Chapter 4

AIRPORT FACILITY REQUIREMENTS

4.1 INTRODUCTION

The major elements of the Airport, which were described in Chapter 3, Existing Airport Facilities must be analyzed individually and balanced in relation to one another as part of the airport master planning process for Paso Robles Municipal Airport. These major elements are:

- Airfield
- Avigation
- General Aviation
- Passenger Terminal
- Airport Access and Parking
- Airport Support
- Other Areas

The existing, and any presently planned, facilities must be evaluated and their capability to satisfy forecast aviation demand throughout the planning period (as set forth in Chapter 2) must be determined. From these evaluations, the requirements for any additional facilities and improvements can be established. These requirements will in turn provide the basis for the recommended 2020 Airport Master Plan.

A summary of the major requirements for facilities and improvements at the Airport through the year 2020 and when they should be in place is presented in Table 4-1. Existing facilities are also listed for purposes of comparison.

4.2 AIRFIELD

The following analysis of airfield requirements cover airport classification, airfield dimensions, runway and taxiway dimensions, airfield pavement, airfield capacity, and consideration of the existing crosswind runway. For design purposes, aircraft can be categorized by weight, approach speed, and wingspan. These factors are interrelated.

4.2.1 Airport Classification

The Paso Robles Municipal Airport is classified as a General Aviation Airport in the National Plan of Integrated Airport Systems (NPIAS). The Airport is classified as a Regional Airport in the California Aviation System Plan (CASP).

Table 4-1

EXISTING FACILITIES AND FUTURE REQUIREMENTS
Paso Robles Municipal Airport
2001-2020

	Existing	Future			
Facilities	**2001**	**2005**	**2010**	**2015**	**2020**
AIRFIELD					
Runway 1-19					
Length (feet)	6,009	6,009	7,100	7,100	8,000
Width (feet)	150	150	150	150	150
Pavement strength (pounds)					
-- Single-wheel aircraft	60,000	60,000	60,000	60,000	60,000
-- Dual-wheel aircraft	106,000	106,000	106,000	106,000	150,000
-- Dual-tandem wheel aircraft	150,000	150,000	150,000	150,000	150,000
Runway 13-31					
Length (feet)	4,700	4,700	4,700	4,700	6,400
Width (feet)	100	100	100	100	100
Pavement strength (pounds)					
-- Single-wheel aircraft	30,000	30,000	30,000	30,000	60,000
-- Dual-wheel aircraft	50,000	50,000	50,000	50,000	150,000
-- Dual-tandem wheel aircraft	90,000	90,000	90,000	90,000	150,000
Parallel Runway					
Length (feet)	--	--	--	--	3,400
Width (feet)	--	--	--	--	60
Pavement strength (pounds)					
-- Single-wheel aircraft	--	--	--	--	12,500
-- Dual-wheel aircraft	--	--	--	--	12,500
GENERAL AVIATION					
Aircraft tiedown spaces	115	115	115	115	115
Hangar spaces	135	135	145	165	180
PASSENGER TERMINAL					
Commuter aircraft positions	0	0	0	0	2
Terminal building (s.f.)	8,000	8,000	8,000	8,000	8,000
AIRPORT ACCESS AND PARKING					
Access road lanes (one-way)	2	2	2	2	2
Terminal area parking spaces	68	68	68	68	100

SOURCE: Aries Consultants Ltd.

Aircraft in approach category C with approach speeds of 121 knots or more, but less than 141 knots, currently using, or expected to use, the Paso Robles Municipal Airport in the future include business jets (Learjets, 24/25 Hawker-125, and Cessna Citation) and turboprop aircraft (Lockheed C-130 and P-3). The Airport is also expected to continue to be used by aircraft in approach Category D, with approach speeds of 141 knots or more, but less than 166 knots (Learjet 35 and 60).

Secondary runway considerations for small general aviation aircraft (under 12,500 pounds gross weight) with aircraft approach categories A and B, with approach speeds of less than 121 knots, are discussed later in this chapter. The aircraft types together with the aircraft approach category and wingspan will be used to determine the proper dimensions for the secondary runways and associated taxiways.

4.2.2 Airfield Dimensions

Airfield dimensions are determined by several factors, including airport classification, type, weight, approach speed and wingspan of the most demanding aircraft. Generally speaking, no one aircraft can be expected to be the most demanding in all of these factors. Aircraft that may be the determinant for runway length may not be the most demanding aircraft for considerations of lateral separations of runways, taxiways and taxilanes. Further, facilities used exclusively by small aircraft have different dimensional requirements than those facilities used by large aircraft.

The FAA has developed runway length design curves for runway length determinations and also a coding system used to relate airport design criteria to operational and physical characteristics of groups of aircraft intending to use an airport.

For