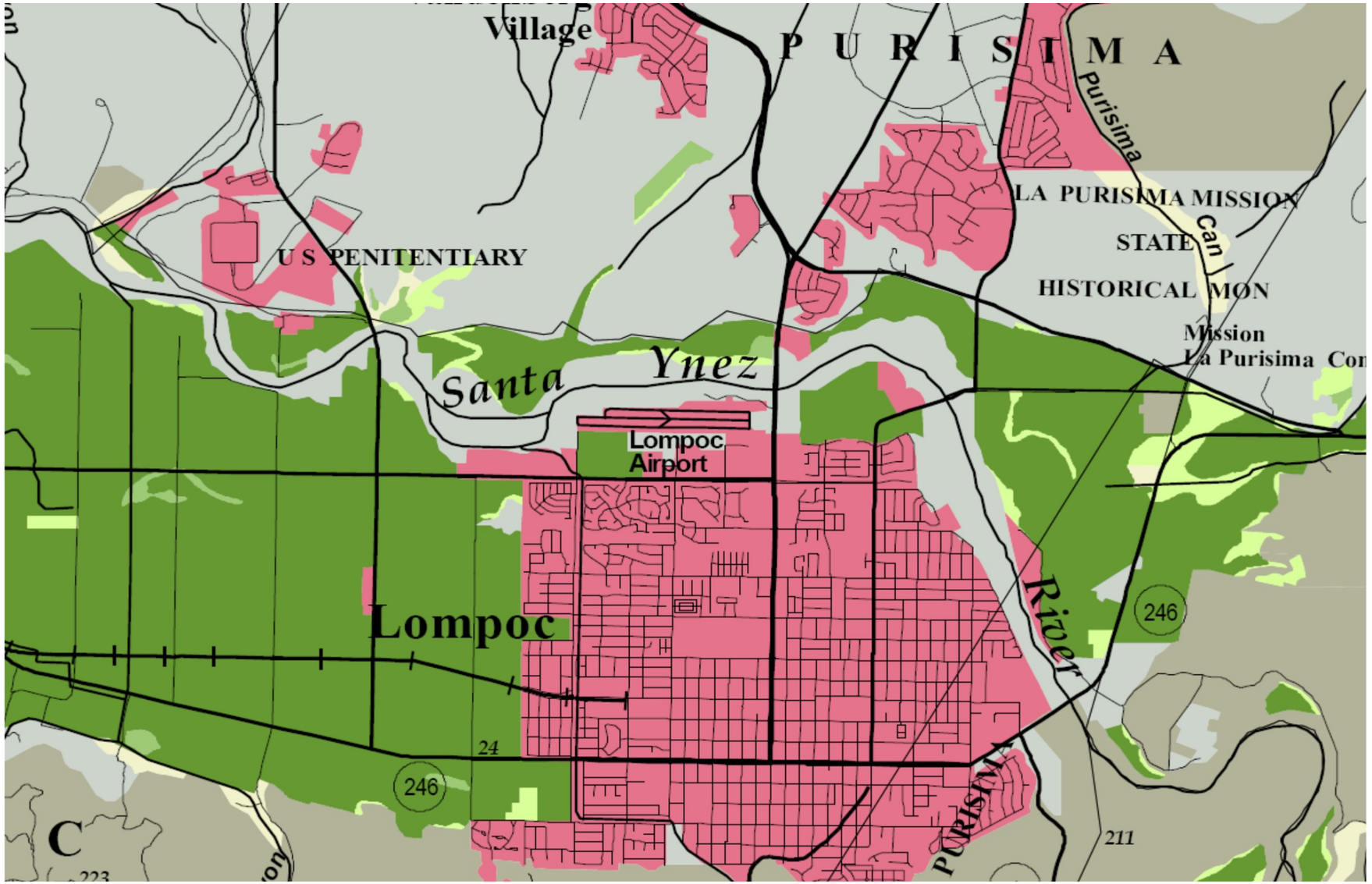

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Figure 9-5
Farmlands

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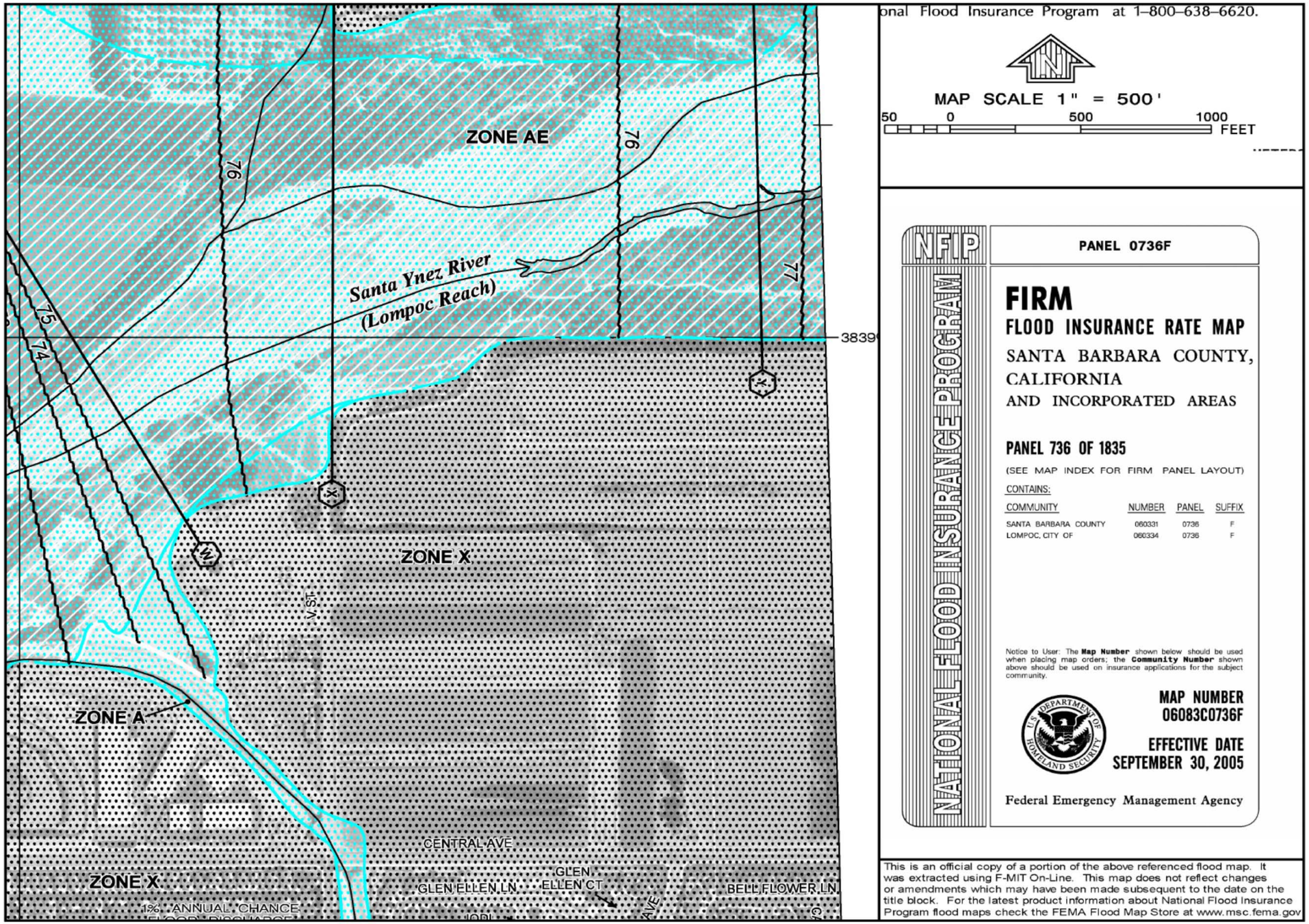

Figure 9-6
Floodplains – West End

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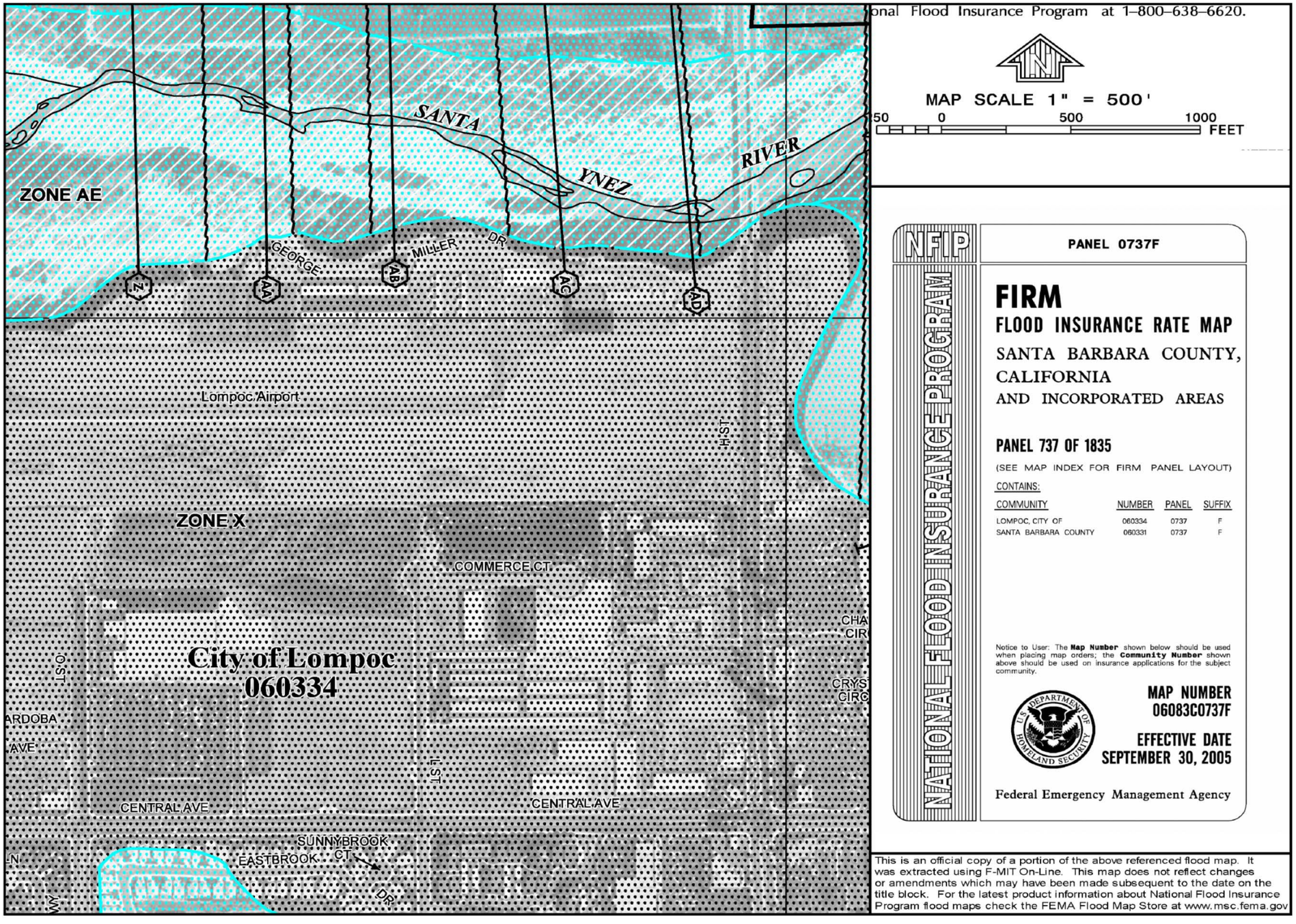

Figure 9-7
Floodplains – East End

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Light Emissions and Visual Effects

Airport improvements are not expected to create unusual lighting conditions that would be considered sufficient to warrant a special study. Normally, impacts of light improvements at airports are not substantial. Lighting improvements related to runways or taxiways, are identified as categorical exclusions under FAA Order 5050.4B and do not require any formal environmental assessment. Ramp lighting and lighting associated with expansion of the terminal area is not expected to be significant.

Construction and implementation of the master plan improvements will not impede or block views of scenic resources. Construction of hangars and expansion of the terminal will be similar in nature to surrounding buildings.

Natural Resources and Energy Supply

The improvements recommended in the master plan do not have the potential to result in a demand for services and significant expansion of the urban service network. The increased demand is not expected to contribute to a cumulative regional impact on the energy supply or natural resources. To insure that energy supply and resources are available to accommodate the airport improvements, it is recommended that prior to the design of airport improvements, power companies or other suppliers of energy be contacted to determine whether the demand can be met by existing or planned source facilities.

Noise

FAA Order 1050.1E states that a noise analysis is not required for federal environmental documentation when the proposal involves Airport Design Group I and II airplanes at airports such as Lompoc and where annual aircraft operations do not exceed 90,000 piston-powered aircraft operations or 700 annual jet-powered aircraft operations. It is noted that the airport is designated with an airport reference code of B-II, and the total number of aircraft operations in the year 2030 is forecast at 62,600. These levels of forecast operations are not significant; therefore adverse noise impacts are not expected.

For reference, Community Noise Equivalent Level (CNEL) noise contours were prepared for Lompoc Airport and included in the Santa Barbara County ALUP and the previous master plan. The noise contours in the ALUP, shown in Figure 9-8, were based on 250 operations per day, which is more than forecast for the year 2030 in this master plan update. The 65 CNEL contained in the ALUP encompasses airport property and some open space and agricultural land uses. The 60 CNEL contour was projected to extend beyond the airport property line to the south (almost to Central Avenue), beyond airport property to the east (past ‘A’ Street), and to the northwest across the Santa Ynez River. The areas included in this contour are airport property, commercial, business park, open space, and agricultural land uses.

The noise contours in the previous master plan, shown in Figure 9-9, were based on 150 operations per day, which is slightly less than forecast in this master plan update. The 65 CNEL is almost entirely within airport property, with a small portion extending into business park and general commercial land uses. The 60 CNEL extends slightly south of the airport boundary and west across the Santa Ynez River. The areas included in this contour are airport property, business park, general commercial, and open space land uses.

Since aircraft operations in this master plan update are forecast to be greater than in the previous master plan but less than the ALUP, the future area noise exposure is expected to be less than shown in the ALUP. Even with the 257-foot extension of Runway 25, noise impacts are not expected as a result of the forecast aircraft operations or the proposed master plan improvements.

The master plan improvements proposed along the southern airport boundary and the parcel bounded by ‘O’ Street, Barton Avenue, and Aviation Drive may impact adjacent land uses during construction

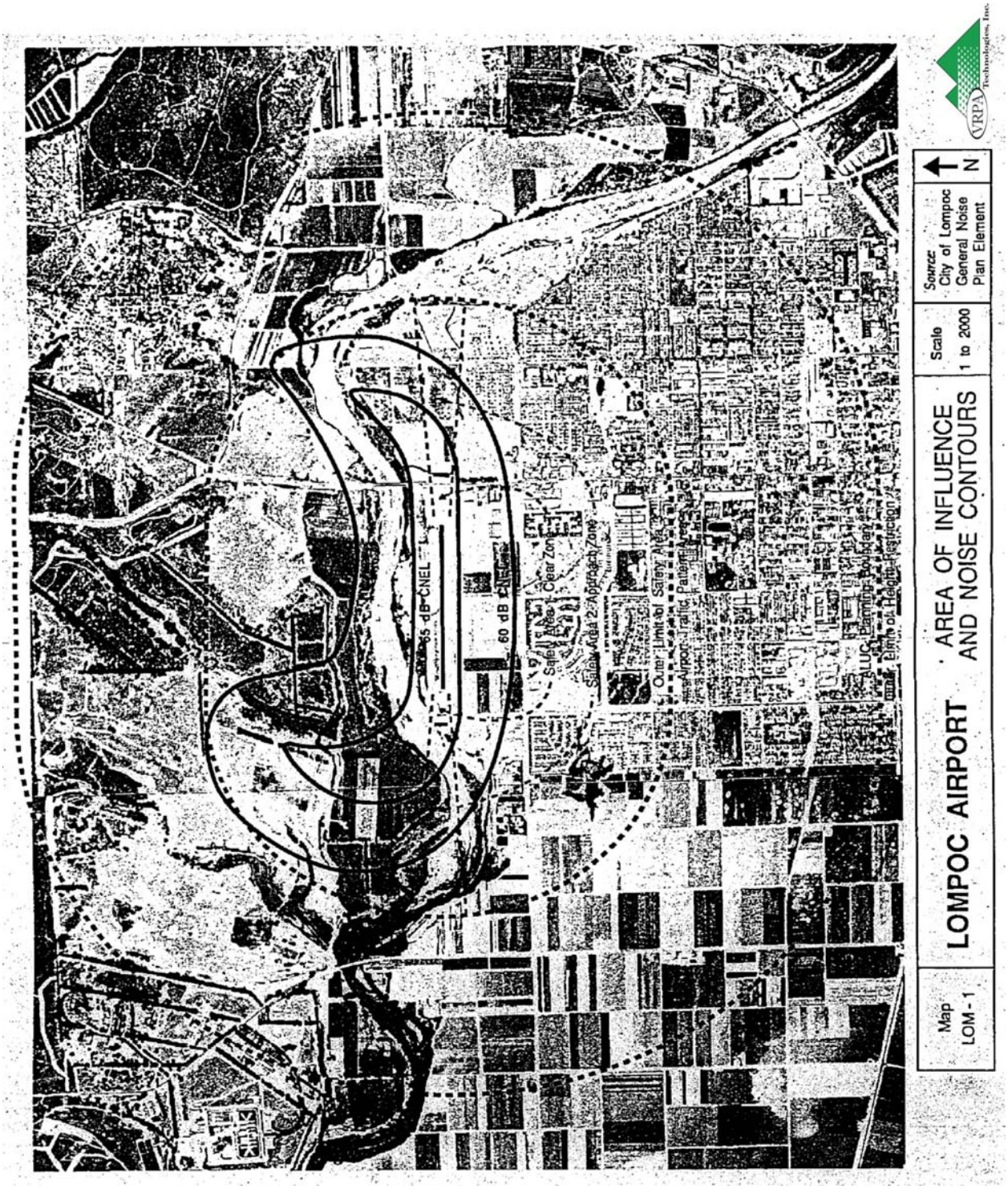


Figure 9-8
Santa Barbara County ALUP
Noise Contours – 250 Daily Operations

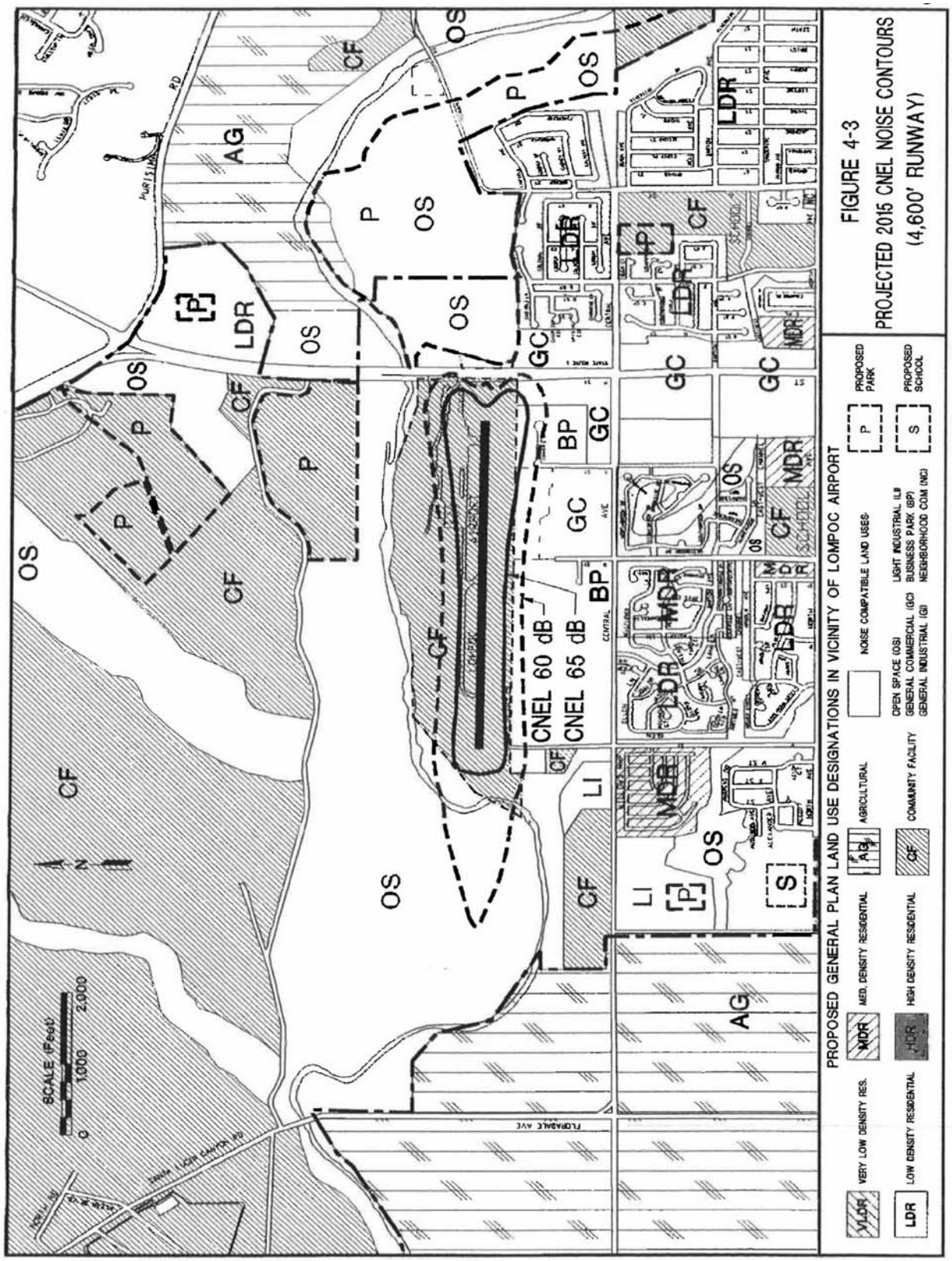


Figure 9-9
Noise Contours – 150 Daily Operations

activities. Business park and general commercial land uses exist and are proposed adjacent to the airport boundary and may experience noise impacts from construction activities. Construction impacts are discussed in greater detail in the sections above.

Socioeconomic Environmental Justice, and Children's Environmental Health and Safety Risks

The principal social impacts considered are those associated with relocation or other community disruption, such as dividing an established community or altering surface transportation patterns. The airport improvements recommended in the master plan do not create such impacts. The transportation routes surrounding the airport will not be affected by the proposals contained in the master plan. The existing streets and roads will not be directly affected by master plan improvements and the increase in traffic expected over the next 20-years as a result of the increases in operations and based aircraft will not affect the operations of those facilities in terms of levels of service or safety.

Primary access to the airport is provided via Highway 1/North 'H' Street, a four-lane undivided roadway along the portion that intersects George Miller Drive. Using trip generation rates found in the Institute of Transportation Engineers (ITE) Trip Generation Manual, 8th Edition, the trip generation for an increase of 32,400 annual aircraft operations is 175 average daily traffic (ADT). According to Caltrans' 2008 traffic counts available on their website, Highway 1 experienced 28,000 ADT. Based on these counts and the ADT capacity shown in the Modified Highway Capacity Manual (HCM)-Based Level of Service Tables, segment level of service (LOS) is at LOS E with threshold of 31,160 ADT. Even with the addition of 175 ADT to the existing traffic volumes, the roadways are projected to operate under capacity, although still forecasted to operate at LOS E. The primary access roads to the airport are capable of accommodating the projected traffic and improvements to local and State roadways due to airport traffic are not required. Constructing a raised median along Highway 1 would increase the capacity of the roadway and may be considered by the City and Caltrans sometime in the future to address future cumulative traffic.

Master plan improvements include the rehabilitation of George Miller Drive and the construction of a perimeter road, which would improve on-site access. Both of these improvements will be constructed on airport property and will not impact traffic operations along Highway 1, other than during construction.

Table 9-2 shows a summary of aircraft accidents that have occurred at Lompoc Airport over the last 10 years. A total of three accidents have occurred since January 1, 1999, only one of which resulted in a fatality. None of the accidents included injuries of people on the ground.

Master plan improvements are not expected to create disproportionate health and safety risks to children.

Table 9-2
ACCIDENTS AT LOMPOC AIRPORT FOR 1999 TO 2009

#	Date	Phase of Operation	Accident Cause	Aircraft Type	Injuries on:		Aircraft Damage
					Airplane	Ground	
1	12/10/08	Approach/Landing	Pilot error	Cessna 172	1 (fatal)	0	Substantial
2	2/29/04	Normal Cruise	Failure of the fuel pump	Vogt/KR2S	1 (minor)	0	Substantial
3	5/5/02	Departure	Pilot's failure to compensate for wind condition	Sierra/RAF 2000 GTX-SE	2 (minor)	0	Substantial

Source: National Transportation Safety Board Aviation Accident Database accessed March 2010.

Solid Waste

Airport improvements that relate only to airfield development such as runways, taxiways, and related items will not directly impact solid waste collection, control, or disposal other than that associated with the construction. As additional improvements occur under the master plan, the amount of solid waste generated will increase, placing an additional burden on the local landfill. This waste may contribute to the cumulative regional impacts on landfill capacity. Therefore, it must be determined if there are any potential constraints associated with the capacity of available disposal facilities or location of solid waste that may violate any local, State, or federal regulations. In addition, special attention should be given to the control of hazardous waste. The City of Lompoc should be contacted at the time new airport facilities are constructed to determine if the disposal facilities are adequate.

Water Quality

The proposed airport improvements may have the potential to alter the existing drainage pattern of the site, which would result in erosion or siltation on- or off-site, interfere with groundwater discharge, or contribute to runoff water which may exceed the capacity of existing or planned storm water drainage systems. In addition, the storm water runoff may contain contaminants. As mentioned in the floodplains section, a drainage study is recommended.

Currently, storm water runoff in the form of a sheet flow drains toward the Santa Ynez River, which is part of the City of Lompoc's Stormwater Management Program (SWMP). The SWMP implements the Federal Clean Water Act's NPDES Phase II Program and the State's Porter Cologne Water Quality Act to address municipal storm water pollution prevention.

Demand for potable water and increases in wastewater in the airport area could be affected by master plan improvements. Several of the projects have the potential to generate wastewater during construction through grading and excavation activities; however, the increases are expected to be minimal.

Master plan improvements will require additional public services and utilities to handle increased demand for wastewater and increased demand for potable water, and, in some cases, increased demand for reclaimed water for landscaping purposes. These increases would need to be evaluated.

The City has accounted for increases in the public needs throughout the City. In most cases, wastewater and potable water infrastructures function well below their capacities. Based on the demand for public services and utilities for similar projects, and on the current capacities of existing public services and utilities, the local projected demand for the project is not anticipated to be significant.

The City Public Works Department should ensure that the existing public services and utilities would be able to handle the increase. If the current infrastructure is found to be inadequate, infrastructure improvements for the appropriate public service utility should be identified in the subsequent CEQA documentation.

Wetlands

According to the U.S. Fish & Wildlife Service's National Wetlands Inventory, two known wetlands (reference Figure 9-10) are located near Lompoc Airport. The map shows the wetlands, designated as Freshwater Forested/Shrub Wetland and Riverine, north of the airport boundary along the Santa Ynez River. Figure 9-10 was obtained from the U.S. Fish & Wildlife Service's website and includes a disclaimer that the map may or may not be accurate, current, or otherwise reliable and should be used for general reference only. Wetlands often change seasonally; therefore the wetlands shown on the map may no longer exist in the location they are shown. Impacts to these wetlands are expected to be non-substantial

or nonexistent because they are not located within the airport boundary or adjacent to master plan improvements. However, airport improvement/expansion may impact these or other wetlands. It is recommended that a wetlands delineation be conducted at the same time as the biological site assessment noted in the Fish, Wildlife, & Plants section above. The City should also obtain and comply with appropriate regulatory requirements prior to construction.

Wild and Scenic Rivers

Impacts expected on wild and scenic rivers are either non-substantial or non-existent because Lompoc Airport is not located near any wild or scenic rivers. The Santa Ynez River, located north of the airport is not listed on the Nationwide Rivers Inventory (NRI) and is not designated as a wild or scenic river.

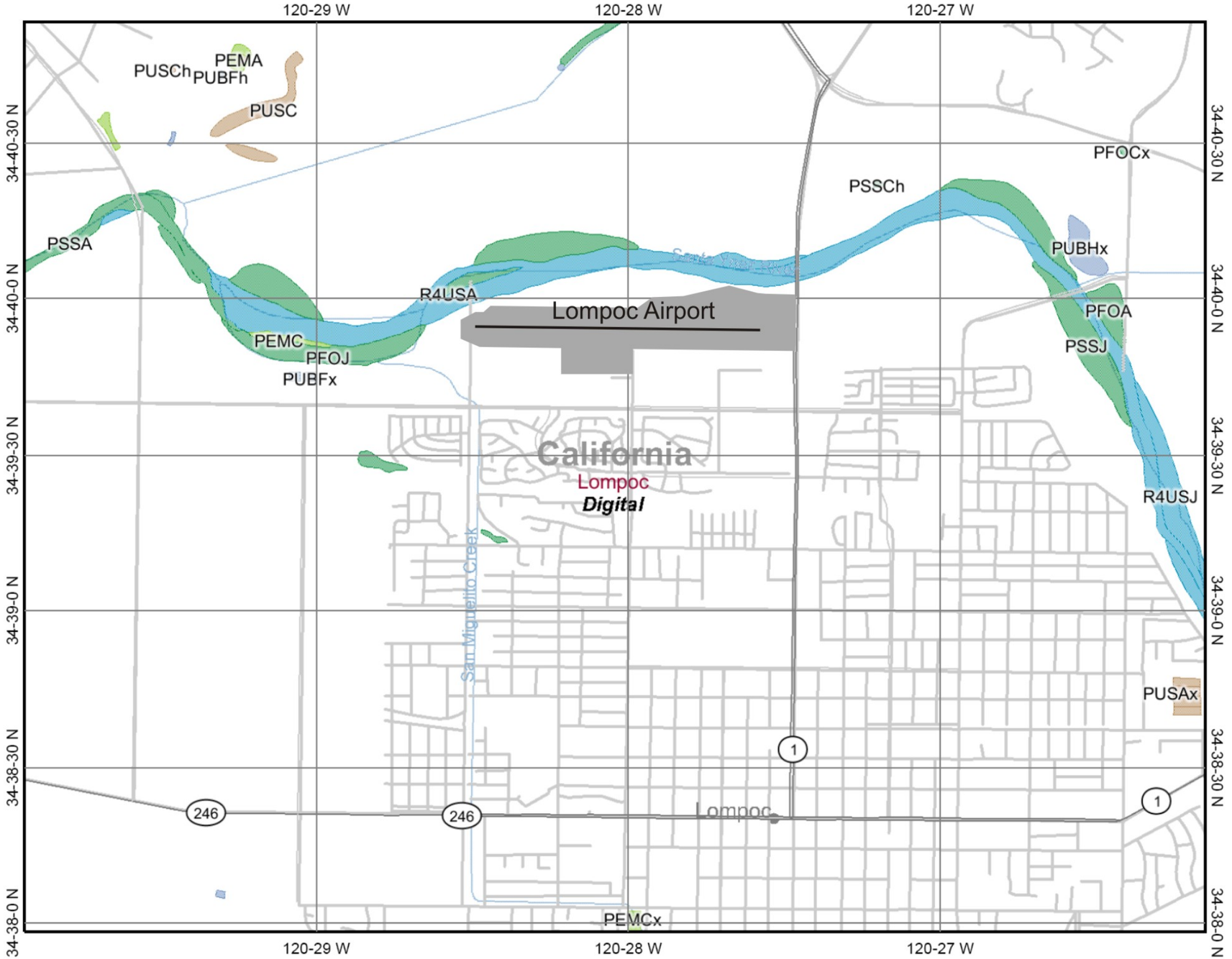
SUMMARY

Based on the findings contained in the environmental constraints analysis, additional studies pursuant to the National Environmental Policy Act (NEPA) are recommended related to four environmental affects, which may occur as a result of the master plan improvements and include the following:

- An emissions inventory is recommended to establish compliance with federal, State, and regional air quality standards
- An archeological study and field review is recommended to establish what, if any, historic resources or cultural resources of value exist on the site
- A biological site assessment and biological database search is recommended to establish what, if any, wildlife or plants of value exist on site
- A wetland delineation and jurisdictional determination is recommended. This analysis would identify total acres of jurisdictional waters within the airport property boundary and permit requirements if any airport improvements are anticipated in these areas.

In addition, prior to approval of airport improvements, public service providers (energy supply, natural resources, solid waste) should be contacted to determine whether the demand could be met through existing or planned service facilities. Finally, when a potential drainage issue is known, a drainage study should be conducted.

The necessary environmental documentation should be prepared according to FAA, State, and City of Lompoc standards and regulations.



Legend

- Interstate
- Major Roads
- Other Road
- Interstate
- State highway
- US highway
- Roads
- Cities
- USGS Quad Index 24K
- Lower 48 Wetland Polygons
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine
- Lower 48 Available Wetland Data
- Non-Digital
- Digital
- No Data
- Scan
- NHD Streams
- Counties 100K
- States 100K
- South America
- North America

Figure 9-10
Known Wetlands

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APPENDIX A

TAC Members and Meeting Minutes

Appendix A

TAC Members and Meeting Minutes

TECHNICAL ADVISORY COMMITTEE (TAC) MEMBERS

Richard Fernbaugh
City of Lompoc
100 Civic Center Plaza
Lompoc, CA 93438

Stacey Lawson
City of Lompoc
100 Civic Center Plaza
Lompoc, CA 93438

Kevin McCune
City of Lompoc
100 Civic Center Plaza
Lompoc, CA 93438

Ed Mandibles
Airport Commission

Keith Neubert
City of Lompoc
100 Civic Center Plaza
Lompoc, CA 93438

Margie Drilling
FAA-Airports
15000 Aviation Blvd.
Hawthorne, CA 90261

Michael Powers
Santa Barbara County Association of Governments
260 North San Antonio Road, Suite B
Santa Barbara, CA 93110

William F. Yim, Sr. Transportation Planner
Santa Barbara County Association of Governments
260 North San Antonio Road, Suite B
Santa Barbara, CA 93110

Eileen Wyckoff
Airport User

Bob Wyckoff
Airport User

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LOMPOC AIRPORT
MASTER PLAN UPDATE

Technical Advisory Committee
Kickoff Meeting
April 9, 2009

The first meeting of the Technical Advisory Committee (TAC) for the Lompoc Airport Master Plan was held April 9, 2009 at Lompoc City Hall.

Technical Advisory Committee

TAC Attendees

Richard Fernbaugh	City of Lompoc	r_fernbaugh@ci.lompoc.ca.us
Stacey Lawson	City of Lompoc	s_lawson@ci.lompoc.ca.us
Kevin McCune	City of Lompoc	k_mccune@ci.lompoc.ca.us
Keith Neubert	City of Lompoc	k_neubert@ci.lompoc.ca.us
Margie Drilling	FAA-Airports	margie.drilling@faa.gov
Michael Powers	SBCAG	mmpowers@sbcag.org
Ed Mandible	Airport Commission	emandible@verizon.net
Eileen Wyckoff	Airport User	rewyckoff@verizon.net
Bob Wyckoff	Airport User	rewyckoff@verizon.net

Master Plan Staff

Doug Sachman, AECOM	Douglas.Sachman@AECOM.com
Andrew Scanlon, AECOM	Andrew.Scanlon@AECOM.com
Georgiena Vivian, VRPA Technologies	gvivian@vrpatechnologies.com

BACKGROUND & INTRODUCTIONS

The meeting commenced at 2 P.M.

Doug Sachman, AECOM Project Principal and Consultant Team Manager, provided a brief background on the airport master plan process and described the need for the current update. Attendees were asked to introduce themselves.

VISIONING SURVEY

Doug Sachman requested that each of the TAC members fill out a Visioning Survey form provided at the meeting and indicated that Georgiena Vivian, Principal with VRPA Technologies and Consultant Team Member, would collect the forms and provide a synopsis of the responses. Based upon the answers from the TAC members (reference Attachment A), the following notable highlights from the survey resulted:

- Airport Role
  - A majority of the respondents indicated that the future importance of airport was “Very Important” for Personal/Recreational Use; “Somewhat Important” for Pilot Training, “Very Important” for Business/Corporate use; “Somewhat Important” for Government use; split between “Somewhat Important” and “Very Important” for Emergency/Medical Transport use; and “Very Important” for Tourism.

- Growth in Airport Activity
  - A majority of the respondents indicated that the expected growth of the airport should be ”Moderate” for Based Aircraft and Takeoffs and Landings; and evenly split between “Little Growth” and “Moderate Growth” for Special Events.
- Airport Services and Facilities
  - A majority of the respondents indicated that the future need for a Longer Runway and Full Parallel Taxiway had “Limited Importance”; Navaids/Instrument Approach and Visual Aids were “Very important”; Fixed Base Operator (FBO) Services, Pilot Facilities, T-Hangars, Conventional Hangars and Tie-downs were “Somewhat Important”; and Portable/Shade Hangars had “Limited Importance.”

TAC Comments:

- One questionnaire indicated the importance of adding solar panels to all airport facility roofs.

PRESENTATION/VISIONING WORKSHOP

Doug Sachman provided a PowerPoint presentation to the TAC focusing on the study process, issues and schedule. Mr. Sachman also identified various issues at the airport that will be evaluated during the master plan update. The presentation is included as Attachment B.

Doug initiated the presentation and requested TAC members ask questions and discuss issues as he proceeded. Doug mentioned that it was important to receive feedback from the TAC regarding issues that they would like to see guide the goals for the airport over the next 20-years. A detailed overview of this process follows:

Master Plan Purpose, Project Organization, and Project Approach

Doug highlighted the purpose of the Plan Update, the City staff and Consultant Team Members and their responsibilities, and provided a synopsis of the project approach focusing on the various steps his Team will take to complete the master plan update.

Master Plan Schedule

Doug presented the project schedule that was included in our original proposal, and it is typical for a master plan study such as this one. However, due to pressures related to the FAA grant (expiring in August) we will do all we can to accelerate the schedule.

Margie Drilling, FAA Regional representative, asked the City if it will need to prepare and approve CEQA document for the updated Plan. She indicated that FAA is not the lead agency and does not approve the master plan but only reviews the Airport Layout Plan (ALP) and provides comment. She further indicated that FAA will approve the ALP prepared consistent with master plan goals, objectives and recommendations.

Stacy Lawson, City of Lompoc Planning Department, responded that an environmental document would be required by the City. Stacey then asked Margie (FAA) if the master plan update needed to be approved by the City in order for FAA to approve the layout plan.

Margie responded that FAA only needs a signature on the master plan update document and that an officially recommended plan would be fine as long as someone from the City signs it.

Stacy indicated that the City would have to certify the environmental document first and then approve the master plan update. She further indicated that a signature on a recommended master plan would not be possible since the City Council could change recommendations in the master plan when it certifies the EIR and approves the master plan update.

Margie indicated that if the master plan update was moving along quickly and was 50 to 60 percent complete by August 2009, then she could support an argument for an extension of the FAA grant funding.

Stacy stated that City Planning needs to be in the loop so that this issue can be addressed appropriately over time.

Stacy then asked Margie (FAA) if the City would be required to prepare a NEPA document for federal funding associated with Plan improvements.

Margie responded that if an improvement project only required a Categorical Exemption (CE), then FAA would prepare the document. However, if the improvement project is for a runway protection zone (RPZ) expansion and affects an area over 3 acres, then an Environmental Assessment (EA) must be prepared to determine the degree of potential impact and a Finding of No Significant Impact (FONSI) or an Environmental Impact Statement (EIS) would be required; both would be the responsibility of the City. She further stated that the EA must be for a project that will be funded by FAA in the near-term.

Project Status

Doug described the project status and indicated that a Notice to Proceed (NTP) was received from the City on March 10, 2009.

Doug also mentioned that a survey form was distributed by mail to each of the aircraft owners at the airport to receive their input and opinion on airport needs and issues. He indicated that survey results will help the Consultant Team identify based aircraft and airport facility requirements during the planning process.

Doug further indicated that usually a digital mapper will be retained by the Consultant Team to fly the airport and prepare digital base mapping. He stated however, that in this case, the City just prepared digital mapping and that AECOM would adapt City mapping for this project.

Doug also mentioned that Andrew Scanlon, AECOM Planner, was in Lompoc for two days to do research at the airport and collect data/studies related to the project.

Finally, Doug mentioned that remaining work activity completed to date included preparation for the TAC and Airport Commission Kick-Off meetings and that AECOM initiated development of the aviation demand forecast

Michael Powers, Santa Barbara County Association of Governments (SBCAG), indicated that his agency has prepared a long-term forecast for the year 2040 for all public use airports in the County, including Lompoc Airport.

Doug mentioned that Andrew would contact SBCAG to receive a copy of the forecast.

Existing Facilities

Doug provided a synopsis of existing facilities at the airport including the following:

- The runway was extended in 2002.
- There is a small displaced threshold of 116 feet which is not reflected on FAA Form 5010-1. He stated that he assumes the displaced threshold is tied to clearance over "H" Street.
- The runway is lighted.
- The north parallel taxiway was not extended westerly when the runway was extended. Location of the flood plain was the reason why.

  TAC Comments:

  - Ed Mandible, Airport Commissioner, mentioned that a Global Positioning System (GPS) approach is temporarily unavailable.
  - Bob Wyckoff, an Airport User, mentioned that fog is usually present around 1,000 feet and the lower the decision height, the better.

- Runway 25 is served by a Visual Approach Slope Indicator (VASI) which is a visual aid for pilots.
- The administration building includes a lobby and restrooms
- There are 80 hangars
- There are tie downs available
- An apron exists on south side
- Fuel services are available

  TAC Comments:

  - Margie Drilling: Asked if the NDB worked?
  - Ed Mandible, Airport Commissioner, responded that when Wal-Mart was built, the structure caused severe reflections and that as a result, the NDB was removed. He stated that Lompoc Airport was the only airport in the area to have an operational NDB, but that it is really no longer used with the advent of GPS.
  - Margie Drilling: Asked if there was a rotating beacon?
  - Ed Mandible: Responded yes.

Key Issues

Doug provided an overview of the key issues his Team initially identified and encouraged TAC members to identify additional issues. Issues initially identified by the Team included:

- Runway Extension: Extending the runway to maximum length from the apron to the end of Runway 25. Viability of additional runway pavement with the displaced threshold will add a

couple of hundred feet to the runway length. This additional length could allow high performance aircraft to use the airport.

- Floodplain Issues: Need to do a detailed mapping of the floodplain on and near the airport to identify buildable areas.

  TAC Comments:
  - Eileen Wyckoff, Airport User, indicated that there may be need for a blast fence to keep the dust and debris down along "H" Street. She referred to an incident when a Falcon 900 was at the end of the runway and took off; the sight distance along "H" Street was very low for vehicles or similar to a major dust storm.
  - Doug mentioned that an option would be to pave the surface between the runway and "H" Street or to place a blast pad beyond the runway.
  - Ed indicated that there was a need to prevent erosion and that jet blast was also becoming a problem. He stated the need for vertical clearance given the marked difference in high performing aircraft using the airport on a weekly basis.
  - Margie asked if there was much activity from the Penitentiary.
  - Ed responded yes, primarily from visitors flying in to access the prison facilities to visit inmates, but not much activity associated with the transport of inmates.

- New Hangars: Doug indicated that new hangars located on the north side of the airport were needed and that more space was available to the west to accommodate similar hangars.

  TAC Comments:
  - Ed indicated that the he had aerial photos of that area of the airport.
  - Doug indicated that he would have Andrew pick them up when they were available.

- Approach: Doug indicated that there was a 3-story hotel adjacent to the airport which limits the type of instrument procedure possible.
- South Parcel Development: Doug stated that 13 acres were available in the southern section of the airport for aviation-related development.
- Hangar Development: Doug identified that hangar space could be developed along the south side of the facility with additional hangars along the taxiway.
- Through the Fence Activity: Doug indicated that there was a gate next to the apron that allowed pedestrians to walk to the hotel.

  TAC Comments:

  - Ed indicated that airplane pilots fly in and park on the ramp and then use the gate to access the hotel, winery and Wal-Mart.
  - Margie asked if the airport charged for overnight transient parking.
  - Richard Fernbaugh, City Project Manager, responded that the City did charge for overnight parking but not for a stop to access the winery or Wal-Mart or other one-day destination activities.

- Other Observations: Doug indicated that the surrounding land uses are favorable for protecting the Airport with primarily commercial and industrial uses on the south and some

residential uses near Runway 25. The Santa Ynez River and associated flood plains form a natural buffer from development north and west of the airport.

TAC Comments:

- Ed indicated that the City is actively working with the surrounding communities to ensure that development does not encroach on airport uses. He further indicated that the City is requesting that CC&Rs be in place for subdivisions near the airport stating that there will be noise emanating from the airport. Ed felt that since the residential development is south of the approach, there should be less noise. He further indicated that the issue of concern for La Purisima was not noise but the airport beacon.
- Bob Wyckoff, Airport User, indicated that there really have not been any significant noise complaints on the part of the Lompoc community that he is aware of.

- Public Open House: Doug indicated that a public open house would be provided as part of the project scope to receive additional input from the general public regarding the Airport Master Plan Update and other airport issues.

Other Issues

Doug asked if there were other issues of concern to the TAC that he did not initially mention. The following issues and discussion followed:

- Margie asked what type of activity existed near Picture No. 8 on Slide 9 of the PowerPoint presentation (reference Attachment B). Richard responded that it was a gravel extraction company mining sand.
- Margie also noted that part of the mine property was inside the airport and asked if the owners pay the City for lease of that property. Richard responded that the City is paid for the leased property.
- Margie then asked what the roads on the north side of the airport were used for. Richard indicated that the roads were used to access a gravel pit and accommodated access for skydivers. He further indicated that a proposed golf course was going to develop in the north, but that the State Department of Fish and Game would not approve the use due to biotic issues.
- Margie then asked if there was a problem with skydivers accessing the area. Richard indicated that the skydivers have a key and that the area is gated. He further indicated that the County instituted a $1,000 fine for vehicles using off-road facilities in the riverbed and that no buildings are allowed in the flood plain.
- Michael asked if cranes used in building structures around the airport were a problem. Margie indicated that a permit would be required for cranes in and around the airport. Richard indicated that when there is a desire to use a crane for a development near the airport, development representatives call the City to discuss the issue and make appropriate accommodations. There is only one crane operator in the City, and the operator is well aware of the airport and the need to coordinate crane operations with City airport staff.
- Bob stated that the City was rehabbing the pavement on the east end ramp.
- Ed stated that the City-owned hangars need rehabilitation.

- Michael indicated that SBCAG has area of influence mapping that logs traffic patterns. Doug indicated that he will have Andrew collect the map from SBCAG. He also indicated that the Team was aware of Caltrans' approach zones and will provide its interpretation of overlays on the plan. He concluded that the City will pursue the issue with the County.
- Kevin McCunne stated that the proposed General Plan shows bicycle facilities between the airport fence and hangars. Margie indicated that that would not be allowed and that there is a requirement for a 20-foot buffer outside the fenced property. Bicycle facilities can only be located outside the fenced area. Kevin indicated that bicyclists need to access the River Park area and that the two planning processes (General Plan and Airport Master Plan) need to coordinate plans for this area.
- Eileen stated that there was a need for vehicular traffic between the north and south sides of the airport without crossing the runway. Ed indicated that the improvement project was on the books but has not been funded. Margie indicated that it would likely be a safety issue. Doug suggested that the City coordinate with the FAA.
- Margie noted that the entrance access road was in very poor condition and that it could potentially qualify for FAA funding. Richard mentioned that the road is a City-owned facility and not officially part of the Airport. Margie indicated that since it was only serving airport uses, it may be eligible for FAA funding and that she will look into the possibility.
- Eileen suggested that County Flood Control vacate the airport property and find space elsewhere to free up space for airport-related uses. Richard indicated that the Flood Control District was paying $900 per month for the space, which reflects fair rent values.
- Margie asked if the City buses are paying rent for the use of airport parking area. Richard indicated that the City pays $250 per month to the airport for the parking area. He further indicated that the transit operation would relocate the bus parking elsewhere eventually once the Transit Center is developed.
- Margie asked who Larry Curtis was. Richard responded that he was the airport mechanic and the host Fixed Base Operator (FBO). He further indicated that Larry provides on-site security services for the airport with a residence on-site. He indicated that a Conditional Use Permit (CUP) had been approved for the residence, which is privately owned; the City only provides water and sewer services to the residence. The residence is a mobile unit.
- Margie asked about the hangar at the end of the road which has a storage container with an air vent. Ed responded that it is a storage facility containing parts that need to be vented and that there were no sewer or water facilities serving the shed.
- Eileen stated her interest in providing solar panels on all airport facility roofs. Margie indicated that Bakersfield did something similar but placed them on the ground at 8-foot in height to reduce obstruction issues.

Goals and Objectives

Doug indicated that his Team would prepare a list of Goals and Objectives and submit them to Richard during the planning phases of the project.

Forecast – Determine Market Area & Share

Doug referenced Slides 11 and 12 of the PowerPoint presentation focusing on the methodology applied to develop the forecast. He indicated that his Team reviewed projections of based aircraft from national and California sources and identified Santa Barbara County as the market area. He

indicated that his Team reviews trends and stated that the market share within the Market Area for Lompoc Airport was at 7.5 percent considering a “Low” forecast trend, 11.6 percent considering a “High” forecast trend, and 9.9 percent considering an “Average” forecast trend. It is noted that the forecast information shown in the presentation was just for illustration, and at this time, forecasts have not been prepared.

Michael indicated that Oceano was not in Santa Barbara County. Doug responded that the Team added Oceano because of its proximity to Lompoc and the airport.

Doug continued explaining the forecast process indicating that annual aircraft operations translate into the airport facilities needed to accommodate them

Kevin asked where the annual aircraft data came from. Richard responded that the data was from the FAA, which received the terminal area figures from the Airport.

Michael inquired about how population demographics and national economic issues will affect the forecasts. Doug responded that his Team will rely on the FAA figures understanding that historical trends will be considered as the forecasts are developed. Michael then indicated that the flower industry was becoming significant in the area and how that might translate into additional operations. Doug indicated that they will rely on the FAA figures, but they can look at other factors as they begin the forecast process. Ed indicated that the use of commercial aircraft for high value users such as the wine industry should be considered and the fact that it was becoming less costly for aircraft to use Lompoc Airport as their base compared to Santa Barbara and other surrounding airports.

NEXT STEPS

Doug outlined the next steps in the master Plan process indicating that his Team would complete the data collection and inventory process, as well as the base mapping. He then indicated that his Team would develop forecasts including numbers of based aircraft, operations, and types of operations. He indicated that the information would then be translated into facility requirements and input from based aircraft owners and the TAC.

Doug stated that his Team will present the Interim Report at the next TAC meeting, which will include the first 5 chapters of the Master Plan or approximately 50 percent of the document. He further indicated that the report would be available 2 weeks prior to the next TAC meeting so that the TAC would have plenty of time for review and comment.

Michael inquired about the role of the TAC regarding the development and screening of project alternatives. Doug indicated that the role of the TAC was to monitor and review Study products and that the alternatives will be developed by the Team and then presented to the TAC for review and comment.

Kevin asked what would happen if the FAA does not extend the funding for the Master Plan. Margie indicated that the FAA will work with the City to the extent possible.

Stacey indicated that based upon the conversation, repaving of the access road was potentially eligible for FAA funding and that the project should be added to the Capital Improvement Program (CIP) for 2010.

ADJOURN

Meeting concluded at approximately 4 P.M.

Attachment A

LOMPOC AIRPORT
MASTER PLAN VISIONING WORKSHOP

CITY OF LOMPOC
LOMPOC AIRPORT MASTER PLAN

Lompoc Airport Mission: *"The mission of the Lompoc Airport is to provide an aerial gateway to the Lompoc Valley. The airport will support the requirements of the commercial and recreational user and will promote economic development and assist in expanding tourism."*

LOMPOC AIRPORT VISIONING WORKSHOP

Airport Role (Types of Use)		Future Importance		
		Limited Importance	Somewhat Important	Very Important
Personal / Recreational			1	8
Pilot Training			7	1
Business / Corporate			2	6
Government (Law Enforcement, etc.)		1	5	2
Emergency / Medical Transport			4	4
Tourism		1	3	4

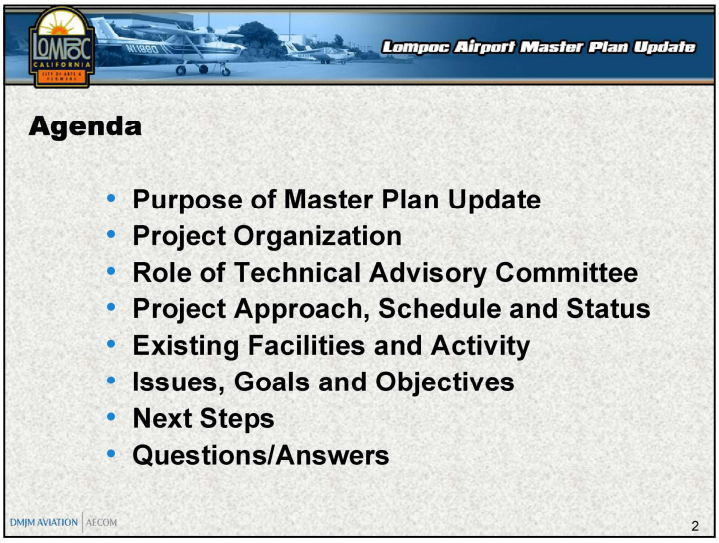
Growth in Airport Activity		Expected Growth		
		Little Growth	Moderate Growth	High Growth
Based Aircraft		2	6	
Takeoffs and Landings		2	6	
Special Events		4	4	

Airport Services and Facilities		Future Needs		
		Limited Importance	Somewhat Important	Very Important
Longer Runway		3	2	2
Full Parallel Taxiway		4	3	2
Navaids / Instr. Approach / Visual Aids			3	4
FBO Services (maintenance, fuel, etc.)			5	1
Pilot Facilities (lounge, flight planning area)		1	6	1
Portable / shade hangars		7	1	
T-hangars (including nested T-hangars)		1	5	2
Conventional, Bay Hangars (Large Hangars)			6	2
Tie-downs		1	6	1

AECOM

Attachment B

LOMPOC AIRPORT
AECOM PRESENTATION SLIDES

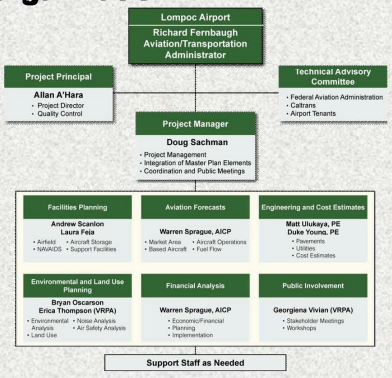


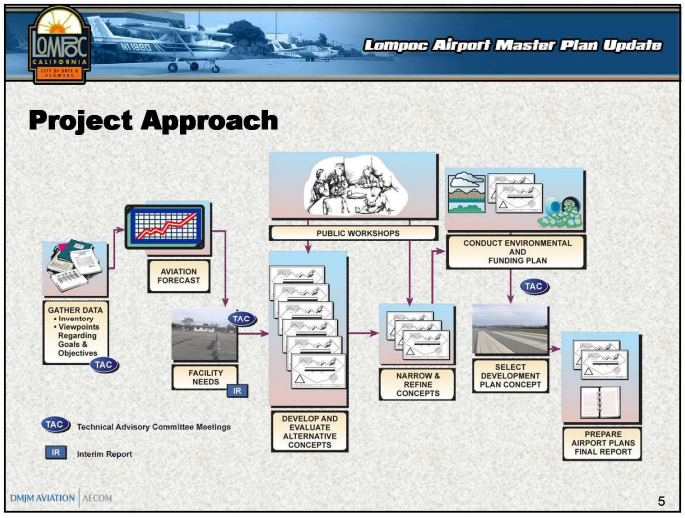
Purpose of Master Plan Update

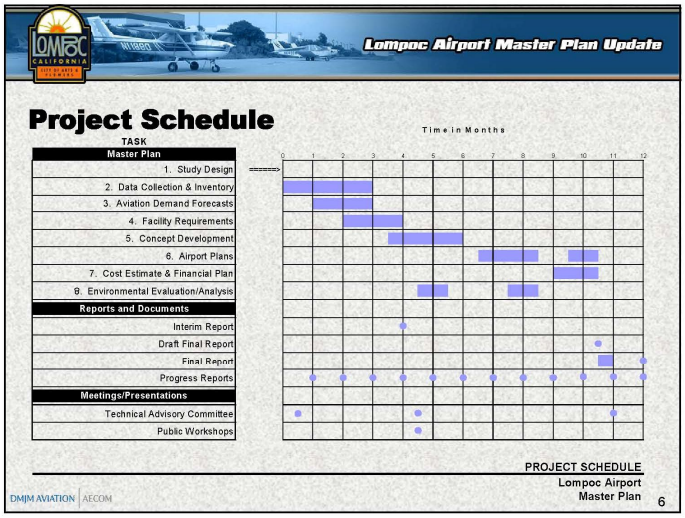
"An airport master plan represents the sponsor approved actions to be accomplished for phased development of the airport."

FAA Order 5100.38A, AIP Handbook

Project Organization




Lompoc Airport Master Plan Update
Project Approach
GATHER DATA
• Inventory
• Viewpoints Regarding Goals & Objectives
TAC
AVIATION FORECAST
FACILITY NEEDS
TAC
IR
PUBLIC WORKSHOPS
DEVELOP AND EVALUATE ALTERNATIVE CONCEPTS
NARROW & REFINE CONCEPTS
CONDUCT ENVIRONMENTAL AND FUNDING PLAN
TAC
SELECT DEVELOPMENT PLAN CONCEPT
PREPARE AIRPORT PLANS FINAL REPORT
TAC Technical Advisory Committee Meetings
IR Interim Report
DMJM AVIATION | AECOM
5

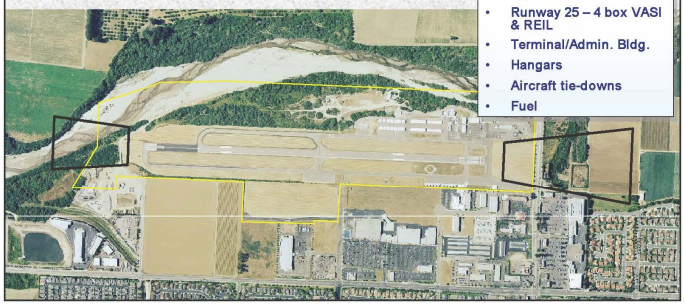

Lompoc Airport Master Plan Update
Project Schedule
Time in Months
TASK
Master Plan
1. Study Design
2. Data Collection & Inventory
3. Aviation Demand Forecasts
4. Facility Requirements
5. Concept Development
6. Airport Plans
7. Cost Estimate & Financial Plan
8. Environmental Evaluation/Analysis
Reports and Documents
Interim Report
Draft Final Report
Final Report
Progress Reports
Meetings/Presentations
Technical Advisory Committee
Public Workshops
PROJECT SCHEDULE
Lompoc Airport Master Plan
DMJM AVIATION | AECOM
6

Project Status

- Notice to Proceed – March 10, 2009
- Inventory and Data Collection
  - Preparing based aircraft owners survey
  - Adapting digital base mapping
  - Site visit
- Forecast of Aviation Demand
  - Preparing forecast of based aircraft
- Project Coordination
  - Preparation for kick-off meetings with Technical Advisory Committee and Airport Commission

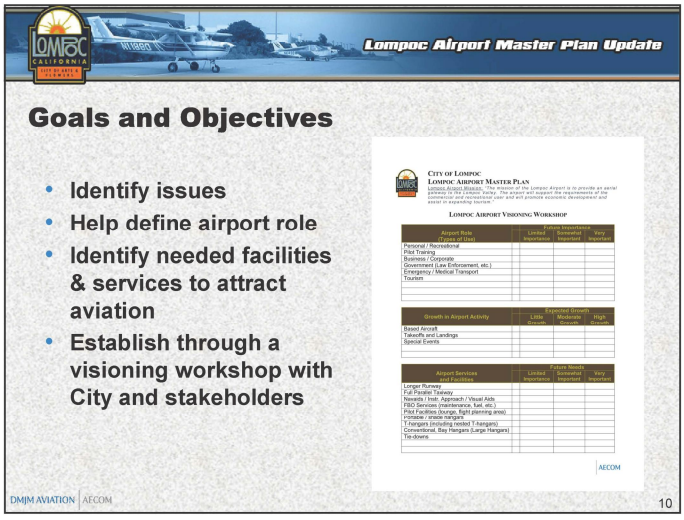
Existing Facilities

- Runway 4,600' x 100'
- Runway 25 – 116' displaced threshold
- Runway lighting – MIRL
- Parallel taxiways
- GPS & VOR/DME approaches
- Runway 25 – 4 box VASI & REIL
- Terminal/Admin. Bldg.
- Hangars
- Aircraft tie-downs
- Fuel




Lompoc Airport Master Plan Update
Key Issues
1. Runway extension
2. Skydive hangar & helipad relocation
3. New hangars on north side
4. Obstacles affect instrument approach
5. Development of south side parcel
6. Hangar development on south side
7. "Through-the-fence" activity
8. "V" Street development – potential admin building
9. Surrounding land uses offer good protection
10. Public input
DMJM AVIATION | AECOM
1


Lompoc Airport Master Plan Update
Key Issues
DMJM AVIATION | AECOM
9


Lompoc Airport Master Plan Update
Goals and Objectives
Identify issues
Help define airport role
Identify needed facilities & services to attract aviation
Establish through a visioning workshop with City and stakeholders
City of Lompoc
Lompoc Airport Master Plan
Lompoc Airport Visioning Workshop
DMJM AVIATION | AECOM
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Lompoc Airport Master Plan Update
Forecast – Determine Market Area & Share
PASO ROBLES
LOST HILLS
DELANO
WASCO
POSO KERN
SHAFTER-MINTER
MEADOWS
SAN LUIS OBISPO
ELK HILLS-BUTTONWILLOW
BAKERSFIELD
SAN LUIS OBISPO CO.
OCEANO CO.
TAFT
TEHACHAPI
MOUNTAIN
SANTA MARIA
NEW CUYAMA
SANTA BARBARA
VANDENBERG AFB
LOMPOC
SANTA YNEZ
VENTURA
SANTA BARBARA
SANTA PAULA
OXNARD
CAMARILLO
MUGU
LOS ANGELES
JACK NORTHROP
Low – 7.5%
High – 11.6%
Avg. – 9.9%
• California/U.S.
• Market area/California
• Airport/Market Area
DMJM AVIATION | AECOM
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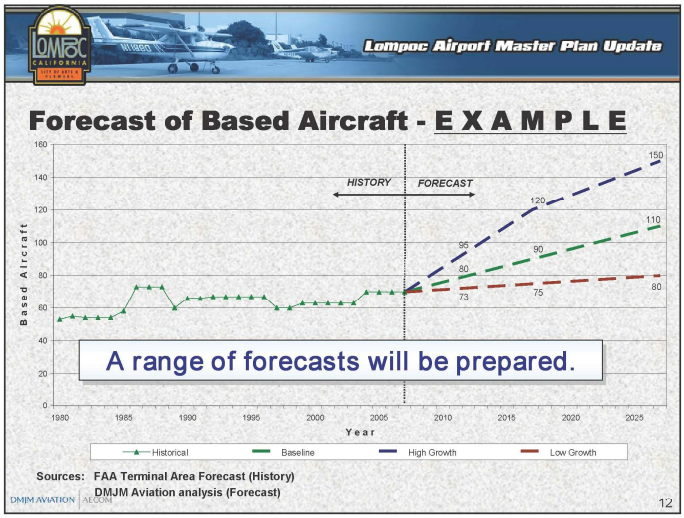
Lompoc Airport Master Plan Update
Forecast of Based Aircraft - E X A M P L E
HISTORY
FORECAST
Based Aircraft
Year
150
120
110
95
90
80
80
73
75
A range of forecasts will be prepared.
Historical
Baseline
High Growth
Low Growth
Sources: FAA Terminal Area Forecast (History)
DMJM Aviation analysis (Forecast)
DMJM AVIATION | AECOM
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Lompoc Airport Master Plan Update
Next Steps
• Complete inventory including digital mapping
• Prepare forecasts – based aircraft, operations & mix
• Determine facility requirements – including input from the based aircraft owners survey
• Prepare Interim Report
• 2nd TAC Meeting
DMJM AVIATION | AECOM
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LOMPOC AIRPORT
MASTER PLAN UPDATE

2nd Technical Advisory Committee
August 27, 2009

The second meeting of the Technical Advisory Committee (TAC) for the Lompoc Airport Master Plan was held August 27, 2009 at Lompoc City Hall.

Technical Advisory Committee

TAC Attendees

Richard Fernbaugh	City of Lompoc	r_fernbaugh@ci.lompoc.ca.us
Stacey Lawson	City of Lompoc	s_lawson@ci.lompoc.ca.us
Kevin McCune	City of Lompoc	k_mccune@ci.lompoc.ca.us
Margie Drilling	FAA-Airports	margie.drilling@faa.gov
Michael Powers	SBCAG	mpowers@sbcag.org
Ed Mandible	Airport Commission	emandible@verizon.net
Eileen Wyckoff	Airport User	rewyckoff@verizon.net
Bob Wyckoff	Airport User	rewyckoff@verizon.net

Master Plan Staff

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Andrew Scanlon, AECOM	Andrew.Scanlon@AECOM.com
Georgiena Vivian, VRPA Technologies	gvivian@vrpatechnologies.com

INTRODUCTION

Mr. Doug Sachman, AECOM Principal and Consultant Team Manager, provided a brief overview of the purpose of the Airport Master Plan Update, explained the role of the Technical Advisory Committee (TAC), and referred to the PowerPoint presentation regarding the current Airport Master Plan development process. Mr. Sachman mentioned that the same information would be presented during the Open House session following the TAC meeting. Attendees were asked to introduce themselves. Mr. Sachman then asked Mr. Andrew Scanlon to present the PowerPoint information.

POWERPOINT PRESENTATION

Mr. Scanlon reviewed the presentation slides. Specific review and discussion follows below.

- Project Approach

Mr. Scanlon referenced and reviewed the flow chart (Slide 5) with the TAC. It was mentioned that the next steps in the study process were to develop initial concepts, and then narrow down the concept considering costs and the phasing of improvements. In addition, staff would develop the Airport Layout Plan (ALP), prepare the cost estimates and funding sources, and then prepare the baseline environmental assessment.

- Visioning Survey

Mr. Scanlon reviewed the survey results (Slides 6 and 7) with the TAC indicating the following:

- Future Importance of the Airport
  The survey indicated that future use of the airport was "Very Important" for Personal/Recreational Use; Business/Corporate Use, Emergency/Medical Transport, and Tourism. The survey also indicated that the airport was "Somewhat Important" for Pilot Training and Government Use.
- Growth in Airport Activity
  A majority of the respondents indicated that the expected growth of the Airport should be"Moderate" for Based Aircraft and Takeoffs and Landings and Special Events.
- Airport Services and Facilities
  A majority of the respondents indicated that the future need for a Longer Runway and Full Parallel Taxiway had "Limited Importance"; Navaids/Instrument Approach and Visual Aids were "Very important"; Fixed Base Operator (FBO) Services, Pilot Facilities, T-Hangars, Conventional Hangars and Tie-downs were "Somewhat Important"; and Portable/Shade Hangars had "Limited Importance."

- Existing Facilities

Referencing Slides 8 and 9, Mr. Scanlon indicated that staff used an aerial and on-site survey to identify existing facilities on the airport property. Topographic information was also available for this process. Mr. Scanlon then referenced Slides 10 and 11, which identify the types of hangars found at the airport. Mr. Scanlon also mentioned that there was a large maintenance hangar on the field. Mr. Scanlon then reviewed existing General Aviation Services found at the airport and the entity responsible for providing such services (reference Slide 12).

- Key Issues

Referencing Slide 13, key issues were highlighted. Mr. Scanlon indicated that the list had grown since the last meeting based upon input from the TAC and survey responses provided by based aircraft users. One concern expressed included the need for a possible runway extension. Other issues are referenced in Slide 13.

Ms. Eileen Wyckoff asked where the heliport would be accommodated. Mr. Ed Mandible indicated that helicopters are not an issue at the airport.

- Forecast

  Referencing Slides 14 and 15, Mr. Scanlon reviewed the based aircraft forecast indicating that the market area included Santa Barbara County and Oceano Airport in San Luis Obispo County. He further indicated that 20 years of data was applied to determine the historical market share of based aircraft at the airport. Mr. Scanlon also mentioned that the airport was capturing greater than its average market share since 1995 with its peak in 1996. It was further mentioned that aircraft were leaving the Santa Barbara airport due to costs. The next logical airport for these aircraft is Santa Ynez, but the airport is close to being built out. Mr. Scanlon indicated that Lompoc could be the next logical airport for aircraft to relocate to. Finally, referencing Slide 16, Mr. Scanlon mentioned that the baseline forecast was recommended as the selected forecast based upon survey results and input from the TAC.

  Mr. Mandible mentioned that there were general aviation security issues with the Santa Maria airport and that there was not a Fixed Base Operator at the general aviation terminal. As a result, aircraft may relocate to Lompoc. Mr. Powers asked if surveys and FAA estimates were being used to determine the baseline forecast. Mr. Sachman indicated that they were factors in determining the forecasts. Mr. Sachman also mentioned that he and staff would prepare a written response to other comments provided in Mr. Powers' letter.

- Aviation Demand Forecast

  Mr. Scanlon referenced Slide 18 focusing on the forecast aircraft operations. Ms. Margie Drilling asked what staff used as the design aircraft when the forecast was developed. Mr. Scanlon mentioned that the Cessna CJ2 was applied.

- Facility Requirements – Major Findings

  Referencing Slides 19 and 20, Mr. Scanlon indicated that staff could not find evidence of runway shoulders being paved. Mr. Sachman indicated that staff reviewed the threshold citing surface and that there was no need for a displaced threshold. Mr. Scanlon then mentioned that airfield signage should be expanded and that the Runway Safety Area (RSA), Obstacle Free Zone (OFZ), and Runway Object Free Area (ROFA) are all free of obstructions. Mr. Powers asked if the slopes and side transitions were considered. Mr. Scanlon indicated that they had not reviewed them yet.

  Referencing Slide 21, Mr. Scanlon indicated that a 4,900 square foot terminal should be developed to accommodate the high growth forecast and that the terminal building could be shared with the Transit Department. He also indicated that all based aircraft could be accommodated in the available hangars in the future.

  Mr. Scanlon then reviewed Slide 22 indicating that the Master Plan should allow for development of additional conventional hangars and FBO activities, the north apron pavement needs rehabilitation, additional area (1,000 SF) should be designated for the airport maintenance area, a second Jet A tank may be needed within the planning period, and additional security enhancements may be needed at the airport.

- Alternative Runway Concepts

  Mr. Sachman mentioned that the next step (once the forecasts were developed), was to identify future airport concepts based upon the numerical analysis referenced in Slides 5 through 22. To initiate this process, staff developed the airfield concept referenced in Slides 23 and 24. In addition, the first set of landslide concept alternatives were developed and were included as Slides 25 through 27. Ms. Drilling asked what percentage was applied to calculate the useful load. Mr. Scanlon indicated that he would add the reference in the report. An increase in runway length to 4,917 feet will increase the useable load factor to 52 percent (from 45 percent). Mr. Sachman then mentioned that the three airfield concept alternatives developed by staff considered the high growth forecast to provide for a long-term and optimistic picture.

  Mr. Fernbaugh asked what type of terminal would be provided. Mr. Sachman stated that it would be a general aviation terminal with a restaurant, administrative offices, and pilot lounge. Mr. Fernbaugh responded that the administrative offices should be placed with the transit operations. Ms. Stacey Lawson mentioned that zoning prohibits uses on the airport property other than those uses that are airport related. Mr. Ed Mandible indicated that some unused airport property was being used for Chumash bus parking, which provided income to the airport. Ms. Drilling indicated that the City must ensure that aviation needs are met first. Ms. Drilling also indicated that under no circumstances can the FAA participate in enhancement of the property.

- Next Steps

  Referencing Slide 28, Mr. Scanlon indicated that the next steps in study preparation include the evaluation of runway and airfield concepts, identify the recommended development concept and document findings in a memorandum for distribution to the TAC, prepare the Airport Layout Plan set including recommendations for capital improvements, perform the environmental baseline analysis, identify the cost of improvements and funding sources, prepare the Draft Final Report and Airport Layout Plan and conduct the third TAC meeting.

ADJOURN

Meeting concluded at approximately 5 P.M.

Lompoc Airport Master Plan

TECHNICAL ADVISORY COMMITTEE MEETING

August 27, 2009

Lompoc Airport Master Plan Update

Agenda

- **Purpose of the Master Plan Update**
- **Role of Technical Advisory Committee**
- **Project Approach**
- **Visioning Workshop Results**
- **Existing Facilities**
- **Key Issues**
- **Aviation Demand Forecast**
- **Facility Requirements – Major Findings**
- **Alternative Runway Concepts**
- **Next Steps**
- **Questions/Answers**


Lompoc Airport Master Plan Update
Purpose of Master Plan Update
"An airport master plan represents the sponsor approved actions to be accomplished for phased development of the airport."
FAA Order 5100.38C, AIP Handbook
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Lompoc Airport Master Plan Update
Role of Technical Advisory Committee (TAC)
Monitor and review work.
Provide input and comments in an advisory capacity throughout the planning process on findings, conclusions and recommendations.
Participate in TAC meetings. Meetings are intended as working sessions.
All input from TAC will be considered in the development of the master plan.
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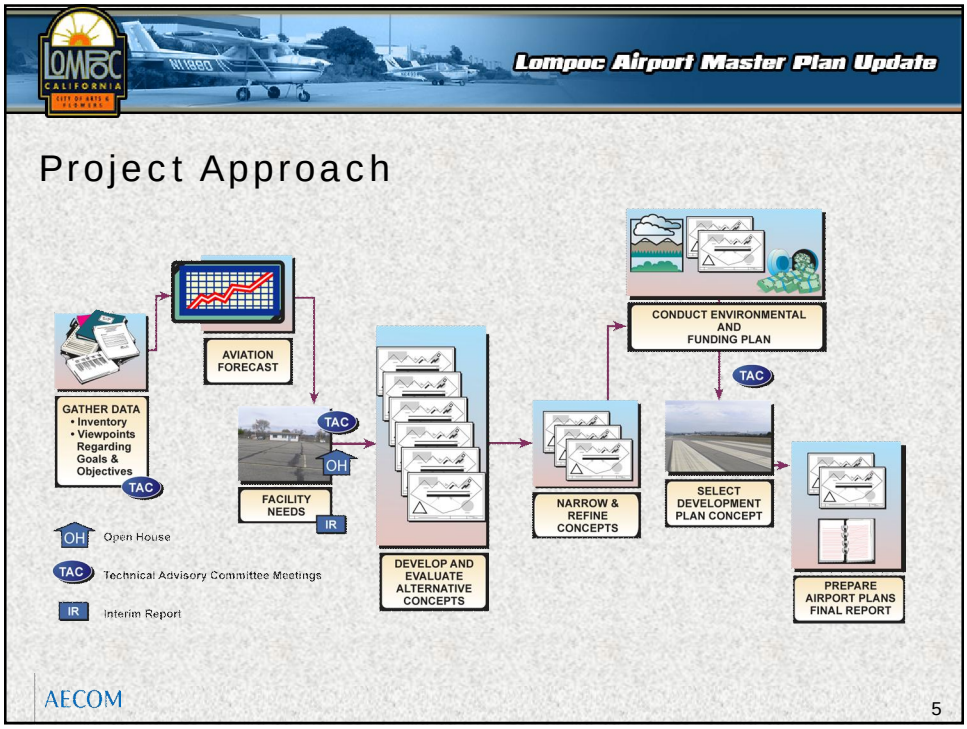
Lompoc Airport Master Plan Update
Project Approach
GATHER DATA
• Inventory
• Viewpoints Regarding Goals & Objectives
TAC
AVIATION FORECAST
FACILITY NEEDS
TAC
OH
IR
DEVELOP AND EVALUATE ALTERNATIVE CONCEPTS
NARROW & REFINE CONCEPTS
CONDUCT ENVIRONMENTAL AND FUNDING PLAN
TAC
SELECT DEVELOPMENT PLAN CONCEPT
PREPARE AIRPORT PLANS FINAL REPORT
OH Open House
TAC Technical Advisory Committee Meetings
IR Interim Report
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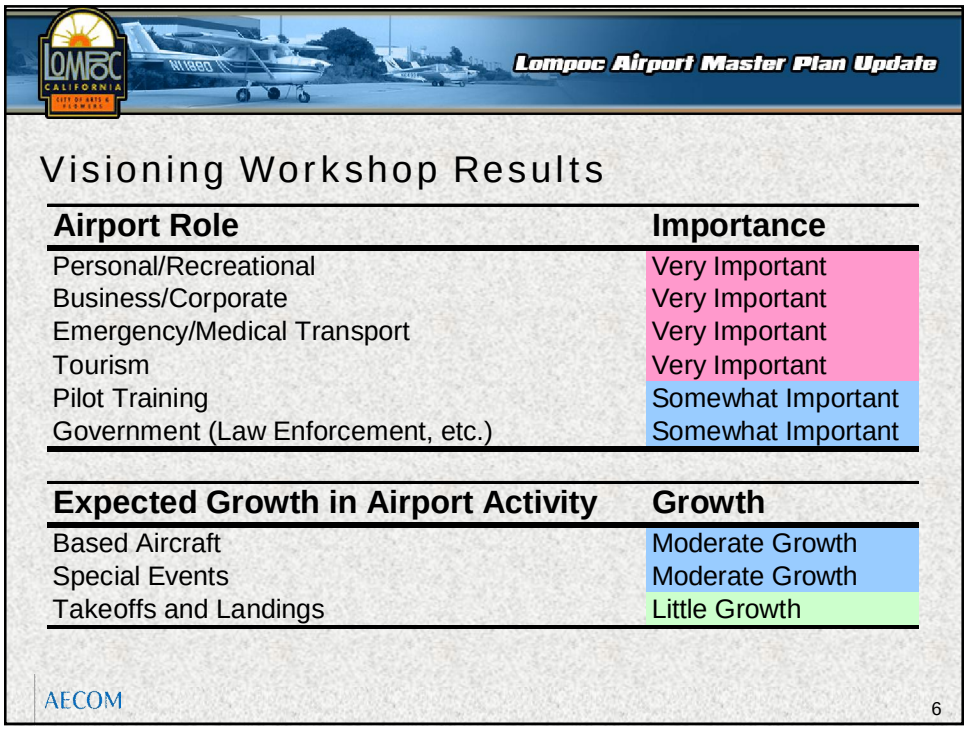
Lompoc Airport Master Plan Update
Visioning Workshop Results
Airport Role | Importance
Personal/Recreational | Very Important
Business/Corporate | Very Important
Emergency/Medical Transport | Very Important
Tourism | Very Important
Pilot Training | Somewhat Important
Government (Law Enforcement, etc.) | Somewhat Important
Expected Growth in Airport Activity | Growth
Based Aircraft | Moderate Growth
Special Events | Moderate Growth
Takeoffs and Landings | Little Growth
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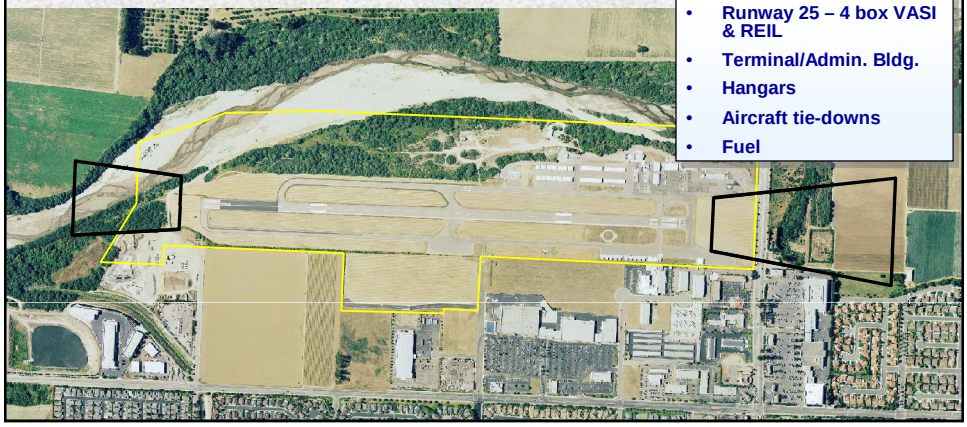
Visioning Workshop Results

Needs for Services and Facilities	Importance
Navaids/Instr. Approach/Visual Aids	Very Important
FBO Services (maintenance, fuel, etc.)	Somewhat Important
Pilot Facilities (lounge, flight planning area)	Somewhat Important
T-hangars (including nested T-hangars)	Somewhat Important
Conventional, Bay Hangars (Large Hangars)	Somewhat Important
Tie-downs	Somewhat Important
Longer Runway	Limited Importance
Full Parallel Taxiway	Limited Importance
Portable/shade hangars	Limited Importance

Lompoc Airport Master Plan Update

Existing Facilities

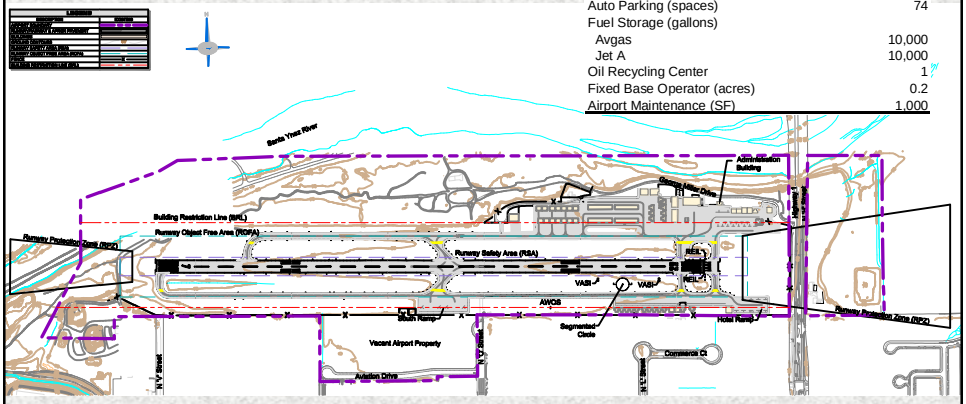
- Runway 4,600' x 100'
- Runway 25 – 116' displaced threshold
- Runway lighting – MIRL
- Parallel taxiways
- GPS & VOR/DME approaches
- Runway 25 – 4 box VASI & REIL
- Terminal/Admin. Bldg.
- Hangars
- Aircraft tie-downs
- Fuel



Lompoc Airport Master Plan Update

Existing Facilities (cont'd)

Item	Existing
GA Terminal (SF)	1,165
Transient Apron (number of tie-downs)	
Single engine/Multi-engine	44
Turboprops/Business jets	0
Individual hangars (spaces)	73
Conventional Hangar Space (SF) (fixed wing)	15,022
Auto Parking (spaces)	74
Fuel Storage (gallons)	
Avgas	10,000
Jet A	10,000
Oil Recycling Center	1
Fixed Base Operator (acres)	0.2
Airport Maintenance (SF)	1,000



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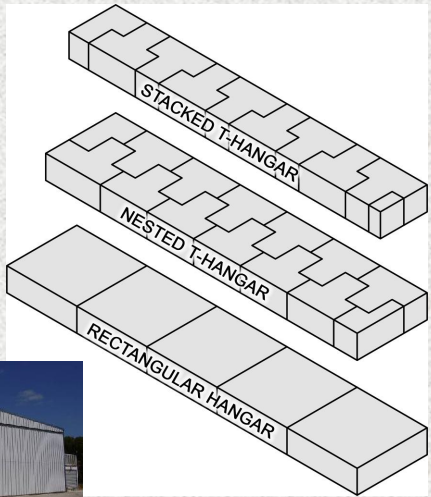
Lompoc Airport Master Plan Update

Individual Hangar Types


Portable


T-Hangar


Rectangular



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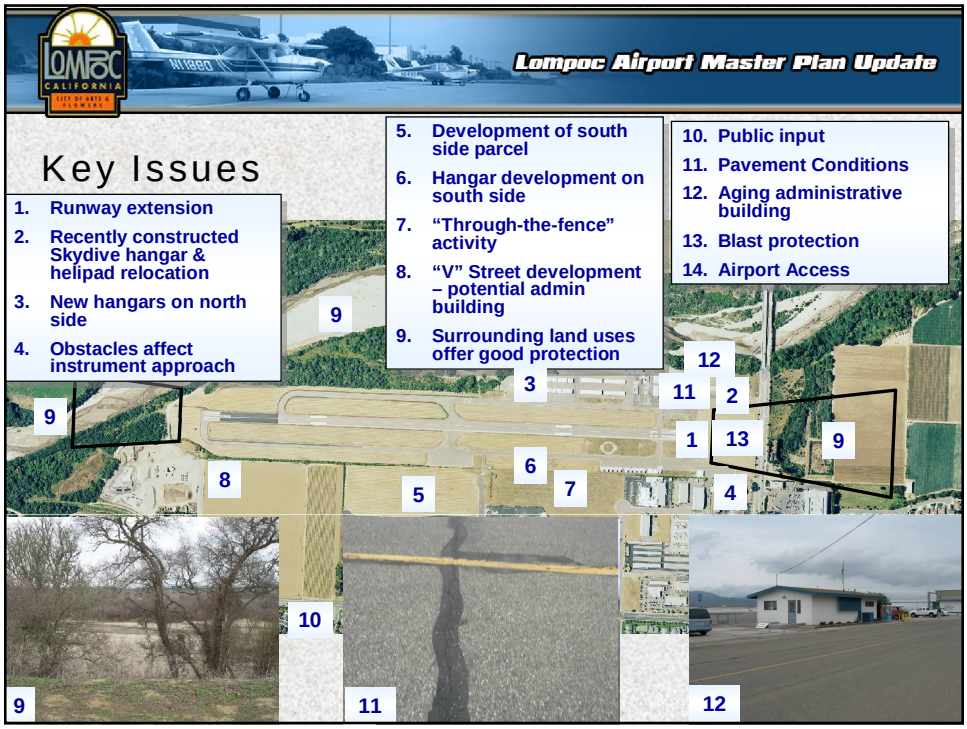
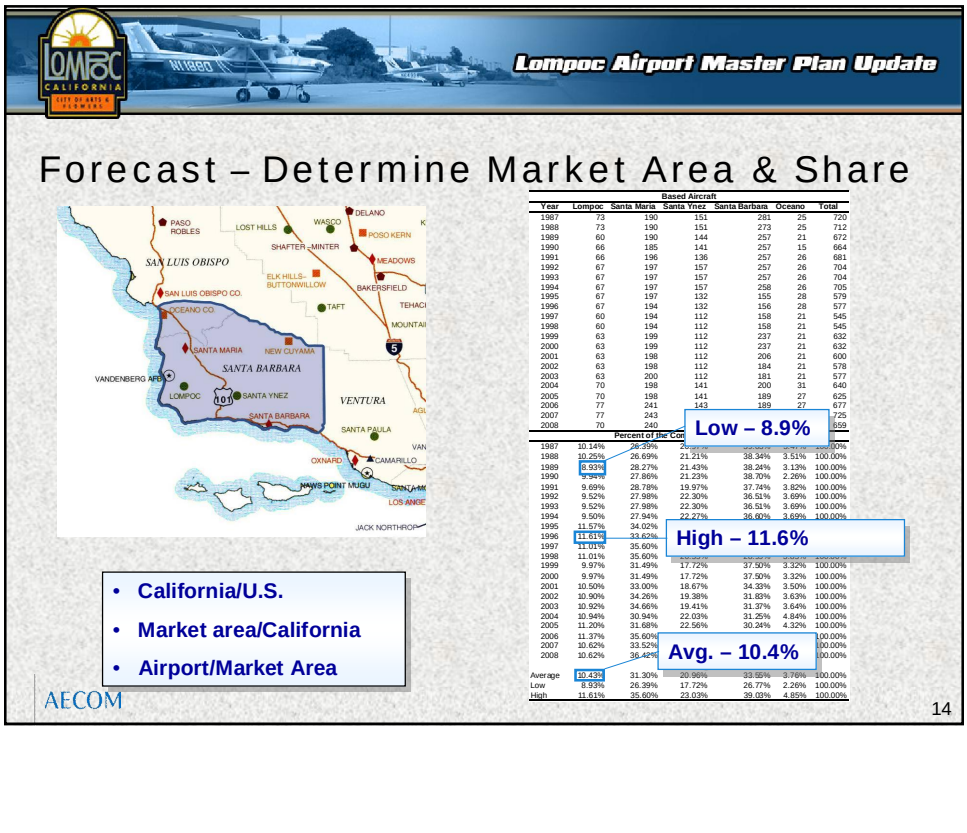
Conventional Hangars

Lompoc Airport Master Plan Update

General Aviation Services

Service	City of Lompoc	Curtis & Associates	Skydive Santa Barbara
Airport Administration and Maintenance	X		
Airport Security	X		
Crash/Fire/Rescue	X		
Unicom Operation		X	
Aircraft Parking/Storage	X		
Aircraft Maintenance		X	
Fuel	X		
Tenant Activities			
Skydiving			X
Other Services			
Pilot Lounge	X		
Sales/Aircraft Parts/Supplier [a]			
Flight Instruction/Testing [a]			
Aircraft Rental/Charter [a]			

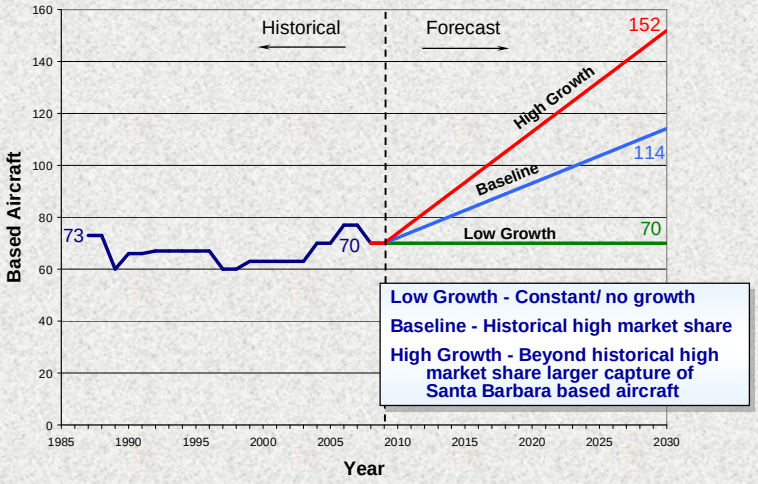




Based Aircraft						
Year	Lompoc	Santa Maria	Santa Ynez	Santa Barbara	Oceano	Total
1987	73	190	151	281	25	720
1988	73	190	151	273	25	712
1989	60	190	144	257	21	672
1990	66	185	141	257	15	664
1991	66	196	136	257	26	681
1992	67	197	157	257	26	704
1993	67	197	157	257	26	704
1994	67	197	157	258	26	705
1995	67	197	132	155	28	579
1996	67	194	132	156	28	577
1997	60	194	112	158	21	545
1998	60	194	112	158	21	545
1999	63	199	112	237	21	632
2000	63	199	112	237	21	632
2001	63	198	112	206	21	600
2002	63	198	112	184	21	578
2003	63	200	112	181	21	577
2004	70	198	141	200	31	640
2005	70	198	141	189	27	625
2006	77	241	143	189	27	677
2007	77	243				725
2008	70	240				659

Percent of the Co						
1987	10.14%	26.39%				100.00%
1988	10.25%	26.69%	21.21%	38.34%	3.51%	100.00%
1989	8.93%	28.27%	21.43%	38.24%	3.13%	100.00%
1990	9.94%	27.86%	21.23%	38.70%	2.26%	100.00%
1991	9.69%	28.78%	19.97%	37.74%	3.82%	100.00%
1992	9.52%	27.98%	22.30%	36.51%	3.69%	100.00%
1993	9.52%	27.98%	22.30%	36.51%	3.69%	100.00%
1994	9.50%	27.94%	22.27%	36.60%	3.69%	100.00%
1995	11.57%	34.02%				100.00%
1996	11.61%	33.62%				100.00%
1997	11.01%	35.60%				100.00%
1998	11.01%	35.60%				100.00%
1999	9.97%	31.49%	17.72%	37.50%	3.32%	100.00%
2000	9.97%	31.49%	17.72%	37.50%	3.32%	100.00%
2001	10.50%	33.00%	18.67%	34.33%	3.50%	100.00%
2002	10.90%	34.26%	19.38%	31.83%	3.63%	100.00%
2003	10.92%	34.66%	19.41%	31.37%	3.64%	100.00%
2004	10.94%	30.94%	22.03%	31.25%	4.84%	100.00%
2005	11.20%	31.68%	22.56%	30.24%	4.32%	100.00%
2006	11.37%	35.60%				100.00%
2007	10.62%	33.52%				100.00%
2008	10.62%	36.42%				100.00%
Average	10.43%	31.30%	20.96%	33.55%	3.76%	100.00%
Low	8.93%	26.39%	17.72%	26.77%	2.26%	100.00%
High	11.61%	35.60%	23.03%	39.03%	4.85%	100.00%

Forecast – Based Aircraft



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Sources: FAA Terminal Area Forecast (History), AECOM Transportation analysis (Forecast)

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Lompoc Airport Master Plan Update

Forecast – Based Aircraft

Year	Single	Jet	Multi-Engine	Helicopter	Other	Total
2009	68	0	1	1	0	70
Low Growth Forecast						
2015	68	0	1	1	0	70
2020	68	0	1	1	0	70
2030	67	1	1	1	0	70
Baseline Forecast						
2015	80	1	1	1	0	83
2020	90	1	1	1	0	93
2030	107	2	2	2	1	114
High Growth Forecast						
2015	88	1	1	1	2	93
2020	106	1	2	2	3	113
2030	134	2	6	4	6	152

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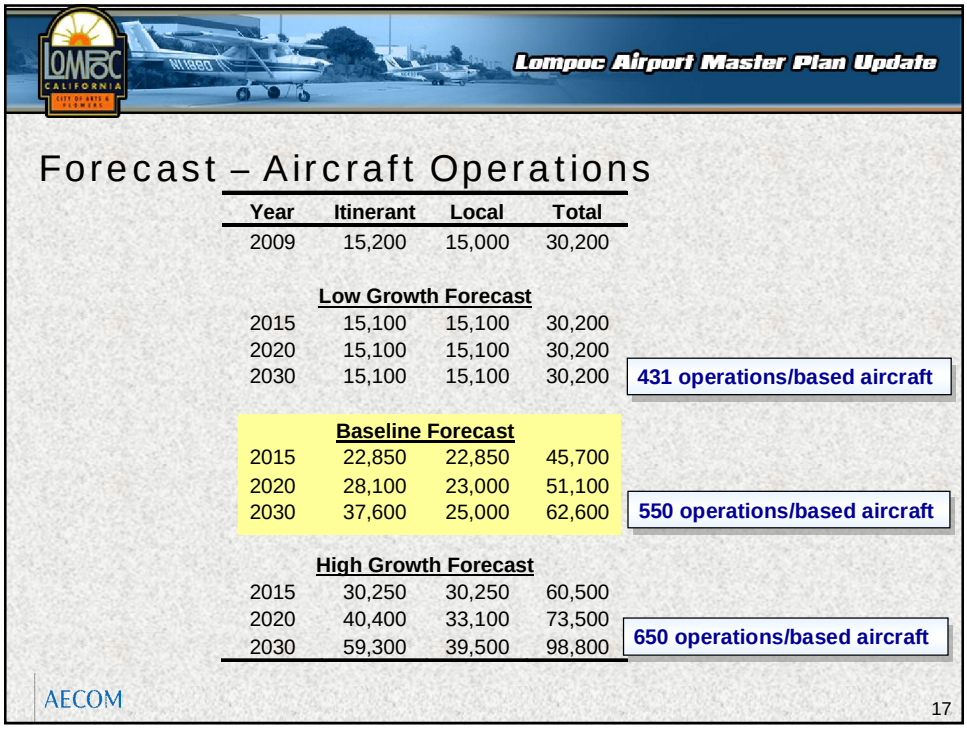
Lompoc Airport Master Plan Update
Forecast – Aircraft Operations
Year Itinerant Local Total
2009 15,200 15,000 30,200
Low Growth Forecast
2015 15,100 15,100 30,200
2020 15,100 15,100 30,200
2030 15,100 15,100 30,200
431 operations/based aircraft
Baseline Forecast
2015 22,850 22,850 45,700
2020 28,100 23,000 51,100
2030 37,600 25,000 62,600
550 operations/based aircraft
High Growth Forecast
2015 30,250 30,250 60,500
2020 40,400 33,100 73,500
2030 59,300 39,500 98,800
650 operations/based aircraft
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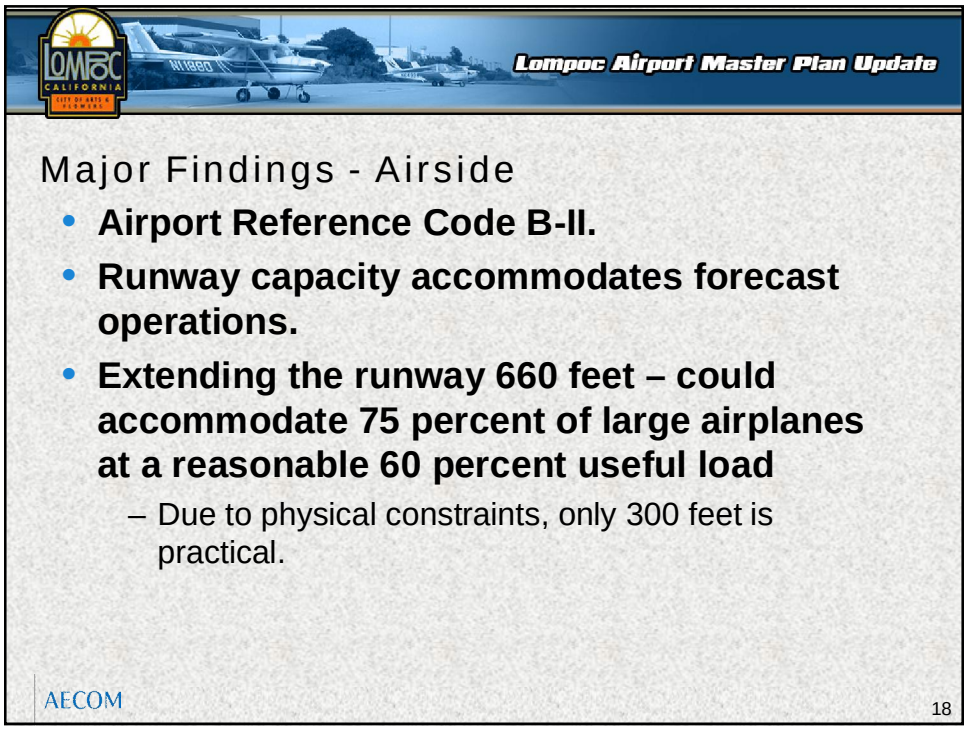
Lompoc Airport Master Plan Update
Major Findings - Airside
Airport Reference Code B-II.
Runway capacity accommodates forecast operations.
Extending the runway 660 feet – could accommodate 75 percent of large airplanes at a reasonable 60 percent useful load
– Due to physical constraints, only 300 feet is practical.
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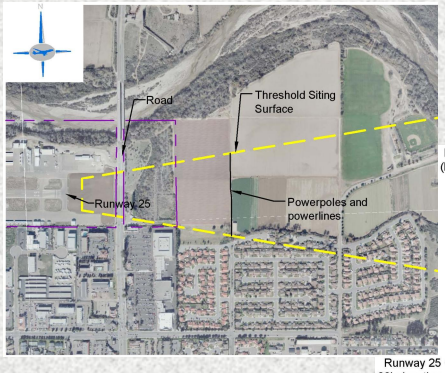
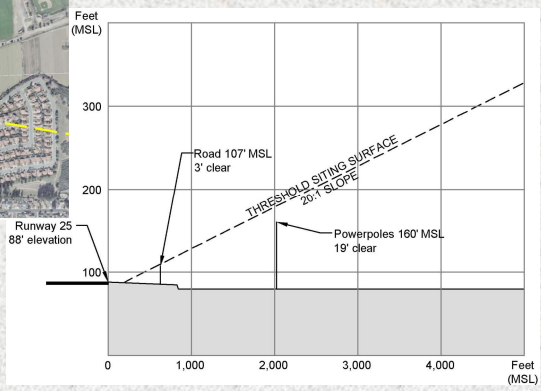
Major Findings – Airside (cont'd)

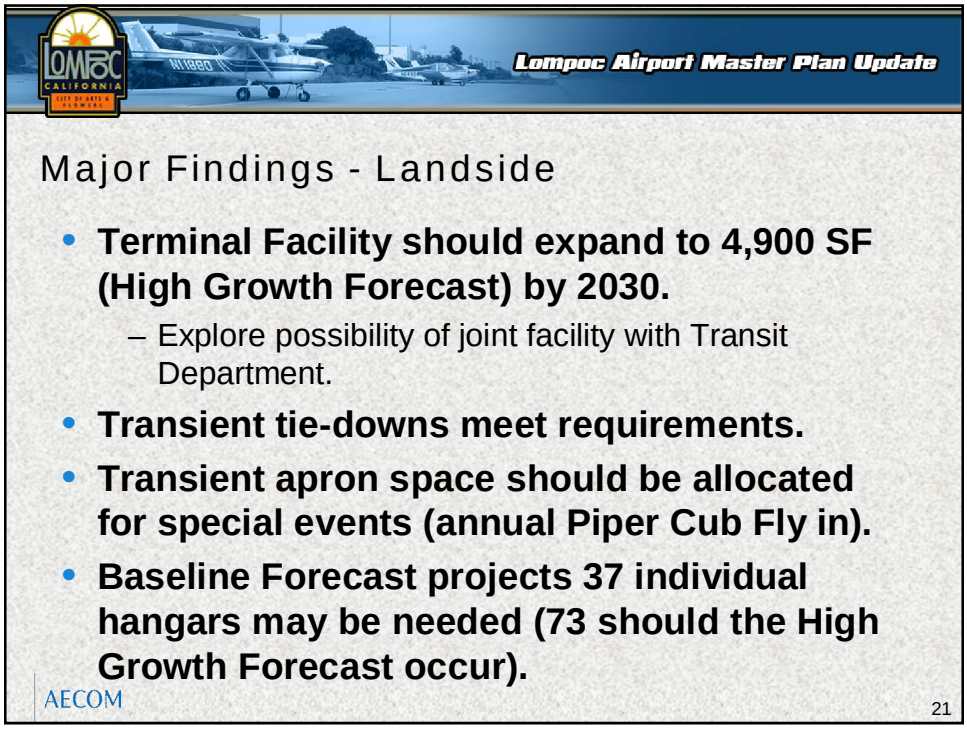
- **Runway 7-25 provides adequate wind coverage.**
- **Runway shoulders should be provided.**
- **No displaced threshold (Runway 25) is required.**
- **Airfield signage should be expanded.**
- **RSA, OFZ, ROFA, and RPZs are all free of obstructions.**

Lompoc Airport Master Plan Update

Major Findings – Airside (cont'd)






Lompoc Airport Master Plan Update
Major Findings - Landside
Terminal Facility should expand to 4,900 SF (High Growth Forecast) by 2030.
Explore possibility of joint facility with Transit Department.
Transient tie-downs meet requirements.
Transient apron space should be allocated for special events (annual Piper Cub Fly in).
Baseline Forecast projects 37 individual hangars may be needed (73 should the High Growth Forecast occur).
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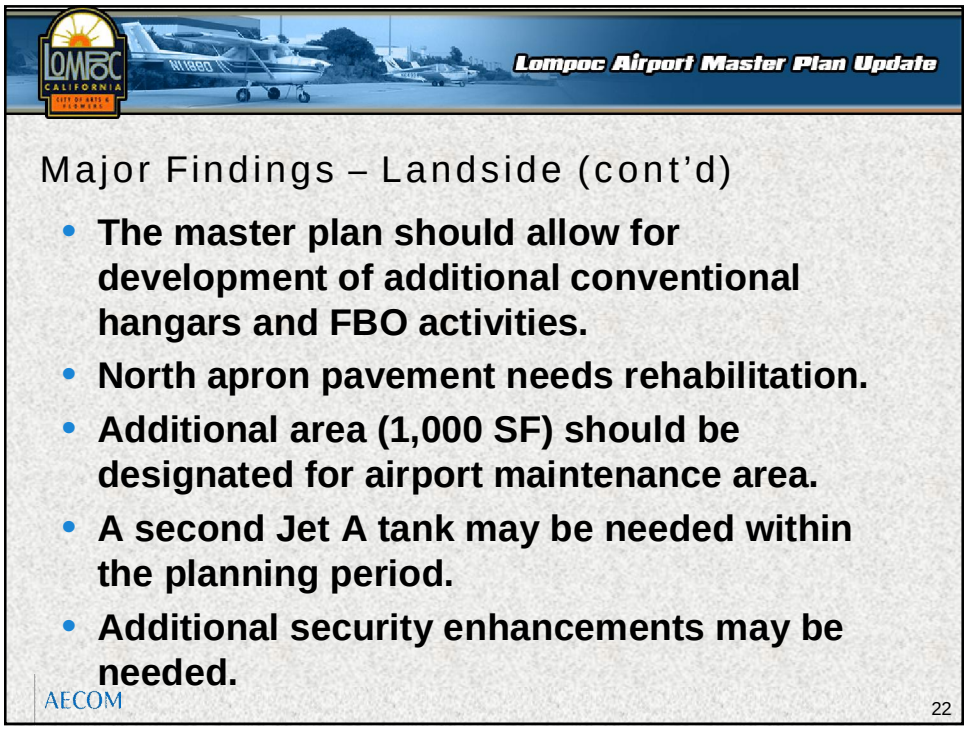
Lompoc Airport Master Plan Update
Major Findings – Landside (cont'd)
The master plan should allow for development of additional conventional hangars and FBO activities.
North apron pavement needs rehabilitation.
Additional area (1,000 SF) should be designated for airport maintenance area.
A second Jet A tank may be needed within the planning period.
Additional security enhancements may be needed.
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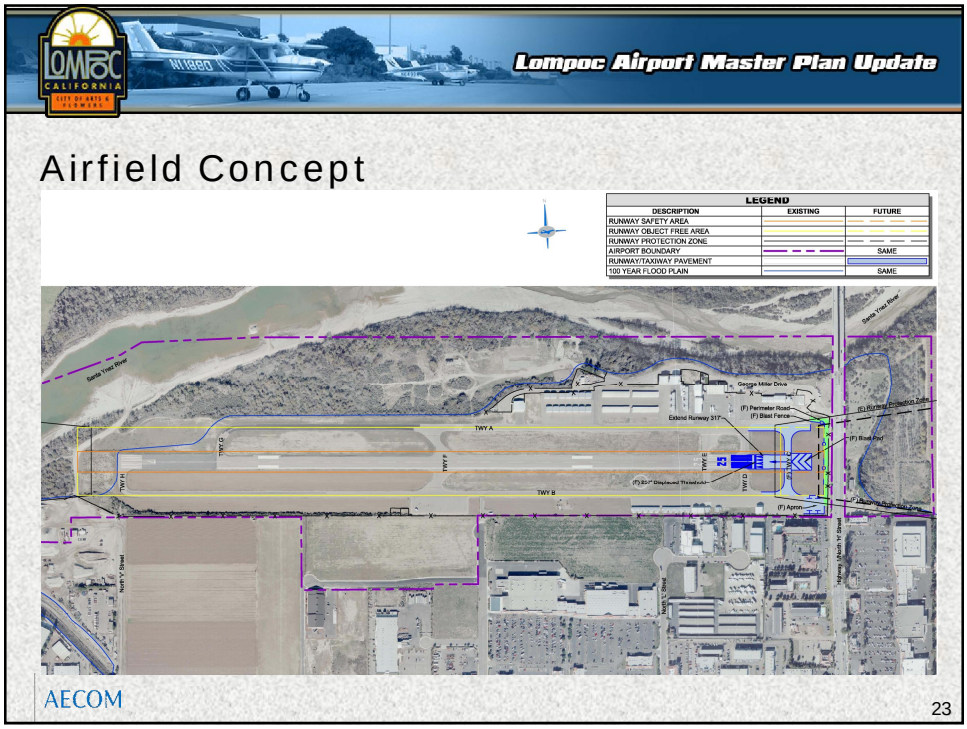
Lompoc Airport Master Plan Update
Airfield Concept
LEGEND
DESCRIPTION
EXISTING
FUTURE
RUNWAY SAFETY AREA
RUNWAY OBJECT FREE AREA
RUNWAY PROTECTION ZONE
AIRPORT BOUNDARY
SAME
RUNWAY/TAXIWAY PAVEMENT
100 YEAR FLOOD PLAIN
SAME
Santa Ynez River
George Miller Drive
Extend Runway 317'
(F) Perimeter Road
(F) Blast Fence
(E) Runway Protection Zone
(F) Blast Pad
TWY A
TWY B
TWY C
TWY D
TWY E
TWY F
TWY G
(F) 257' Displaced Threshold
(F) Apron
North 'Y' Street
North 'H' Street
AECOM
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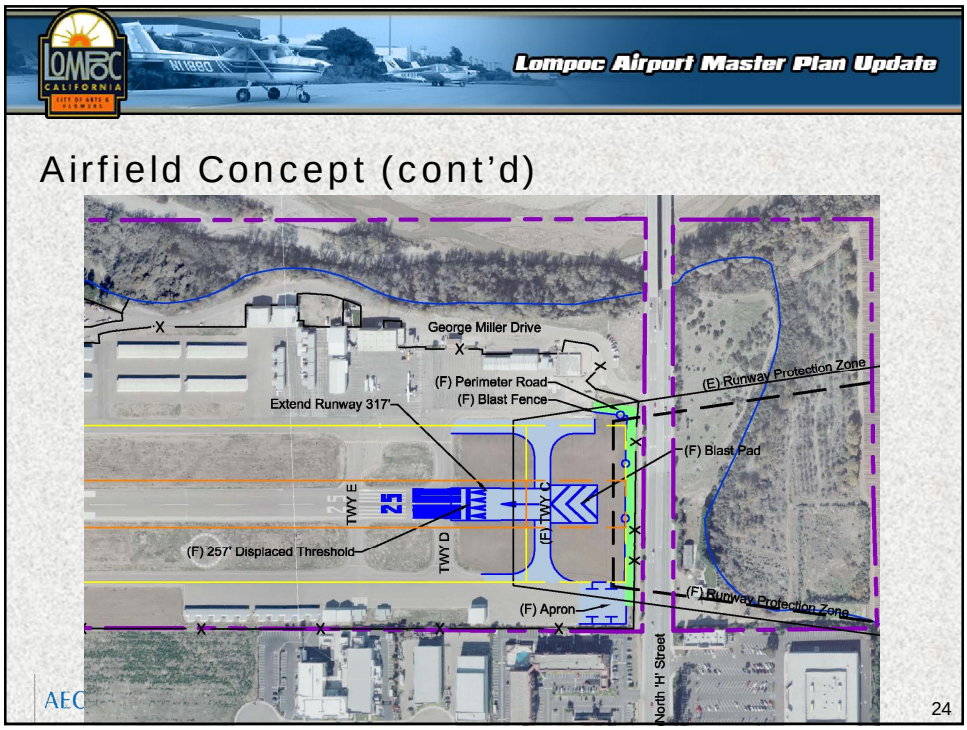
Lompoc Airport Master Plan Update
Airfield Concept (cont'd)
George Miller Drive
(F) Perimeter Road
(F) Blast Fence
Extend Runway 317'
(E) Runway Protection Zone
(F) Blast Pad
TWY E
TWY C
TWY D
(F) 257' Displaced Threshold
(F) Apron
(F) Runway Protection Zone
North 'H' Street
AEC
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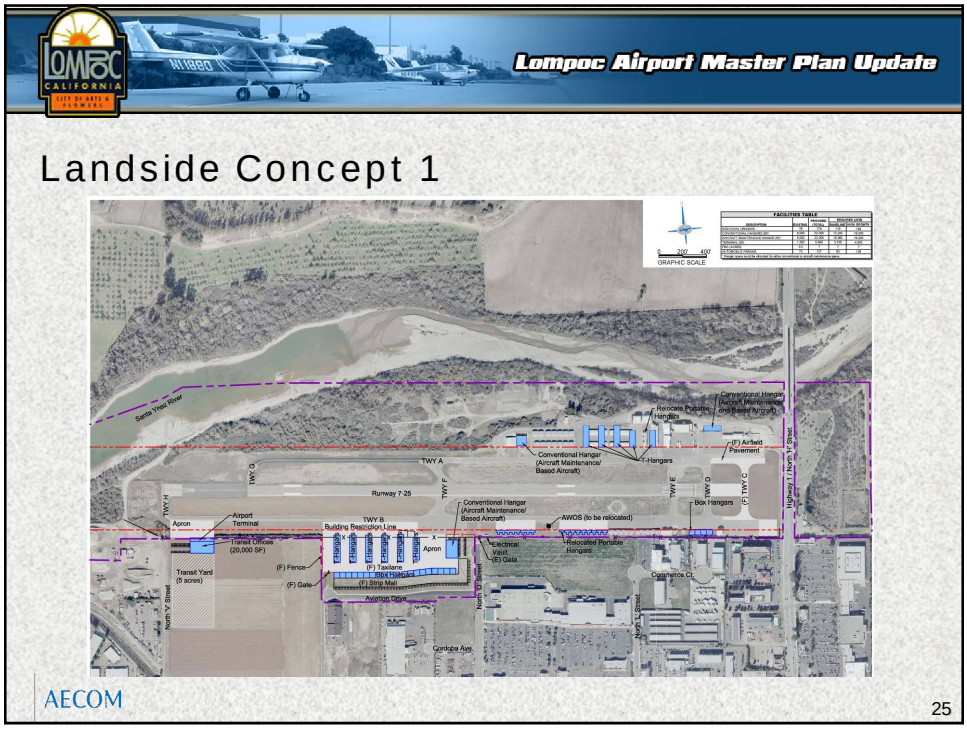
Lompoc Airport Master Plan Update
Landside Concept 1
FACILITIES TABLE
GRAPHIC SCALE
Santa Ynez River
Relocate Portable Hangars
Conventional Hangar (Aircraft Maintenance and Based Aircraft)
(F) Airfield Pavement
Conventional Hangar (Aircraft Maintenance/ Based Aircraft)
T-Hangars
TWY A
TWY G
TWY F
TWY E
TWY D
TWY C
TWY H
Runway 7-25
Box Hangars
Highway 1 / North H Street
Apron
Airport Terminal
TWY B
Building Restriction Line
AWOS (to be relocated)
Transit Offices (20,000 SF)
Electrical Vault
(E) Gate
Relocated Portable Hangars
(F) Fence
(F) Taxilane
Transit Yard (5 acres)
(F) Gate
(F) Strip Mall
Commerce Ct
Aviation Drive
North 'V' Street
North 'I' Street
Cordoba Ave
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Lompoc Airport Master Plan Update
Landside Concept 2
FACILITIES TABLE
GRAPHIC SCALE
Santa Ynez River
Terminal
(F) Airfield Pavement
Conventional Hangar (Aircraft Maintenance/ Based Aircraft)
T-Hangars
TWY A
TWY G
TWY F
TWY E
TWY D
TWY C
TWY H
Runway 7-25
Box Hangars
Highway 1 / North H Street
TWY B
Building Restriction Line
AWOS (to be relocated)
Transit Offices (20,000 SF)
Electrical Vault
Relocated Portable Hangars
Transit Yard (5 acres)
Non-Aviation Use 2.14 acres
24,000SF
Commerce Ct
Aviation Drive
North 'V' Street
North 'I' Street
Cordoba Ave
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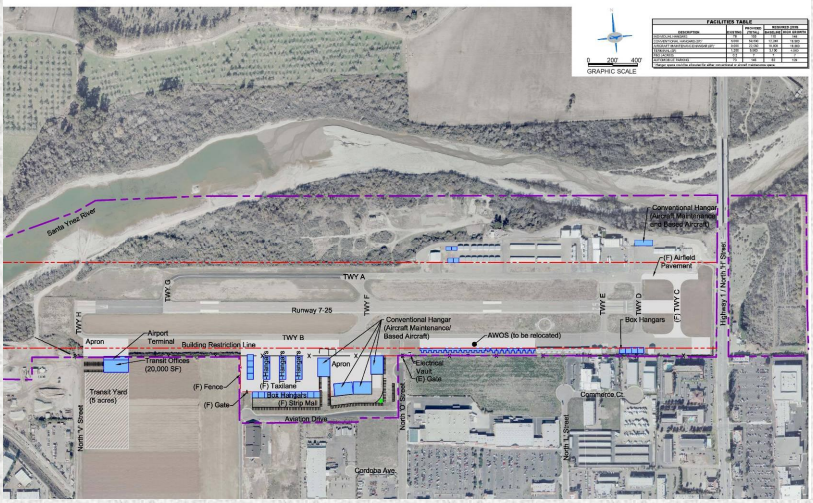
Landside Concept 3



Next Steps

- **Evaluate runway and airfield concepts.**
- **Identify recommended development concept and document in a memorandum for distribution to TAC.**
- **Prepare Airport Layout Plan Set , including recommendations for capital improvements.**
- **Perform environmental baseline analysis.**
- **Identify cost of improvements and funding sources.**
- **Prepare Draft Final Report and Airport Layout Plan.**
- **3rd TAC Meeting**

LOMPOC AIRPORT
MASTER PLAN UPDATE

3rd Technical Advisory Committee
April 8, 2010

The third meeting of the Technical Advisory Committee (TAC) for the Lompoc Airport Master Plan was held April 8, 2010 at Lompoc City Hall.

Technical Advisory Committee

TAC Attendees

Richard Fernbaugh	City of Lompoc
Kevin McCune	City of Lompoc
Ed Mandibles	Airport Commission
Eileen Wyckoff	Airport User
Bob Wyckoff	Airport User
Keith Neubert	City of Lompoc

Master Plan Staff
Doug Sachman, AECOM
Andrew Scanlon, AECOM
Erica Thompson, VRPA Technologies

SELF INTRODUCTIONS

POWERPOINT PRESENTATION

Andrew reviewed the presentation slides.

DISCUSSION/QUESTIONS

Kevin inquired about the process used to determine airport growth trends. Doug responded that the last year of recorded data is typically used to determine growth. Andrew added that most of the growth at Lompoc Airport is expected to be driven by relocation of aircraft from other airports.

Richard requested the 2009 data on Slide 11 of the presentation be changed from 0 Multi-Engine to 1.

Andrew and Doug explained that a 257-foot runway extension is currently feasible, but a further runway extension in the future may be possible if the floodplains are ever re-evaluated and flood conditions have changed. Kevin asked if language could be added to the report stating this, and Doug agreed to include this language in the Master Plan.

Kevin asked the reason for the AWOS relocation. Andrew answered it was due to development of box hangars on the south side of the airport property. It was possibly also due to location of the wine facility.

Doug asked Richard whether power companies wanting to construct solar farms had approached Lompoc Airport. Richard responded that he had been contacted by Northern California Power Group who would like to construct a solar farm on the 13-acre area on the southern side of the airport. This may not be feasible, however, depending on the time commitment (assumed to be 30-40 years). Andrew offered to add a discussion/disclaimer in the Master Plan regarding potentially making the airport greener in the future (i.e. solar panels).

Ed voiced the TAC's concerns with negative impacts of not constructing a helipad. He said there has already been impacts to aircraft located near the location of helicopter hover operations. Doug offered to contact the FAA to determine if there is a way to override the 500-foot requirement. Through further discussions it was noted that the need is for a designated helicopter parking position and not a take-off/landing pad.

Eileen asked whether the location of the airport, as shown in the ALP, is the only site that a restaurant can be constructed. Andrew responded that nothing prohibits the restaurant from being on the north side of the runway, however parking may be a challenge. The ALP shows the restaurant on the south side for ease of access and parking capacity.

Andrew briefly explained the costs associated with Master Plan improvements and the funding consideration. The FAA is assumed to contribute 60 percent of master plan development costs and the City is responsible for 10 percent.

Kevin requested the ALUP be updated to include the recent information contained in the Master Plan.

Keith inquired about alternatives to the blast fence. Andrew and Doug explained that blast fences are standard; however, there are options to improve the aesthetics of the fence. Bob, Ed, Andrew, and Doug discussed some options such as a mural, blast deflectors, and landscaping.

Keith asked whether the ALUC only reviews certain types of planned developments near Lompoc Airport. Both Ed and Doug responded the ALUC should review all planned developments that affect the airport, and this should be part of the City's permitting process. Richard requested AECOM provide the City with a map identifying the area within the AIA that would need ALUC input for any proposed developments. Andrew and Doug agreed to provide the City with such a map.

Kevin asked how the FAA would view the transit hub project since it is located outside of airport property. Ed, Richard, and Andrew discussed that the FAA may not have much input since the transit hub is proposed outside of airport property. It may not be eligible for FAA funding since it

would not be used solely for aviation uses. Kevin, Ed, and Richard agreed that the TAC is more concerned with access to the airport from the transit hub. Doug offered to discuss the situation with the FAA and include language in the Master Plan.

Kevin asked how the phasing of hangars is determined and Andrew responded it would be determined based on demand.

Kevin asked if the rehabilitation of George Miller Drive includes the repaving of the parking area. Andrew responded that it does include the repaving and it is reflected in the costs identified in the Master Plan.

Keith said Figure 9-1, *City of Lompoc Zoning Map*, does not accurately depict the Airport overlays. Erica stated the map was obtained from either the City's General Plan or the City's website. Keith offered to provide AECOM with a better graphic from the City's GIS files.

Keith requested Figure 9-2, *City of Lompoc Planned Land Use Zoning Map*, be re-titled to *City of Lompoc General Plan Land Use Element*. Keith also requested text in the last paragraph on Page 9-3 be revised to coincide with changes made to Figure 9-2.

Kevin said the tie-down apron is missing from Figure 2-3, *Master Plan Improvements*.

Kevin requested Richard offer input to the *Automobile Parking* section on Page 3-22.

NEXT STEPS

Doug and Andrew explained the next steps for the Master Plan. They stated the FAA typically takes 30-45 days to review the document, which gives the TAC approximately 30 days to offer any additional input on the Master Plan. Then, the FAA will approve the ALP, and the City can start applying for grants for airport projects. The City will then adopt the Master Plan. The City would also need to take additional steps to certify the Master Plan (CEQA process), which would include an EIR or MND.

ADJOURN

Meeting concluded at approximately 5 P.M.

Lompoc Airport Master Plan

TECHNICAL ADVISORY COMMITTEE
FINAL MEETING

April 8, 2010

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Lompoc Airport Master Plan Update

Agenda

- **Purpose of this Meeting**
- **Purpose of the Master Plan**
- **Project Approach**
- **Project Review**
- **Recommended Airside and Landside Concept**
- **Previous TAC Comments**
- **Airport Layout Plan**
- **Cost and Funding**
- **Environmental Overview**
- **Next Steps**
- **Questions/Answers**

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Purpose of this Meeting

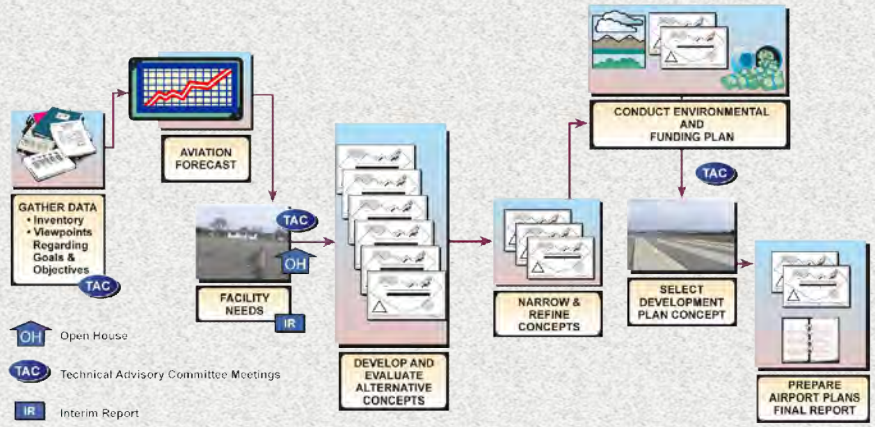
- **Review information contained in the Draft Final Lompoc Airport Master Plan**
- **Gather input on the recommendations contained in the Master Plan and the Draft Final Report**
- **Answer questions pertaining to the Draft Final Report and Master Plan**

Purpose of Master Plan Update

"An airport master plan represents the sponsor approved actions to be accomplished for phased development of the airport."

FAA Order 5100.38C, AIP Handbook

Project Approach



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Lompoc Airport Master Plan Update

Existing Facilities

- Runway 4,600' x 100'
- Runway 25 – 116' displaced threshold
- Runway lighting – MIRL
- Parallel taxiways
- GPS & VOR/DME approaches
- Runway 25 – 4 box VASI & REIL
- Terminal/Admin. Bldg.
- Hangars
- Aircraft tie-downs
- Fuel

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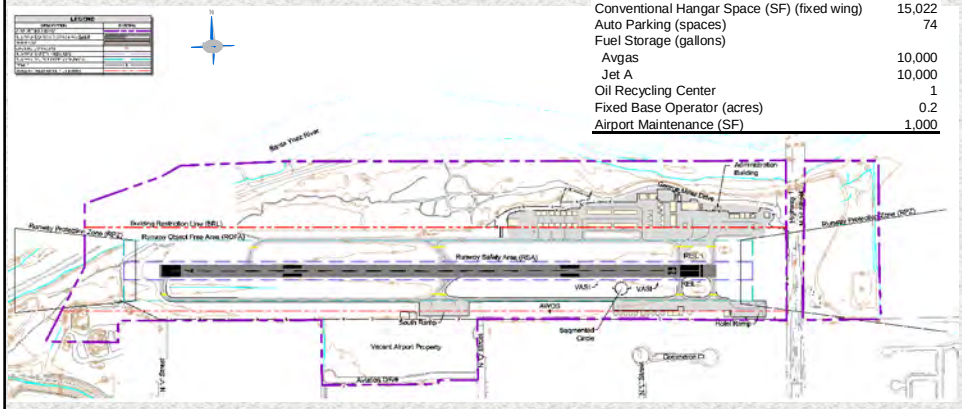
Existing Facilities (cont'd)

Item	Existing
GA Terminal (SF)	1,165
Transient Apron (number of tie-downs)	
Single engine/Multi-engine	44
Turboprops/Business jets	0
Individual hangars (spaces)	73
Conventional Hangar Space (SF) (fixed wing)	15,022
Auto Parking (spaces)	74
Fuel Storage (gallons)	
Avgas	10,000
Jet A	10,000
Oil Recycling Center	1
Fixed Base Operator (acres)	0.2
Airport Maintenance (SF)	1,000



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General Aviation Services

Service	City of Lompoc	Curtis & Associates	Skydive Santa Barbara
Airport Administration and Maintenance	X		
Airport Security	X		
Crash/Fire/Rescue	X		
Unicom Operation		X	
Aircraft Parking/Storage	X		
Aircraft Maintenance		X	
Fuel	X		
Tenant Activities			
Skydiving			X
Other Services			
Pilot Lounge	X		
Sales/Aircraft Parts/Supplier [a]			
Flight Instruction/Testing [a]			
Aircraft Rental/Charter [a]			

[a] – Not available at airport.

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Key Issues

1. Runway extension
2. Recently constructed Skydive hangar & helipad relocation
3. New hangars on north side
4. Obstacles affect instrument approach
5. Development of south side parcel
6. Hangar development on south side
7. "Through-the-fence" activity
8. "V" Street development – potential admin building
9. Surrounding land uses offer good protection
10. Public input
11. Pavement Conditions
12. Aging administrative building
13. Blast protection
14. Airport Access

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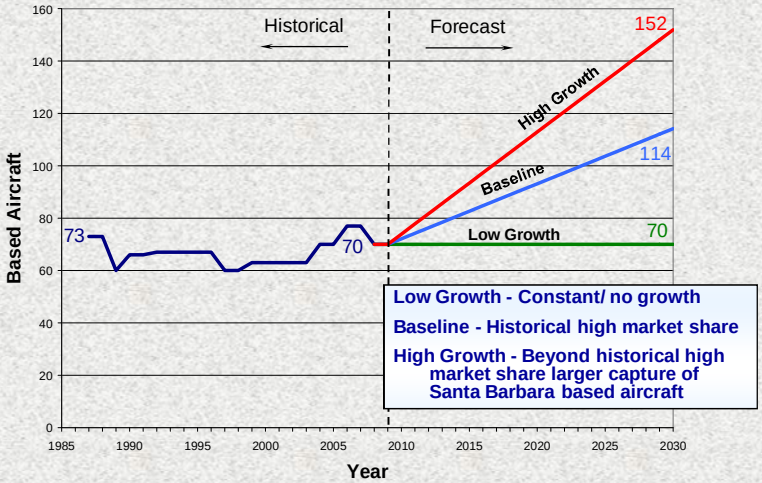
Forecast – Based Aircraft



Low Growth - Constant/ no growth

Baseline - Historical high market share

High Growth - Beyond historical high market share larger capture of Santa Barbara based aircraft

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Sources: FAA Terminal Area Forecast (History), AECOM analysis (Forecast)

Forecast – Based Aircraft

Year	Single Engine	Turbine/ Jet	Multi-Engine	Helicopter	Other	Total
2009	68	1	0	1	0	70
Low Growth Forecast						
2015	68	1	0	1	0	70
2020	67	1	1	1	0	70
2030	67	1	1	1	0	70
Baseline Forecast						
2015	80	1	1	1	0	83
2020	90	1	1	1	0	93
2030	107	2	2	2	1	114
High Growth Forecast						
2015	88	1	1	1	2	93
2020	106	1	2	2	3	113
2030	134	2	6	4	6	152

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Lompoc Airport Master Plan Update

Forecast – Aircraft Operations

Year	Itinerant	Local	Total	
2009	15,200	15,000	30,200	
Low Growth Forecast				
2015	15,100	15,100	30,200	
2020	15,100	15,100	30,200	
2030	15,100	15,100	30,200	**431 operations/based aircraft**
Baseline Forecast				
2015	22,850	22,850	45,700	
2020	28,100	23,000	51,100	
2030	37,600	25,000	62,600	**550 operations/based aircraft**
High Growth Forecast				
2015	30,250	30,250	60,500	
2020	40,400	33,100	73,500	
2030	59,300	39,500	98,800	**650 operations/based aircraft**

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Major Findings - Airside

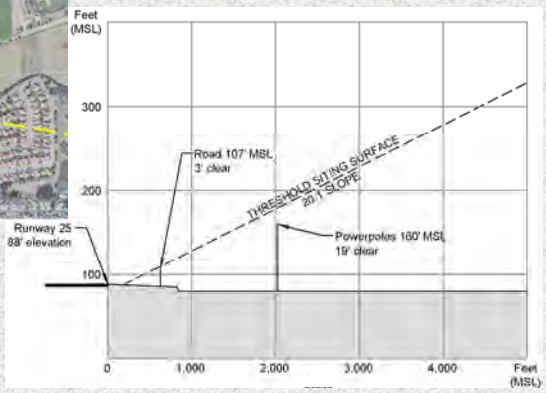
- **Airport Reference Code B-II.**
- **Runway capacity accommodates forecast operations.**
- **Extending the runway 660 feet – could accommodate 75 percent of large airplanes at a reasonable 60 percent useful load**
  - Due to physical constraints, only 257 feet is practical.
- **Existing runway length of 4,600 feet accommodates 75 percent of large airplanes at a 45 percent useful load**
  - A 4,857-foot long runway accommodates 75 percent of large airplanes at 51 percent useful load.

Lompoc Airport Master Plan Update

Major Findings – Airside (cont'd)

- **Runway 7-25 provides adequate wind coverage.**
- **Runway shoulders should be provided.**
- **Existing 116-foot displaced threshold on Runway 25 is not required.**
- **Airfield signage should be expanded.**
- **RSA, OFZ, ROFA, and RPZs are free of obstructions.**

Major Findings – Airside (cont'd)



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Major Findings - Landside

- **Terminal Facility should expand to 4,900 SF (High Growth Forecast) by 2030.**
  - Explore possibility of joint facility with Transit Department.
- **Transient tie-downs meet requirements.**
- **Transient apron space should be allocated for special events (annual Piper Cub Fly in).**
- **Baseline Forecast projects 37 individual hangars may be needed (73 should the High Growth Forecast occur).**

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Major Findings – Landside (cont'd)

- **The master plan should allow for development of additional conventional hangars and FBO activities.**
- **North apron pavement needs rehabilitation.**
- **Additional area (1,000 SF) should be designated for airport maintenance area.**
- **A second Jet A tank may be needed within the planning period.**
- **Additional security enhancements may be needed.**

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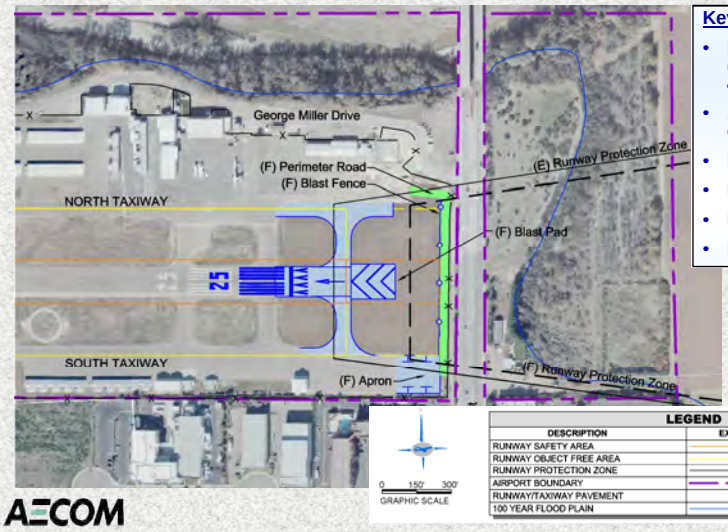
Recommended Airside Development



Key Features

- **Extend Runway 25 257' (overall length of 4,857' x 100')**
- **197' displaced threshold on Runway 25**
- **Entrance Taxiways**
- **Relocate 4 tie-downs**
- **Perimeter Road**
- **Blast Fence**

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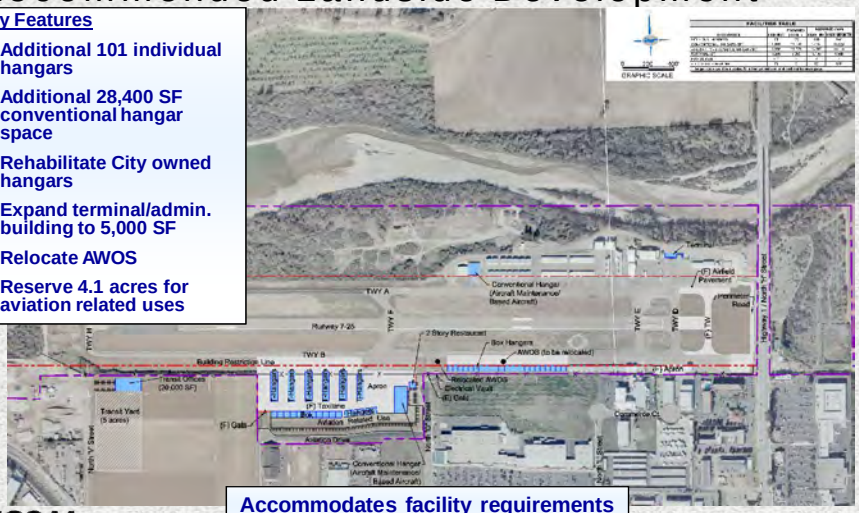
Recommended Landside Development

Key Features

- Additional 101 individual hangars
- Additional 28,400 SF conventional hangar space
- Rehabilitate City owned hangars
- Expand terminal/admin. building to 5,000 SF
- Relocate AWOS
- Reserve 4.1 acres for aviation related uses



Accommodates facility requirements of the High Growth Forecast

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Previous TAC Comments

Comment/Question	Response/Action
Enhance instrument approaches	Analyzed – due to terrain, there is limited potential to reduce ceiling heights
Jet blast affecting Highway 1	Blast fence recommended in master plan
Surrounding land uses	City is actively working to protect the airport. The master plan includes land use compatibility guidelines.
City hangars require rehabilitation	Master plan recommends City owned hangars be rehabilitated
Bicycle path for River Park	Not included in this master plan study
Vehicle access between north and south sides of the airport	A perimeter road is included in the master plan, on the east end of the airport
George Miller Drive needs rehabilitation	Rehabilitation is planned for 2010

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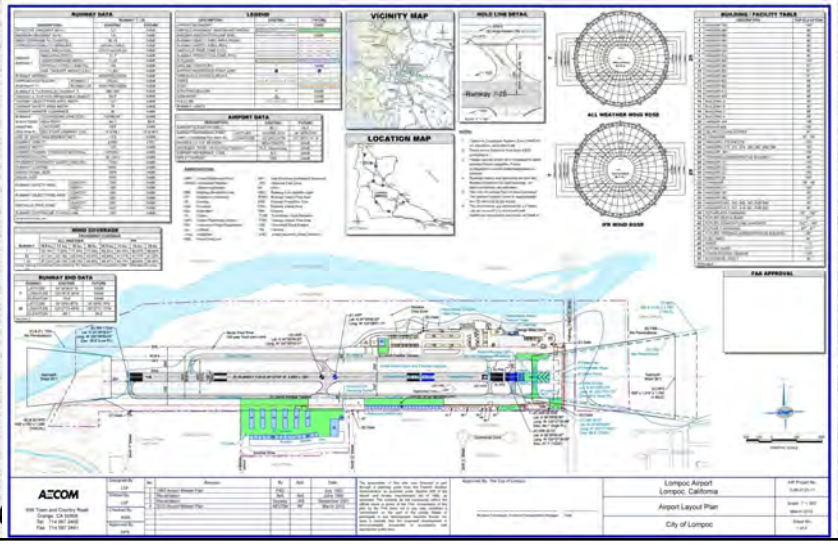
Previous TAC Comments

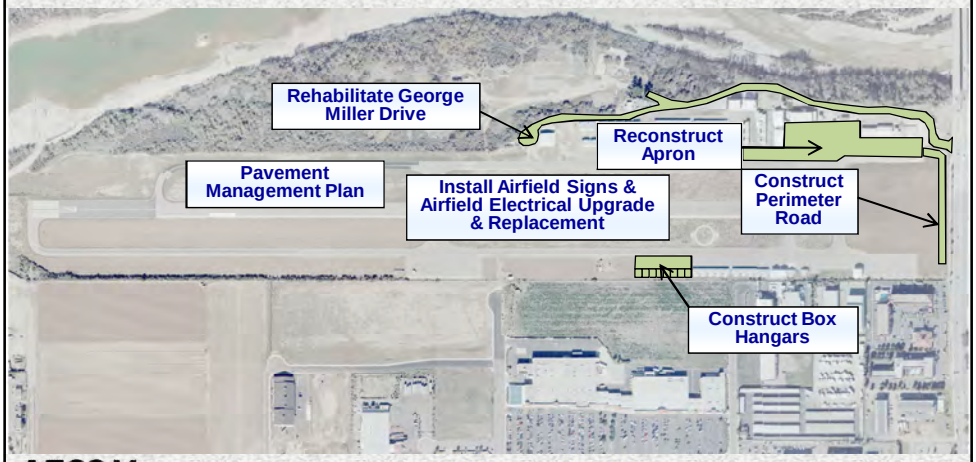
Comment/Question	Response/Action
Solar panels on airport facility roofs	Not included as part of master plan
Accommodation of heliport	Due to separation standards a heliport is not included in the master plan. Helicopters will operate on the runway.
Security requirements at Santa Maria	Increased security at Santa Maria could affect based aircraft levels at Lompoc
Design aircraft for facility requirements	Cessna CJ2
Loading factors of extended runway	Runway extension will increase loading factors by approximately 6 percent
Airport land uses	Airport land must be used for aviation uses first. Master plan includes about 4 acres of land that can be used for aviation related uses.

Lompoc Airport Master Plan Update

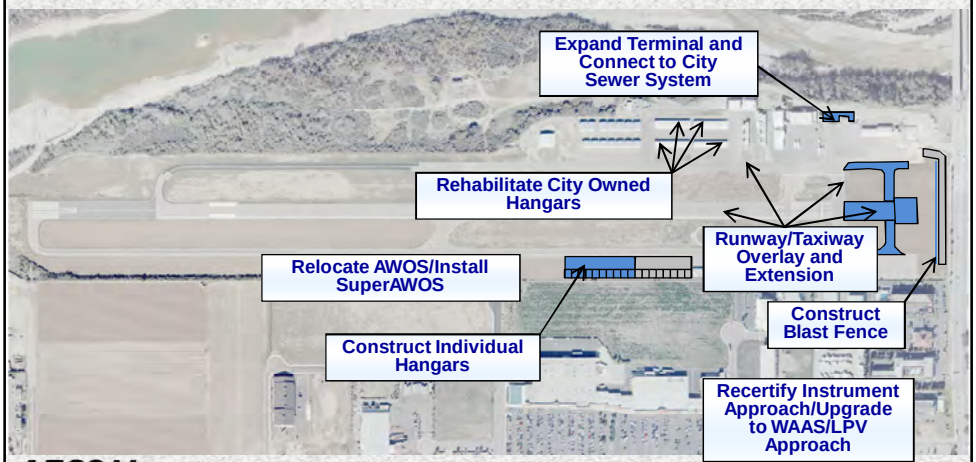
Airport Layout Plan



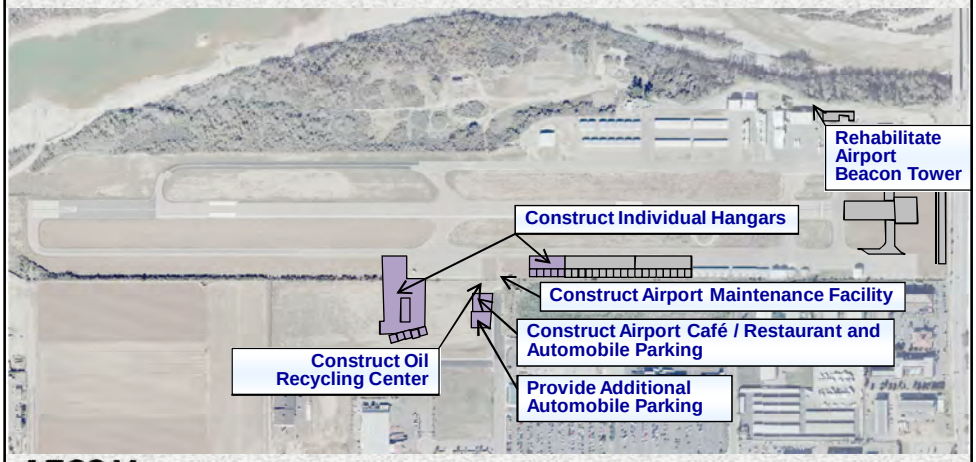
Phase 1 (2010 – 2015)



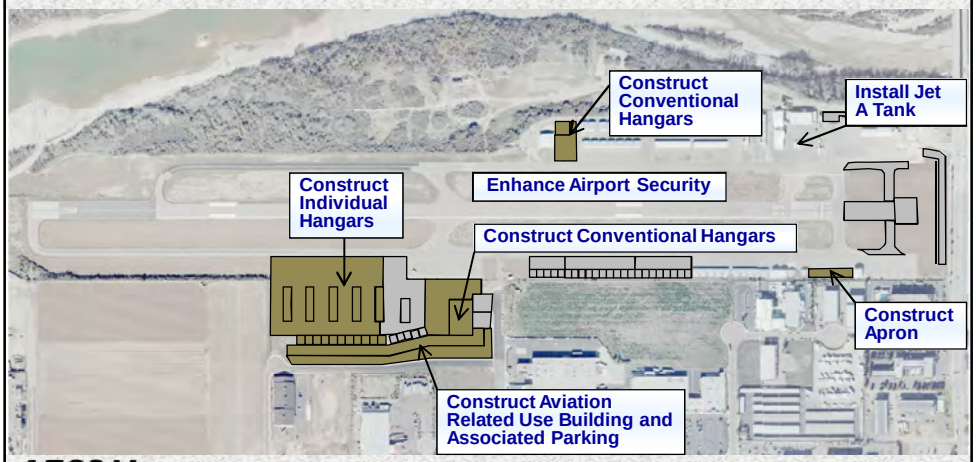
Phase 2 (2016 – 2020)



Phase 3 (2021-2030)



As Needed (Beyond 2030)



Summary of Capital Improvement Program Funds

Phase		FAA	State	Local	Private	Total	% Total
1	(2010 - 2015)	$ 5,620	$ 118	$ 506	$ 1,838	$ 8,083	15.2%
2	(2016 - 2020)	$ 13,307	$ 373	$ 1,931	$ 1,925	$ 17,535	33.0%
3	(2021 - 2030)	$ -	$ -	$ 916	$ 4,404	$ 5,320	10.0%
Phase 1 - 3 Total		**$ 18,927**	**$ 491**	**$ 3,353**	**$ 8,167**	**$ 30,938**	**58.2%**
	% Total	**61.2%**	**1.6%**	**10.8%**	**26.4%**	**100.0%**	
As Needed	(Beyond 2030)	$ 1,554	$ 43	$ 129	$ 20,499	$ 22,225	41.8%
	Total	**$ 20,480**	**$ 534**	**$ 3,482**	**$ 28,666**	**$ 53,162**	**100.0%**
	% Total	**38.5%**	**1.0%**	**6.5%**	**53.9%**	**100.0%**	

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Environmental Overview

- **An emissions inventory is recommended to establish compliance with federal, State, and regional air quality standards**
- **An archeological study and field review is recommended to establish what, if any, historic resources or cultural resources of value exist on the site**
- **A biological site assessment and biological database search is recommended to establish what, if any, wildlife or plants of value exist on site**
- **A wetland delineation and jurisdictional determination is recommended. This analysis would identify total acres of jurisdictional waters within the airport property boundary and permit requirements if any airport improvements are anticipated in these areas.**

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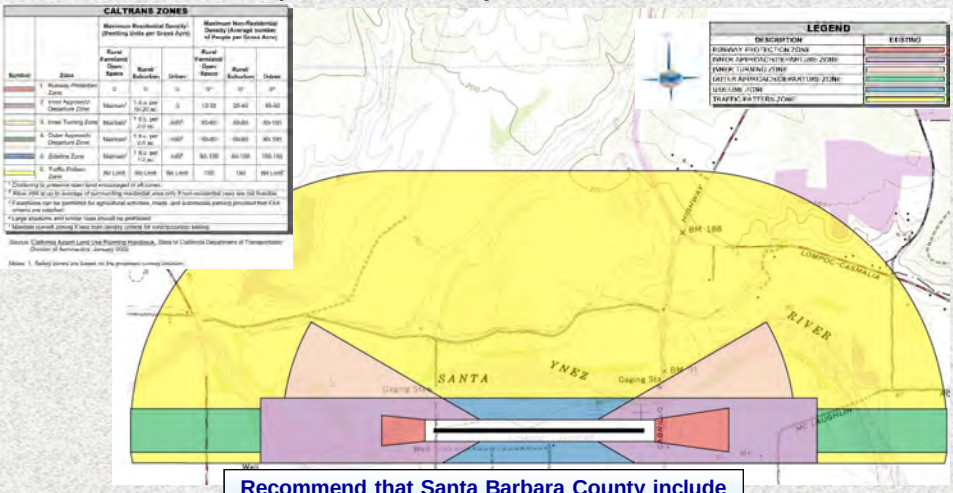
Caltrans Airport Safety Zones



Recommend that Santa Barbara County include these Safety Zones in the ALUP Update

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Next Steps

- **Incorporate Federal Aviation Administration (FAA), Caltrans, City, TAC, and public comments and prepare Final Airport Layout Plan (ALP) and Final Report**
- **Obtain FAA approval of Airport Layout Plan**
- **Publish Final Report including a copy of the FAA approved ALP**

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APPENDIX B

Glossary and Abbreviations

Appendix B

Glossary and Abbreviations

A

A-WEIGHTED SOUND LEVEL – The sound pressure level which has been filtered or weighted to reduce the influence of low and high frequency (dBA).

AC – Advisory Circular published by the Federal Aviation Administration.

ACCOM. – Accommodations

ADA – Americans with Disability Act

ADG – Airplane Design Group

ADT – Average Daily Traffic

ADPM – Average Day of the Peak Month

AFB – Air Force Base

AGL – Above Ground Level

AIA – Annual Instrument Approaches

AIA – Airport Influence Area

AICUZ – Air Installation Compatible Use Zones define areas of compatible land use around military airfields.

AIP – Airport Improvement Program of the FAA.

AIR CARRIER – A commercial scheduled service airline carrying interregional traffic.

AIRCRAFT MIX – The relative percentage of operations conducted at an airport by each of four classes of aircraft differentiated by gross takeoff weight and number of engines.

AIRCRAFT TYPES – An arbitrary classification system which identifies and groups aircraft having similar operational characteristics for the purpose of computing runway capacity.

AIR NAVIGATIONAL FACILITY (NAVAID) – Any facility used for guiding or controlling flight in the air or during the landing or takeoff of aircraft.

AIRPORT AVAILABLE FOR PUBLIC USE – An airport available for use by the public with or without a prior request.

AIRPORT MASTER PLAN – Long-range plan of airport development requirements.

ALP – Airport Layout Plan

ALSF-1 – Approach Light System with Sequence Flasher Lights.

ALS – Approach Light System

ALUC – Airport Land Use Commission

ALUP – Airport Land Use Plan

AMBIENT NOISE – All encompassing noise associated with a given environment, being usually a composite of sounds from many sources near and far.

ANCLUC – Airport Noise and Compatible Land Use Control plan; an FAA sponsored land use compatibility planning program preceding Part 150 Airport Noise Compatibility Program.

AOA – Aircraft Operating Area

APPROACH CONTROL SERVICE – Air traffic control service provided by a terminal area traffic control facility for arriving and departing IFR aircraft and, on occasion, VFR aircraft.

APPROACH FIX – The point from or over which final approach (IFR) to an airport is executed.

APPROACH SLOPE – Imaginary areas extending out and away from the approach ends of runways which are to be kept clear of obstructions.

APPROACH SURFACE – An element of the airport imaginary surfaces, longitudinally centered on the extended runway centerline, extending upward and outward from the end of the primary surface at a designated approach slope.

AREA NAVIGATION (RNAV) – A method of navigation that permits aircraft operations on any desired course within the coverage or stationed-reference navigation systems or within the limits of self-contained system capability.

ARC – Airport Reference Code

ARFF – Aircraft Rescue and Fire Fighting

ARP – Airport Reference Point

ASOS – Automated Surface Observing System

ASV – Annual Service Volume - a reasonable estimate of the airfield's annual capacity.

ATC – Air Traffic Control

ATCT – Airport Traffic Control Tower

AVGAS – Aviation Gas

AVIGATION AND HAZARD EASEMENT – An easement which provides right of flight at any altitude above the approach surface, prevents any obstruction above the approach surface, provides a right to cause noise vibrations, prohibits the creation of electrical interferences, and grants right-of-way entry to remove trees or structures above the approach surface.

AWOS – Automated Weather Observing Station

B

BASED AIRCRAFT – An aircraft permanently stationed at the airport, usually by some form of agreement between the aircraft owner and airport management.

BIT – Bituminous Asphalt Pavement

BRL – Building Restriction Line

BUSINESS JET – Any of a type of turbine powered aircraft carrying six or more passengers and weighing less than approximately 90,000 pounds gross takeoff weight.

C

CAA – Clean Air Act

CAAP – California Aid to Airports Program

CARGO – Originating and/or terminating.

CASP – California Aviation System Plan

CAT I – Category I Instrument Landing System. (Minimums: decision height of 200 feet; Runway visual range 1,800 feet).

CAT II – Category II Instrument Landing System. (Minimums: decision height of 100 feet; Runway visual range 1,200 feet).

CAT III – Category III Instrument Landing System. (Minimums: no decision height; Runway visual range of from 0 to 700 feet depending on type of CAT III facility).

CCIC – Central Coast Information Center

CENTER'S AREA – The specified airspace within which an air route traffic control center provides air traffic control and advisory service.

CEQA – California Environmental Quality Act

CFR – Crash, Fire and Rescue. This is now called Airport Rescue and Fire Fighting (ARFF).

CHRIS – California Historical Resource Information System

CIP – Capital Improvement Plan

CIRCLING APPROACH – A maneuver initiated by the pilot to align the aircraft with a runway for landing when a straight-in instrument approach is not possible. This maneuver requires ATC clearance and that the pilot establish visual reference to the airport.

CL – Centerline

CMA – Competitive Market Area

CNDD – California Natural Diversity Database

CNEL – Community Noise Equivalent Level - a noise metric used in California to describe the overall noise environment of a given area from a variety of sources.

COMM. – Communications

COMMERCIAL SERVICE AIRPORT – A public airport which received scheduled passenger service and enplanes annually 2,500 or more passengers.

COMMUTER AIRLINE – Aircraft operated by an airline that performs scheduled air transportation service over specified routes using aircraft with 60 seats or less.

CONC. – Concrete

CONICAL SURFACE – An imaginary 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.

CONNECTION – A passenger who boards an aircraft directly after deplaning from another flight. On-line single carrier connections involve flights of the same carrier, while interline or off-line connections involve flights of two different carriers. This term can also be applied to freight shipments.

CONTROLLED AREA – Airspace within which some or all aircraft may be subject to air traffic control.

CONTROL TOWER – A central operations facility in the terminal air traffic control system consisting of a tower cab structure (including an associated IFR room if radar equipped) using air/ground communications and/or radar, visual signaling and other devices to provide safe and expeditious movement of terminal air traffic.

CONTROL ZONES – These are areas of controlled airspace which extend upward from the surface and terminate at the base of the continental control area. Control zones that do not underlie the continental control area have no upper limit. A control zone may include one or more airports and is normally a circular area with a radius of 5 statute miles of any extensions necessary to include instrument departure and arrival paths.

CONTROLLED AIRSPACE – An airspace of defined dimensions within which air traffic control service is provided to IFR flights and to VFR flights in accordance with the airspace classification, Class A, Class B, etc.

CROSSWIND RUNWAY – A runway aligned at an angle to the prevailing wind which allows use of an airport when crosswind conditions on the primary runway would otherwise restrict use.

CTAF – Common Traffic Advisory Frequency

CURFEW – A restriction placed upon all or certain classes of aircraft by time of day, for purposes of reducing or controlling airport noise.

CY – Calendar Year

D

DECISION HEIGHT (DH) – With respect to the operation of aircraft, this means the height at which a decision must be made, using an ILS or PAR instrument approach, to either continue the approach or to execute a missed approach.

DEMAND – The actual number of persons, aircraft or vehicles currently using a facility if that facility is operating at or below capacity or the number of persons, aircraft or vehicles who want to use the facility when the facility is operating above capacity.

DEPLANEMENT – Any passenger getting off an arriving aircraft at an airport. Can be both a terminating and connecting passenger. Also applies to freight shipments.

DISTANCE MEASURING EQUIPMENT (DME) – An electronic installation established with either a VOR or ILS to provide distance information from the facility to pilots by reception of electronic signals. It measures, in nautical miles, the distance of an aircraft from a NAVAID.

DME – Distance Measuring Equipment

DOD – Department of Defense

DOT – Department of Transportation

E

EL – Elevation

ENROUTE – The route of flight from point of departure to point of destination, including intermediate stops (excludes local operations).

ENROUTE AIRSPACE – Controlled airspace above and/or adjacent to terminal airspace.

EPA – Environmental Protection Agency

EQUIVALENT SOUND LEVEL (LEQ) – The steady A-weighted sound level over a specified period that has the same acoustic energy as the fluctuating noise during that period.

F

F&E – Facilities and Equipment Programming – FAA.

FAA – Federal Aviation Administration of the United States Department of Transportation.

FAR – Federal Aviation Regulation

FAR Part 36 – A regulation establishing noise certification standards for aircraft.

FAR Part 77 – A regulation establishing standards for determining obstructions to navigable airspace.

FAR Part 139 – A regulation which prescribes rules governing the certification and operation of land airports which serve any scheduled or unscheduled passenger operation of an air carrier that is conducted with an aircraft having a seating capacity of more than 30 passengers.

FAR Part 150 – A regulation establishing criteria for noise assessment and procedures and criteria for FAA approval of noise compatibility programs.

FBO – Fixed Base Operator

FEDERAL AIRWAYS – See Low Altitude Airways.

FINAL APPROACH IFR – The flight plan of landing aircraft in the direction of landing along the extended runway centerline from the base leg to the runway.

FLEET MIX – The proportion of aircraft types or models expected to operate at an airport.

FLIGHT SERVICE STATION (FSS) – A facility operated by the FAA to provide flight assistance service.

FY – Fiscal Year

G

GA - General Aviation – Refers to all civil aircraft and operations which are not classified as air carrier.

GLIDE SLOPE (GS) – The vertical guidance component of an Instrument Landing System (ILS).

GND CON. – Ground Control

GPS – Global Positioning System

GVO – Gaviota VORTAC

H

HANGAR – In this report hangars are classified as individual or conventional. Individual hangars are designed to accommodate a single aircraft and may be portable, “T”, or rectangular (box) hangars. These are assumed to accommodate smaller, personal use aircraft. Individual hangars may be constructed in groups that results in a larger structure, however, the individual hangar spaces are counted separately. Conventional hangars are larger structures designed to accommodate several aircraft in an open bay(s) and for the purposes of this report are assumed to house turboprop and business jet aircraft. Conventional hangars are often occupied by an FBO.

HCM – Highway Capacity Manual

HGF – High Growth Forecast

HGRS. – Hangars

HIGH ALTITUDE AIRWAYS – See Jet Routes.

HIRL – High Intensity Runway Lighting

HITL – High Intensity Taxiway Lighting

HOLDING – A predetermined maneuver which keeps an aircraft within a specified airspace while awaiting further clearance.

HORIZONTAL SURFACE – An imaginary surface constituting a horizontal plane 150 feet above the airport elevation.

I

IFR – Instrument Flight Rules that govern flight procedures under IFR conditions (limited visibility or other operational constraints).

IMAGINARY SURFACE – An area established in relation to the airport and to each runway consistent with FAR Part 77 in which any object extending above these imaginary surfaces is, by definition, an obstruction.

INDUCED TRIPS – See Trip.

INSTRUMENT APPROACH – A series of predetermined maneuvers for the orderly transfer of an aircraft under instrument flight conditions from the beginning of the intial approach to a landing or to a point from which a landing may be made visually.

INSTRUMENT LANDING SYSTEM (ILS) – A precision landing aid consisting of localizer (azimuth guidance), glide slope (vertical guidance), outer marker (final approach fix) and approach light system.

INSTRUMENT OPERATION – A landing or takeoff conducted while operating on an instrument flight plan.

INSTRUMENT RUNWAY – A runway equipped with electronic and visual navigation aids for which a precision or non-precision approach procedure having straight-in landing minimums has been established.

INTEGRATED NOISE MODEL (INM) – A computer-based airport noise exposure modeling program.

ITINERANT OPERATIONS – All aircraft arrivals and departures other than local operations.

INTERNATIONAL OPERATIONS – Aircraft operations performed by air carriers engaged in scheduled international service.

ITE – Institute of Transportation Engineers

IZA – Three letter identifier for Santa Ynez Airport.

J

JET ROUTES – A route designed to serve aircraft operating from 18,000 feet MSL up to and including flight level 450.

L

LAT – Latitude

LDA – Localizer Type Directional Aid

LDN – Day-Night Average Sound Level. The 24-hour average sound level, in decibels, from midnight to midnight, obtained after the addition of ten decibels to sound levels for periods between 10 p.m. and 7 a.m.

LDNG. AIDS – Landing Aids

LENGTH OF HAUL – The non-stop airline route distance from a particular airport.

LEVEL OF SERVICE – An arbitrary but standardized index of the relative service provided by a transportation facility.

LIRL – Low Intensity Runway Lighting

LITL – Low Intensity Taxiway Lighting

LOAD FACTOR – Ratio of the number of passenger miles to the available seat miles flown by an airline representing the proportion of aircraft seating capacity that is actually sold and utilized. Load factors are also referred to in air cargo and can be determined by weight or volume.

LOC – Localizer (part of an ILS).

LOCAL OPERATION – Operations performed by aircraft which: (a) operate in the local traffic pattern or within the sight of the tower; (b) are known to be departing for, or arriving from, flight in local practice areas located within a 20-mile radius of the control tower, or (c) execute simulated instrument approaches or low passes at the airport.

LOM – Compass locator at an outer marker (part of an ILS). Also called COMLO.

LONG – Longitude

LOS – Level of Service

LOW ALTITUDE AIRWAYS – Air routes below 18,000 feet MSL. They are referred to as Federal Airways.

LPC – Three letter identifier for Lompoc Airport.

LPV – Localizer Performance with Vertical Guidance.

LRR – Long-Range Radar

M

MALS – Medium Intensity Approach Light System

MALSF – Medium Intensity Approach Light System with sequence flashing lights.

MALSR – MALS with Runway Alignment Indicator Lights (RAIL).

MARKER BEACON – An electronic navigation facility which transmits a fan or bone shaped radiation pattern. When received by compatible airborne equipment they indicate to the pilot that he is passing over the facility. Two to three beacons are used to advise pilots of their position during an ILS approach.

MGW – Maximum Gross Weight

MILITARY OPERATION – An operation by military aircraft.

MINIMUM DESCENT ALTITUDE (MDA) – The lowest altitude, expressed in feet above mean sea level, to which descent is authorized on final approach or during circling-to-land maneuvering in execution of a standard instrument approach procedure where no electronic glide slope is provided.

MIRL – Medium Intensity Runway Lighting

MISSED APPROACH – A prescribed procedure to be followed by aircraft that cannot complete an attempted landing at an airport.

MITL – Medium Intensity Taxiway Lighting

MLS – Microwave Landing System

MM – Middle Marker (part of an ILS).

MOA – Military Operations Area

MODAL SPLIT – The distribution of trips among competing travel modes, such as walk, auto, bus, etc.

MODE – A particular form or method of travel such as walk, auto, carpool, bus, rapid transit, etc.

MOVEMENT – Synonymous with the term operation, i.e., a takeoff or a landing.

MSL – Mean Sea Level

N

NA or N/A – Not applicable

NAAQS – National Ambient Air Quality Standards

NAS – NATIONAL AIRSPACE SYSTEM - The common system or air navigation and air traffic encompassing communications facilities, air navigation facilities, airways, controlled airspace, special use airspace and flight procedures authorized by Federal Aviation Regulations for domestic and international aviation.

NAVAID – See Air Navigation Facility.

NCDC – National Climatic Data Center

NDB - NON-DIRECTIONAL BEACON – An electronic ground station transmitting in all directions in the L/MF frequency spectrum; provides azimuth guidance to aircraft equipped with direction finder receivers. These facilities are often established with ILS outer markers to provide transition guidance to the ILS system.

NEPA – National Environmental Policy Act

NextGen – Next Generation Air Transportation System. Refers to the FAA's program to modernize the NAS.

NM – Nautical Mile

NOISE ABATEMENT – A procedure for the operation of aircraft at an airport which minimizes the impact of noise on the environs of the airport.

NOISE CONTOUR – A noise impact boundary line connecting points on a map where the level of sound is the same.

NOISE EXPOSURE MAP – A scaled, geographic depiction of an airport, its noise contours and surrounding area.

NOISE LEVEL REDUCTION (NLR) – The amount of noise level reduction achieved through incorporation of noise attenuation (between outdoor and indoor levels) in the design and construction of a structure.

NON-PRECISION APPROACH – A standard instrument approach procedure in which no electronic glide slope is provided.

NOTAM – Notices to Airmen

NPDES – National Pollutant Discharge Elimination System

NPI – Non-Precision Instrument Runway

NPIAS – National Plan of Integrated Airport Systems

NRI – Nationwide Rivers Inventory

O

OAG – Official Airline Guide

OBSTRUCTION – Any structure, growth, or other object, including a mobile object, that exceeds a limiting height established by federal regulations or by a hazard zoning regulation.

OFZ – Obstacle Free Zone

OM – Outer Marker (part of an ILS).

OPERATION – An aircraft arrival at or departure from an airport.

OUTER FIX – A point in the destination terminal area from which aircraft are cleared to the approach fix or final approach course.

P

PAPI – Precision Approach Path Indicator

PAR – Precision Approach Radar

PCC – Portland Cement Concrete Pavement

PEAK HOUR FACTOR – The ratio of the average flow rate during the peak hour to the highest short-term (say 15 minutes) rate within the peak hour.

PEAK HOUR PERCENTAGE – The percentage of total daily trips or traffic occurring in the highest or "peak" hour. Frequently confused with Peak Hour Factor.

PI – Precision Instrument Runway marking

PIR – Precision Instrument Runway

PIREP – Pilot Report

POSITIVE CONTROL – The separation of all air traffic within designated airspace by air traffic control.

PRECISION APPROACH – A standard instrument approach procedure in which an electronic glide slope/glide path is provided; e.g., ILS/MLS and PAR.

PRIMARY RUNWAY – The runway on which the majority of operations take place. On large, busy airports, there may be two or more parallel primary runway.

PRIMARY SURFACE – An area longitudinally centered on a runway with a width ranging from 250 to 1000 feet and extending 200 feet beyond the end of a paved runway.

PROHIBITED AREA – Airspace of defined dimensions identified by an area on the surface of the earth within flight is prohibited.

PU – Publicly Owned Airport.

PVC – Poor Visibility and Ceiling

PVT – Privately Owned Airport.

Q

QUEUE – A line of pedestrians or vehicles waiting to be served.

R

RADAR SEPARATION – Radar spacing of aircraft in accordance with established minima.

RAIL – Runway Alignment Indicator Lights

RCAG – Remote Center Air/Ground Communications

REIL – Runway End Identification Lights

RELIEVER AIRPORT – An airport which, when certain criteria are met, relieves the aeronautical demand on a high density air carrier airport.

RESTRICTED AREAS – Airspace of defined dimensions identified by an area on the surface of the earth within which the flight of aircraft, while not wholly prohibited, is subject to restrictions.

RNAV – See Area Navigation.

ROC – Reactive Organic Compounds

ROFA – Runway Object Free Area

ROTATING BEACON – A visual NAVAID displaying flashes of white and/or colored light used to indicate location of an airport.

RPZ – Runway Protection Zone

RSA – Runway Safety Area

RUNWAY PROTECTION ZONE – An area off the end of the runway end to enhance the protection of people and property on the ground.

RUNWAY SAFETY AREA – An area symmetrical about the runway centerline and extending beyond the ends of the runway which shall be free of obstacles as specified.

RVR – Runway Visual Range

RVV – Runway Visibility Value

RWY or R/W – Runway

S

SALS – Short Approach Light System

SBCAG – Santa Barbara County Association of Governments

SBCAPCD – Santa Barbara County Air Pollution Control District

SCCAB – South Central Coast Air Basin

SDF – Simplified Directional Facility landing aid providing final approach course.

SEGMENTED CIRCLE – An airport aid identifying the traffic pattern direction.

SEPARATION MINIMA – The minimum longitudinal, lateral, or vertical distances by which aircraft are spaced through the application of air traffic control procedures.

SF – Square feet

SMX – Three letter identifier for Santa Maria Public Airport/Capt. G. Allan Hancock Field

SOCIOECONOMIC - Data pertaining to the population and economic characteristics of a region.

SSALF – Simplified Short Approach Light System with Sequence Flashing lights.

SSALS – Simplified Short Approach Light System.

SSALR – Simplified Short Approach Light System with Runway Alignment Indicator Lights (RAIL).

STANDARD LAND USE CODING MANUAL (SLUCM) – A standard system for identifying and coding land use activities published by the U.S. Department of Housing and Urban Development and the Federal Highway Administration.

STRAIGHT-IN APPROACH – A descent in an approved procedure in which the final approach course alignment and descent gradient permits authorization of straight-in landing minimums.

STOL – Short Takeoff and Landing

STOVL – Short Takeoff Vertical Landing

SY – Square yards

SYSTEM PLAN – A representative of the aviation facilities required to meet the immediate and future air transportation needs and to achieve the overall goals.

T

TAC – Technical Advisory Committee

TACAN – Tactical Air Navigation

TAF – FAA Terminal Area Forecast

TDZ – Touchdown Zone

TDZE – Touchdown Zone Elevation

TERMINAL AIRSPACE – The controlled airspace normally associated with aircraft departure and arrival patterns to/from airports within a terminal system and between adjacent terminal systems in which tower enroute air traffic control service is provided.

TERMINAL CONTROL AREA (TCA) – This consists of controlled airspace extending upward from the surface or higher to specified altitudes within which all aircraft are subject to positive air traffic control procedures.

TERPS – Terminal Instrument Procedures

T-HANGAR – A T-shaped aircraft hangar that provides shelter for a single airplane.

THRESHOLD – The beginning of that portion of the runway usable for landing.

TOFA – Taxiway Object Free Area

TOUCH-AND-GO OPERATION – An operation in which the aircraft lands and begins takeoff roll without stopping.

TRAFFIC PATTERN – The traffic flow that is prescribed for aircraft landing at, taxiing on, and taking off from an airport. The usual components of a traffic pattern are upwind leg, crosswind leg, downwind leg and final approach.

TRANSIENT OPERATIONS – See Itinerant Operations.

TRANSITIONAL SURFACE – An element of the imaginary surfaces extending outward at right angles to the runway centerline and from the sides of the primary and approach surfaces to where they intersect the horizontal and conical surfaces.

TRANSITIONAL AIRSPACE – That portion of controlled airspace wherein aircraft change from one phase of flight or flight condition to another.

TRIP – The one-way unit of travel between an origin and a destination.

TRIP ASSIGNMENT – That portion of the transportation planning process where distributed trips are allocated among the actual routes they can be expected to use.

TSA – Transportation Security Administration of the U.S. Department of Homeland Security.

TWY & T/W – Taxiway

TWR – Control Tower

TVOR – Terminal Very High Frequency Omnirange Station

U

UAS – Unmanned Aircraft Systems

UHF – Ultra High Frequency

UNICOM – Radio communications station which provides pilots with pertinent airport information (winds, weather, etc.) at specific airports.

UTILITY RUNWAY – A runway intended to be used by propeller driven aircraft of 12,500 pounds maximum gross weight or less.

V

VASI – Visual Approach Slope Indicator providing visual glide path.

VASI-2 – Two Box Visual Approach Slope Indicator.

VASI-4 – Four Box Visual Approach Slope Indicator.

VBG – Three letter identifier for Vandenberg Air Force Base.

VECTOR – A heading issued to an aircraft to provide navigational guidance by radar.

VFR – Visual Flight Rules that govern flight procedures in good weather.

VFR AIRCRAFT – An aircraft conducting flight in accordance with Visual Flight Rules.

VHF – Very High Frequency

VISUAL APPROACH RUNWAY – A runway intended for visual approaches only.

VOR – Very High Frequency Omnirange Station. A ground-based radio (electronic) navigation aid transmitting radials in all directions in the VHF frequency spectrum; provides azimuth guidance to pilots by reception of electronic signals.

VORTAC – Co-located VOR and TACAN.

V/STOL – Vertical/Short Takeoff and Landing

VTOL – Vertical Takeoff and Landing (includes, but is not limited to, helicopters).

W

WAAS – Wide Area Augmentation System

WARNING AREA – Airspace which may contain hazards to non-participating aircraft in international airspace.

WIND CONE (WINDSOCK) – Conical wind directional indicator.

WIND TEE – A visual device used to advise pilots about wind direction at an airport.

Y

YEARLY DAY-NIGHT AVERAGE SOUND LEVEL (Ldn) – The 24-hour average sound level, in decibels, for the period from midnight to midnight, obtained after the addition of ten decibels to sound levels for the periods between 10 p.m. and 7 a.m. the following day, averaged over a span of one year.

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APPENDIX C

Based Aircraft Owners Survey

LOMPOC AIRPORT
BASED AIRCRAFT OWNERS SURVEY

The City of Lompoc is developing an airport master plan for Lompoc Airport. An important plan objective is to incorporate improvements that are felt to be needed by existing and future airport users. To this end, we would very much appreciate your comments regarding future airport improvements. Please help us by taking a moment of your time to respond to the following questions.

OPTIONAL QUESTION

1. Please provide your name and phone number, if we may call you to discuss your responses.

Name
Day Phone

ALL RESPONDENTS PLEASE ANSWER THE FOLLOWING QUESTIONS

2. Where do you live?

State	City	Zip Code

3. Over the next five years I anticipate my flying activity to: {please check}

Increase	
Decrease	
Remain the Same	

4. If you now use Lompoc Airport, please check your type of use(s):

	Have aircraft based there.
	Own a fixed base operation or other business on airport.
	Am a member of flying/skydiving club or rent/lease aircraft.
	Have transient flights to and from the airport.
	Other:_____

5. If you now use Lompoc Airport, please list in importance to you the main improvements you would like to see made.

6. Indicate by priority the physical improvements you would like to see at Lompoc Airport.

	Highest Priority				**Lowest Priority**
Additional T-hangars(including Nested T-hangars)					
T-Shelters (Shade Hangars)					
Box Hangars***** Size(s):_____					
Conventional, Bay-type Community Hangars					
Additional Tie-downs					
Additional Transient Parking					
Runway Extension					
Pavement Resurfacing					
Expanded Security Program					
Taxiway Extension					
Restaurant					
Navaids: _____					
Other: _____					
Other: _____					

* Box Hangars are square or rectangular and suitable for single aircraft storage. Sizes vary depending on aircraft being stored. Typical sizes range from 50 ft. by 50 ft. to 100 ft. by 100 ft.

7. Rate the adequacy of existing services and facilities as you have observed them that apply for Lompoc Airport. If a particular service or facility is not available or does not apply, please respond with "N/A" in the right hand margin for those services.

	Excellent			**Satisfactory**		**Poor**
Security						
FBO Services						
Flight Instruction						
Aircraft Maintenance						
Navigational Aids						
Transient Parking						
Tiedowns						
Auto Parking						
Hangar Facilities						
Fueling						
Rest rooms						
Flight Planning Area						
Pavement Condition						
Crosswind Coverage						
Skydiving						
Other: _____						
Other: _____						

8. Rate the cost of services and facilities as you have observed them that apply for Lompoc Airport. If a particular service or facility is not available or does not apply, please respond with “N/A” in the right hand margin for those services.

	Very Low			**Average**		**Very High**
Maintenance Rates						
Fuel Costs						
Hangar Rental Rate						
Tie-down Rates						
Transient Parking Rates						
Other: _____						
Other: _____						

PLEASE ANSWER THE REMAINING QUESTIONS THAT APPLY TO YOU

9. If you have aircraft based at Lompoc Airport, please provide the following information for your airport activities:

Aircraft Type	Number of Aircraft	Annual Takeoffs *	Percent Touch and Go
Single-engine under 4 place			
Single-engine 4 place and over			
Multi-engine – piston			
Turboprop			
Turbojet			
Helicopter			
Other: _____			

* Include Touch and Go Operations

10. What factors most influenced your decision to base your aircraft at Lompoc, and not one of the other nearby airports? (Please check all that apply)

	Proximity to home.
	Proximity to business.
	Favorable flying conditions.
	Availability of facilities (Please specify): _____
	Availability of services (Please specify): _____
	Cost of services/airport fees.
	Avoidance of potential future FAA regulations (e.g. temporary flight restrictions)
	Other:_____

11. If you have aircraft based at the Airport, please indicate ***the number of*** your aircraft stored in tie-downs and stored in hangars and your preference if additional hangars were available.

	Present Method of Storing Based Aircraft	Preference if Additional Hangars were Available
Number of aircraft on Tie-downs		
Number of aircraft in Hangars		

12. If you fly to/from Lompoc Airport, what percentage of your flights are for the following purposes?

	Business	Personal	Training	Other	Total
Single-engine under 4 place					100%
Single-engine 4 place and over					100%
Multi-engine – piston					100%
Turboprop					100%
Turbojet					100%
Helicopter					100%

13. If you fly to/from Lompoc Airport, please estimate the amount of money spent annually in the area for the operation of your aircraft.

Hangar/Tiedown	$
Fuel	$
Maintenance	$
Insurance	$
Other: _____	$
Total	$

14. Please indicate the type of equipment in your aircraft.

	VOR
	GPS
	Transponder
	3-Lite Marker Beacon
	Localizer
	Glide Slope Equipment
	Automatic Direction Finding (ADF)
	Distance Measuring Equipment (DME)
	Other:_____
	Other:_____

15. Please use this space for additional comments on other topics pertaining to the airport or master plan (such as, how does the airport compare with others; your thoughts on development around the airport; etc.).

Kindly return your completed questionnaire in the pre-addressed, stamped envelope.

THANK YOU FOR YOUR TIME TO PROVIDE US THIS INFORMATION.

AECOM Transportation
999 Town & Country Road
Orange, CA 92868

APPENDIX D

Detailed Cost Estimates

Appendix D

Detailed Cost Estimates

INTRODUCTION

This appendix contains unit costs developed for this master plan. They are not intended as detailed cost estimates, such as those used for project design. They are based upon the information that was available and the Consultant's judgment. Unit cost calculations were derived from consultant assumptions, bid tabulation of recent projects, and/or published industry references.

Table D-1
SCHEDULE OF IMPROVEMENTS – DETAILED

Project		Quantity	Unit	Unit Cost	Total Cost	Timing
	Phase 1 (2010 - 2015)					
1	**Rehabilitate George Miller Drive**					**2010**
	a. Demolish George Miller Drive Pavement	87,000	SF	$2.50	$217,500.00	
	b. AC Pavement/Striping	87,000	SF	$6.00	$522,000.00	
	c. Earthwork	4,000	CY	$35.00	$140,000.00	
	Sub Total				$879,500.00	
	d. Design and Engineering				$176,000.00	
	e. Construction Management/Contingency				$264,000.00	
	Total Project				**$1,319,500.00**	
2	**Pavement Management Plan**					**2011**
	a. Pavement Management Plan	1	LS	$200,000.00	$200,000.00	
	Total Project				**$200,000.00**	
3	**Reconstruct Apron**					**2012**
	a. Demolish Existing AC Pavement	165,000	SF	$2.50	$412,500.00	
	b. AC Pavement/Striping	165,000	SF	$6.00	$990,000.00	
	c. Earthwork	5,000	CY	$35.00	$175,000.00	
	Sub Total				$1,165,000.00	
	d. Design and Engineering				$233,000.00	
	e. Construction Management/Contingency				$350,000.00	
	Total Project				**$1,748,000.00**	
4	**Install Airfield Signs & Airfield Electrical Upgrade & Replacement**					**2015**
	a. Vault Modifications	1	LS	$80,000.00	$80,000.00	
	b. Electrical Conduit	40,000	LF	$40.00	$1,600,000.00	
	c. Install Airfield Signs and Foundation	36	EA	$5,000.00	$180,000.00	
	Sub Total				$1,780,000.00	
	d. Design and Engineering				$356,000.00	
	e. Construction Management/Contingency				$534,000.00	
	Total Project				**$2,670,000.00**	
5	**Construct Perimeter Road**					**2015**
	a. AC Pavement/Striping	22,000	SF	$4.50	$99,000.00	
	b. Earthwork	3,000	CY	$35.00	$105,000.00	
	Total Project				$204,000.00	
	c. Design and Engineering				$41,000.00	
	d. Construction Management/Contingency				$62,000.00	
	Total Project				**$307,000.00**	
6	**Construct Box Hangars**					**2015**
	a. Box Hangars	12,800	SF	$50.00	$640,000.00	
	b. AC Pavement	28,000	SF	$6.00	$168,000.00	
	c. Earthwork	2,000	CY	$35.00	$70,000.00	
	d. Site Work/Utilities	1	LS	$160,000.00	$160,000.00	
	Sub Total				$1,038,000.00	
	e. Design and Engineering				$350,000.00	
	f. Construction Management/Contingency				$450,000.00	
	Total Project				**$1,838,000.00**	
	Phase 1 Total				**$8,082,500.00**	

Table C-1 (cont'd)
SCHEDULE OF IMPROVEMENTS – DETAILED

Project		Quantity	Unit	Unit Cost	Total Cost	Timing
	Phase 2 (2016 - 2020)					
7	**Runway/Taxiway Overlay and Extension**					**2016**
	a. Coldmill Existing AC Pavement	105,000	SY	$2.50	$262,500.00	
	b. Asphalt Overlay/Striping	940,000	SF	$3.00	$2,820,000.00	
	c. Runway AC Pavement Extension	25,700	SF	$6.00	$154,200.00	
	d. Runway Extension Earthwork	3,000	CY	$35.00	$105,000.00	
	e. Taxiway AC Pavement Extension	51,000	SF	$6.00	$306,000.00	
	f. Taxiway Earthwork	4,800	CY	$35.00	$168,000.00	
	g. Relocate REIL	1	EA	$25,000.00	$25,000.00	
	h. Relocate VASI	1	EA	$30,000.00	$30,000.00	
	i. Relocate Airfield Signs	10	EA	$5,000.00	$50,000.00	
	j. Runway Edge Lights	520	LF	$125.00	$65,000.00	
	k. Taxiway Edge Lights	1,000	LF	$100.00	$100,000.00	
	l. Apron AC Pavement Extension and Striping	19,700	SF	$6.00	$118,200.00	
	m. Apron Earthwork	2,000	CY	$35.00	$70,000.00	
	n. AC Pavement for Runway Shoulders	97,200	SF	$3.50	$340,200.00	
	o. Runway Shoulders Earthwork	10,000	CY	$35.00	$350,000.00	
	p. Blast Pad AC Pavement/Striping	18,000	SF	$3.50	$63,000.00	
	q. Blast Pad Earthwork	2,000	CY	$35.00	$70,000.00	
	Sub Total				$4,834,600.00	
	r. Design and Engineering				$967,000.00	
	s. Construction Management/Contingency				$1,451,000.00	
	Total Project				**$12,087,200.00**	
8	**Construct Blast Fence**					**2016**
	a. Construct Blast Fence	530	LF	$300.00	$159,000.00	
	Sub Total				**$159,000.00**	
	b. Design and Engineering				$45,000.00	
	c. Construction Management/Contingency				$48,000.00	
	Total Project				**$252,000.00**	
9	**Recertify Instrument Approach/Upgrade to WAAS/LPV Approach**					**2017**
	a. Recertify RNAV (GPS) RWY 25	1	LS	$100,000.00	$100,000.00	
	b. Recertify VOR/DME-A	1	LS	$100,000.00	$100,000.00	
	c. Upgrade to WAAS/LPV	1	LS	$50,000.00	$50,000.00	
	Sub Total				$250,000.00	
	Total Project				**$250,000.00**	
10	**Rehabilitate City Owned Hangars**					**2018**
	a. Reroof Hangars	30,000	SF	$5.00	$150,000.00	
	b. "Re-skin" Hangars	30,000	SF	$5.00	$150,000.00	
	Sub Total				$300,000.00	
	c. Design and Engineering				$60,000.00	
	d. Construction Management/Contingency				$90,000.00	
	Total Project				**$450,000.00**	

Table C-1 (cont'd)
SCHEDULE OF IMPROVEMENTS – DETAILED

Project		Quantity		Unit	Total Cost	Timing
	Phase 2 (2016 - 2020)					
11	**Relocate AWOS/Install SuperAWOS**					**2019**
	a. AWOS/Super AWOS	1	LS	$150,000.00	$150,000.00	
	b. Electrical Conduit	150	LF	$40.00	$6,000.00	
	Sub Total				$156,000.00	
	c. Design and Engineering				$150,000.00	
	d. Construction Management/Contingency				$200,000.00	
	Total Project				**$506,000.00**	
12	**Expand Terminal and Connect to City Sewer System**					**2020**
12a	**Install Force Main System**					
	a. Terminal Building	4,000	SF	$250.00	$1,000,000.00	
	b. Site Work/Utilities	1	LS	$250,000.00	$250,000.00	
	c. Install Pump Station	1	LS	$70,000.00	$70,000.00	
	d. Install Sewer Force Main	800	LF	$70.00	$56,000.00	
	Sub Total				$1,376,000.00	
	e. Design and Engineering				$276,000.00	
	f. Construction Management/Contingency				$413,000.00	
	Total Project				**$2,065,000.00**	
12b	**Install Gravity System**					
	a. Terminal Building	4,000	SF	$250.00	$1,000,000.00	
	b. Site Work/Utilities	1	LS	$250,000.00	$250,000.00	
	c. Install Sewer 8" PVC	3,100	LF	$60.00	$186,000.00	
	Sub Total				$1,436,000.00	
	d. Design and Engineering				$288,000.00	
	e. Construction Management/Contingency				$431,000.00	
	Total Project				**$2,155,000.00**	
13	**Construct Individual Hangars**					**2020**
	a. Hangars	16,000	SF	$50.00	$800,000.00	
	b. AC Pavement	32,200	SF	$6.00	$193,200.00	
	c. Earthwork	4,000	CY	$35.00	$140,000.00	
	d. Site Work/Utilities	1	LS	$150,000.00	$150,000.00	
	Sub Total				$1,283,200.00	
	e. Design and Engineering				$257,000.00	
	f. Construction Management/Contingency				$385,000.00	
	Total Project				**$1,925,200.00**	
	Phase 2 Total				**$17,535,400.00**	

Table C-1 (cont'd)
SCHEDULE OF IMPROVEMENTS – DETAILED

Project		Quantity	Unit	Unit Cost	Total Cost	Timing
	Phase 3 (2021 - 2030)					
14	**Construct Airport Café/Restaurant and Automobile Parking**					**Long-Term**
	a. Construct Café/Restaurant	2,500	SF	$200.00	$500,000.00	
	b. AC Pavement & Striping	10,000	SF	$6.00	$60,000.00	
	c. Earthwork	2,000	CY	$35.00	$70,000.00	
	d. Storm Drain Improvements	100	LF	$200.00	$20,000.00	
	e. Site Work/Utilities	1	LS	$75,000.00	$75,000.00	
	f. Lighting Improvements	200	LF	$125.00	$25,000.00	
	Sub Total				$750,000.00	
	g. Design and Engineering				$150,000.00	
	h. Construction Management/Contingency				$225,000.00	
	Total Project				**$1,125,000.00**	
15	**Construct Individual Hangars**					**Long-Term**
	a. Hangars	26,200	SF	$50.00	$1,310,000.00	
	b. AC Pavement	94,200	SF	$6.00	$565,200.00	
	c. Earthwork	6,000	CY	$35.00	$210,000.00	
	d. Site Work/Utilities	1	LS	$100,000.00	$100,000.00	
	Sub Total				$2,185,200.00	
	e. Design and Engineering				$438,000.00	
	f. Construction Management/Contingency				$656,000.00	
	Total Project				**$3,279,200.00**	
16	**Construct Airport Maintenance Facility**					**Long-Term**
	a. Maintenance Facility	1,000	SF	$100.00	$100,000.00	
	b. Earthwork	500	CY	$35.00	$17,500.00	
	c. Site Work/Utilities	1	LS	$15,000.00	$15,000.00	
	Sub Total				$132,500.00	
	d. Design and Engineering				$27,000.00	
	e. Construction Management/Contingency				$40,000.00	
	Total Project				**$199,500.00**	
17	**Construct Oil Recycling Center**					**Long-Term**
	a. Oil Recycling Facility	1	LS	$50,000.00	$50,000.00	
	b. Site Work/Utilities	1	LS	$10,000.00	$10,000.00	
	Sub Total				$60,000.00	
	c. Design and Engineering				$12,000.00	
	d. Construction Management/Contingency				$18,000.00	
	Total Project				**$90,000.00**	
18	**Rehabilitate Airport Beacon Tower**					**Long-Term**
	a. Dispose of Lead Paint	1	LS	$20,000.00	$20,000.00	
	b. New Environmentally-Friendly Paint	1	LS	$40,000.00	$40,000.00	
	Sub Total				$60,000.00	
	c. Design and Engineering				$12,000.00	
	d. Construction Management/Contingency				$18,000.00	
	Total Project				**$90,000.00**	

Table C-1 (cont'd)
SCHEDULE OF IMPROVEMENTS – DETAILED

Project		Quantity	Unit	Unit Cost	Total Cost	Timing
	Phase 3 (2021 - 2030)					
19						**Long-Term/**
	Provide Additional Automobile Parking					**As needed**
	a. AC Pavement & Striping	21,000	SF	$6.00	$126,000.00	
	b. Earthwork	3,000	CY	$35.00	$105,000.00	
	c. Storm Drain Improvements	200	LF	$200.00	$40,000.00	
	d. Site Work/Utilities	1	LS	$19,000.00	$19,000.00	
	e. Lighting Improvements	200	LF	$125.00	$25,000.00	
	Sub Total				$315,000.00	
	f. Design and Engineering				$95,000.00	
	g. Construction Management/Contingency				$126,000.00	
	Total Project				**$536,000.00**	
20	**Construct Individual Hangars**					**As needed**
	a. Hangars	78,500	SF	$50.00	$3,925,000.00	
	b. AC Pavement & Striping	222,000	SF	$6.00	$1,332,000.00	
	c. Earthwork	20,000	CY	$35.00	$700,000.00	
	d. Site Work / Utilities	1	LS	$275,000.00	$275,000.00	
	Sub Total				$6,232,000.00	
	e. Design and Engineering				$624,000.00	
	f. Construction Management/Contingency				$935,000.00	
	Total Project				**$7,791,000.00**	
21	**Construct Conventional Hangars**					**As needed**
	a. Conventional Hangar	28,400	SF	$50.00	$1,420,000.00	
	b. AC Pavement & Striping	65,000	SF	$6.00	$390,000.00	
	c. Earthwork	6,000	CY	$35.00	$210,000.00	
	d. Site Work/Utilities	1	LS	$100,000.00	$100,000.00	
	Sub Total				$2,120,000.00	
	e. Design and Engineering				$424,000.00	
	f. Construction Management/Contingency				$636,000.00	
	Total Project				**$3,180,000.00**	
22	**Construct Aviation Related Use Building and Associated Parking**					**As needed**
	a. Aviation Related-Use Building	89,000	SF	$50.00	$4,450,000.00	
	b. AC Pavement & Striping	65,000	SF	$6.00	$390,000.00	
	c. Earthwork	12,000	CY	$35.00	$420,000.00	
	d. Storm Drain Improvements	1,300	LF	$200.00	$260,000.00	
	e. Site Work/Utilities	1	LS	$668,000.00	$668,000.00	
	f. Lighting Improvements	1,300	LF	$125.00	$162,500.00	
	Sub Total				$6,350,500.00	
	g. Design and Engineering				$1,271,000.00	
	h. Construction Management/Contingency				$1,906,000.00	
	Total Project				**$9,527,500.00**	
23	**Install Jet A Tank**					**As needed**
	a. 10,000 gallon Above-Ground Tank	1	EA	$300,000.00	$300,000.00	
	b. Site work	1	LS	$150,000.00	$150,000.00	
	Sub Total				$450,000.00	
	c. Design and Engineering				$158,000.00	
	d. Construction Management/Contingency				$203,000.00	
	Total Project				**$811,000.00**	
24	**Construct Apron**					**As needed**
	a. AC Pavement/Striping	17,200	SF	$6.00	$103,200.00	
	b. Earthwork	3,000	CY	$35.00	$105,000.00	
	Sub Total				$208,200.00	
	c. Design and Engineering				$105,000.00	
	d. Construction Management/Contingency				$152,000.00	
	Total Project				**$465,200.00**	

Table C-1 (cont'd)
SCHEDULE OF IMPROVEMENTS – DETAILED

Project		Quantity	Unit	Unit Cost	Total Cost	Timing
	Phase 3 (2021 - 2030)					
25	**Enhance Airport Security**					**As needed**
	a. Perimeter Fence Ehnancements	1	LS	$100,000.00	$100,000.00	
	b. Gate Security Enhancements	1	LS	$100,000.00	$100,000.00	
	c. Personnel ID System	1	LS	$100,000.00	$100,000.00	
	Sub Total				$300,000.00	
	b. Design and Engineering				$60,000.00	
	c. Construction Management/Contingency				$90,000.00	
	Total Project				**$450,000.00**	
	Phase 3 Total				**$27,544,400.00**	
	Total All Phases				**$53,162,300.00**	

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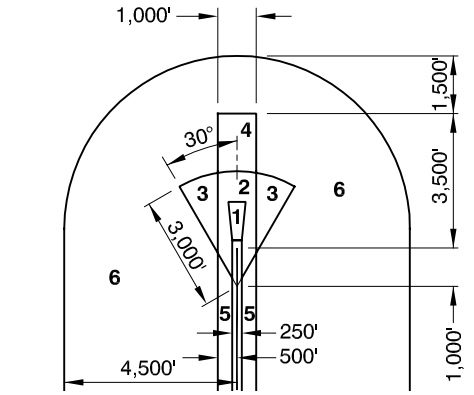
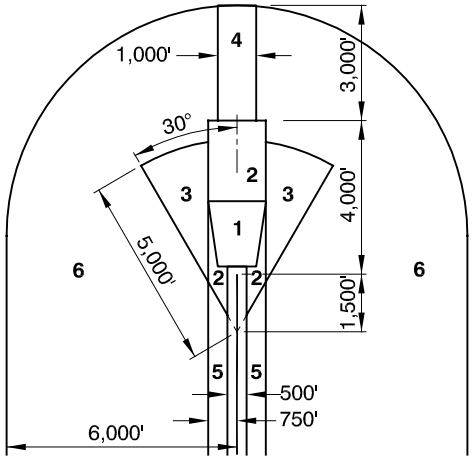
APPENDIX E

Caltrans Airport Compatibility Planning Guidelines



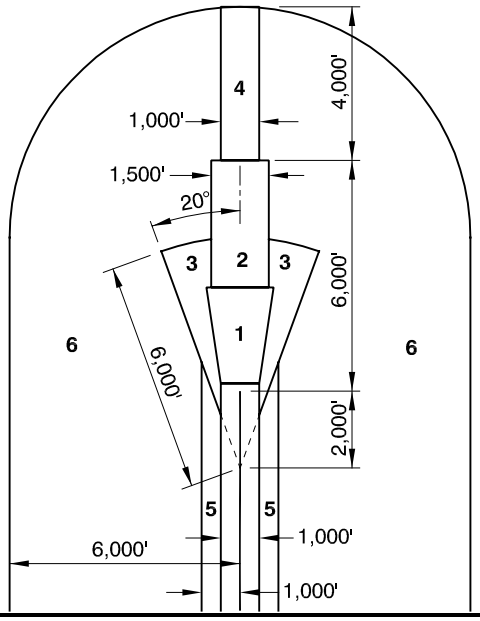
Example 1:
Short General Aviation Runway

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



Example 2:
Medium General Aviation Runway

Assumptions:
- Length 4,000 to 5,999 feet
- Approach visibility minimums ≥ 3/4 mile and < 1 mile
- Zone 1 = 1,000' x 1,510' x 1,700'



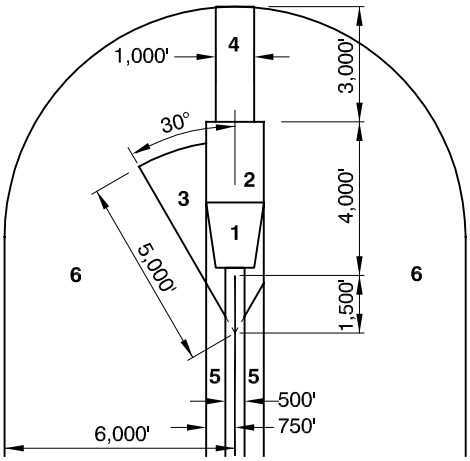
Example 3:
Long General Aviation Runway

Assumptions:
- Length 6,000 feet or more
- Approach visibility minimums < 3/4 mile
- Zone 1 = 1,000' x 1,750' x 2,500'

FIGURE 9K

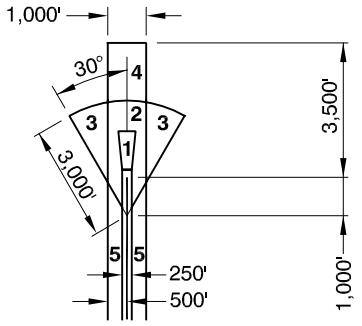
Safety Compatibility Zone Examples

General Aviation Runways



Example 4:
General Aviation Runway with Single-Sided Traffic Pattern

Assumptions:
- No traffic pattern on right
- Length 4,000 to 5,999 feet
- Approach visibility minimums ≥ 3/4 mile and < 1 mile
- Zone 1 = 1,000' x 1,510' x 1,700'



Example 5:
Low-Activity General Aviation Runway

Assumptions:
- Less than 2,000 takeoffs and landings per year at individual runway end.
- Length less than 4,000 feet
- Approach visibility minimums ≥ 1 mile or visual approach only
- Zone 1 = 250' x 450' x 1,000'

Legend

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

Notes:

- RPZ (Zone 1) size in each example is as indicated by FAA criteria for the approach type assumed. Adjustment may be necessary if the approach type differs.
- See Table 9A for factors to consider regarding other possible adjustments to these zones to reflect characteristics of a specific airport runway.
- See Tables 9B and 9C for guidance on compatibility criteria applicable with each zone.

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

FIGURE 9K *CONTINUED*

The generic sets of compatibility zones shown in Figures 9K and 9L may need to be adjusted to take into account various operational characteristics of a particular airport runway. Among these characteristics are the following:

- **Instrument Approach Procedures**—At least within the final two to three miles which are of greatest interest to land use compatibility planning, the flight paths associated with precision instrument approach procedures are highly standardized from airport to airport. Other types of instrument approach procedures are less uniform, however. If such procedures are available at an airport, ALUCs should identify the flight paths associated with them and the extent to which they are used. Procedures which are regularly used should be taken into account in the configuration of safety zones (and in setting height limits for airspace protection). Types of procedures which may warrant special consideration include:
  - *Circling Approaches:* Most instrument approach procedures allow aircraft to circle to land at a different runway rather than continue straight-in to a landing on the runway for which the approach is primarily designed. When airports which have straight-in approaches to multiple runway ends, circling approaches are seldom necessary. However, when only one straight-in approach procedure is available and the wind direction precludes landings on that runway, aircraft may be forced to circle to land on at another runway end. Pilots must maintain sight of the runway while circling, thus turns are typically tight. Also, the minimum circling altitude is often less than the traffic pattern altitude. At airports where circling approaches are common, giving consideration to the associated risks when setting safety zone boundaries is appropriate.
  - *Nonprecision Approaches at Low Altitudes:* Nonprecision instrument approach procedures often involve aircraft descending to a lower altitude farther from the runway than occurs on either precision instrument or visual approaches. An altitude of 300 to 400 feet as much as two to three miles from the runway is not unusual. The safety (and noise) implications of such procedures need to be addressed at airports where they are in common use. (A need for corresponding restrictions on the heights of objects also exists along these routes.)
  - *Nonprecision Approaches not Aligned with the Runway:* Some types of nonprecision approaches bring aircraft toward the runway along a path that is not aligned with the runway. In many cases, these procedures merely enable the aircraft to reach the airport vicinity at which point they then proceed to land under visual conditions. In other instances, however, transition to the runway alignment occurs close to the runway and at a low altitude.
- **Other Special Flight Procedures or Limitations**—Single-sided traffic patterns represent only one type of special flight procedures or limitations which may be established at some airports. Factors such as nearby airports, high terrain, or noise-sensitive land uses may affect the size of the airport traffic pattern or otherwise dictate where and at what altitude aircraft fly when using the airport. These procedures may need to be taken into account in the design of safety compatibility zones.
- **Runway Use by Special-Purpose Aircraft**—In addition to special flight procedures which most or all aircraft may use at some airports, certain special-purpose types of aircraft often have their own particular flight procedures. Most common among these aircraft are fire attack, agricultural, and military airplanes. Helicopters also typically have their own special flight routes. The existence of these procedures needs to be investigated and, where warranted by the levels of usage, may need to be considered in the shaping of safety zones.
- **Small Aircraft Using Long Runways**—When small airplanes take off from long runways (especially runways in excess of 8,000 feet length), it is common practice for them to turn toward their intended direction of flight before passing over the far end of the runway. When mishaps occur, the resulting pattern of accident sites will likely be more dispersed around the runway end than is the case with shorter runways. With short runways, accident sites tend to be more tightly clustered around the runway end and along the extended runway centerline because aircraft are still following the runway heading as they begin their climb.
- **Runways Used Predominantly in One Direction**—Most runways are used sometimes in one direction and, at other times, in the opposite direction depending upon the direction of the wind. Even when used predominantly in one direction, a busy runway may experience a significant number of operations in the opposite direction (for example, a runway with 100,000 total annual operations, 90% of which are in one direction, will still have 10,000 annual operations in the opposite direction). Thus, in most situations, the generic safety zones—which take into account both takeoffs and landings at a runway end—are applicable. However, when the number of either takeoffs or landings at a runway end is less than approximately 2,000 per year, then adjustment of the safety compatibility zones to reflect those circumstances may be warranted.
- **Displaced Landing Thresholds**—A displaced threshold moves the landing location of aircraft down the runway from where they would land in the absence of the displacement. The distribution pattern of landing accident sites as shown in Appendix F would thus shift a corresponding amount. The pattern of accident locations for aircraft taking off toward that end of the runway does not necessarily shift, however. Whether the runway length behind the displaced threshold is usable for takeoffs toward that end of the runway is a key factor in this regard. The appropriateness of making adjustments to safety zone locations in response to the existence of a displaced threshold needs to be examined on a case-by-case basis. The numbers of landings at and takeoffs toward the runway end in question should be considered in making this determination.

TABLE 9A

Safety Zone Adjustment Factors

Airport Operational Variables

Zone 1: Runway Protection Zone

Risk Factors / Runway Proximity

- Very high risk
- Runway protection zone as defined by FAA criteria
- For military airports, clear zones as defined by AICUZ criteria

Basic Compatibility Qualities

- Airport ownership of property encouraged
- Prohibit all new structures
- Prohibit residential land uses
- Avoid nonresidential uses except if very low intensity in character and confined to the sides and outer end of the area

Zone 2: Inner Approach/Departure Zone

Risk Factors / Runway Proximity

- Substantial risk: RPZs together with inner safety zones encompass 30% to 50% of near-airport aircraft accident sites (air carrier and general aviation)
- Zone extends beyond and, if RPZ is narrow, along sides of RPZ
- Encompasses areas overflown at low altitudes — typically only 200 to 400 feet above runway elevation

Basic Compatibility Qualities

- Prohibit residential uses except on large, agricultural parcels
- Limit nonresidential uses to activities which attract few people (uses such as shopping centers, most eating establishments, theaters, meeting halls, multi-story office buildings, and labor-intensive manufacturing plants unacceptable)
- Prohibit children's schools, day care centers, hospitals, nursing homes
- Prohibit hazardous uses (e.g. aboveground bulk fuel storage)

Zone 3: Inner Turning Zone

Risk Factors / Runway Proximity

- Zone primarily applicable to general aviation airports
- Encompasses locations where aircraft are typically turning from the base to final approach legs of the standard traffic pattern and are descending from traffic pattern altitude
- Zone also includes the area where departing aircraft normally complete the transition from takeoff power and flap settings to a climb mode and have begun to turn to their en route heading

Basic Compatibility Qualities

- Limit residential uses to very low densities (if not deemed unacceptable because of noise)
- Avoid nonresidential uses having moderate or higher usage intensities (e.g., major shopping centers, fast food restaurants, theaters, meeting halls, buildings with more than three aboveground habitable floors are generally unacceptable)
- Prohibit children's schools, large day care centers, hospitals, nursing homes
- Avoid hazardous uses (e.g. aboveground bulk fuel storage)

TABLE 9B

Basic Safety Compatibility Qualities

Zone 4: Outer Approach/Departure Zone

Risk Factors / Runway Proximity

- Situated along extended runway centerline beyond Zone 3
- Approaching aircraft usually at less than traffic pattern altitude
- Particularly applicable for busy general aviation runways (because of elongated traffic pattern), runways with straight-in instrument approach procedures, and other runways where straight-in or straight-out flight paths are common
- Zone can be reduced in size or eliminated for runways with very-low activity levels

Basic Compatibility Qualities

- In undeveloped areas, limit residential uses to very low densities (if not deemed unacceptable because of noise); if alternative uses are impractical, allow higher densities as infill in urban areas
- Limit nonresidential uses as in Zone 3
- Prohibit children's schools, large day care centers, hospitals, nursing homes

Zone 5: Sideline Zone

Risk Factors / Runway Proximity

- Encompasses close-in area lateral to runways
- Area not normally overflown; primary risk is with aircraft (especially twins) losing directional control on takeoff
- Area is on airport property at most airports

Basic Compatibility Qualities

- Avoid residential uses unless airport related (noise usually also a factor)
- Allow all common aviation-related activities provided that height-limit criteria are met
- Limit other nonresidential uses similarly to Zone 3, but with slightly higher usage intensities
- Prohibit children's schools, large day care centers, hospitals, nursing homes

Zone 6: Traffic Pattern Zone

Risk Factors / Runway Proximity

- Generally low likelihood of accident occurrence at most airports; risk concern primarily is with uses for which potential consequences are severe
- Zone includes all other portions of regular traffic patterns and pattern entry routes

Basic Compatibility Qualities

- Allow residential uses
- Allow most nonresidential uses; prohibit outdoor stadiums and similar uses with very high intensities
- Avoid children's schools, large day care centers, hospitals, nursing homes

Definitions

As used in this table, the follow meanings are intended:

- *Allow:* Use is acceptable
- *Limit:* Use is acceptable only if density/intensity restrictions are met
- *Avoid:* Use generally should not be permitted unless no feasible alternative is available
- *Prohibit:* Use should not be permitted under any circumstances
- *Children's Schools:* Through grade 12
- *Large Day Care Centers:* Commercial facilities as defined in accordance with state law; for the purposes here, family day care homes and noncommercial facilities ancillary to a place of business are generally allowed.
- *Aboveground Bulk Storage of Fuel:* Tank size greater than 6,000 gallons (this suggested criterion is based on Uniform Fire Code criteria which are more stringent for larger tank sizes)

TABLE 9B *CONTINUED*

MAXIMUM RESIDENTIAL DENSITY

Current Setting	(1) Runway Protection Zone	(2) Inner Approach/ Departure Zone	(3) Inner Turning Zone	(4) Outer Approach/ Departure Zone	(5) Sideline Zone	(6) Traffic Pattern Zone
		Safety Compatibility Zones[a]				
Average number of dwelling units per gross acre						
Rural Farmland / Open Space (Minimal Development)	0	Maintain current zoning if less than density criteria for rural / suburban setting				No limit
Rural / Suburban (Mostly to Partially Undeveloped)	0	1 d.u. per 10 – 20 ac.	1 d.u. per 2 – 5 ac.	1 d.u. per 2 – 5 ac.	1 d.u. per 1 – 2 ac.	No limit
Urban (Heavily Developed)	0	0	Allow infill at up to average of surrounding residential area[b]			No limit

[a] Clustering to preserve open land encouraged in all zones.
[b] See Chapter 3 for discussion of infill development criteria; infill is appropriate only if nonresidential uses are not feasible.

MAXIMUM NONRESIDENTIAL INTENSITY

Current Setting	(1) Runway Protection Zone	(2) Inner Approach/ Departure Zone	(3) Inner Turning Zone	(4) Outer Approach/ Departure Zone	(5) Sideline Zone	(6) Traffic Pattern Zone
		Safety Compatibility Zones				
Average number of people per gross acre[a]						
Rural Farmland / Open Space (Minimal Development)	0[b]	10 – 25	60 – 80	60 – 80	80 – 100	150
Rural / Suburban (Mostly to Partially Undeveloped)	0[b]	25 – 40	60 – 80	60 – 80	80 – 100	150
Urban (Heavily Developed)	0[b]	40 – 60	80 – 100	80 – 100	100 – 150	No limit[c]
Multipliers for above numbers[d]						
Maximum Number of People per Single Acre	x 1.0	x 2.0	x 2.0	x 3.0	x 2.0	x 3.0
Bonus for Special Risk-Reduction Bldg. Design	x 1.0	x 1.5	x 2.0	x 2.0	x 2.0	x 2.0

[a] Also see Table 9B for guidelines regarding uses which should be prohibited regardless of usage intensity
[b] Exceptions can be permitted for agricultural activities, roads, and automobile parking provided that FAA criteria are satisfied.
[c] Large stadiums and similar uses should be prohibited.
[d] Multipliers are cumulative (e.g., maximum intensity per single acre in inner safety zone is 2.0 times the average intensity for the site, but with risk-reduction building design is 2.0 x 1.5 = 3.0 times the average intensity).

TABLE 9C

Safety Compatibility Criteria Guidelines

Land Use Densities and Intensities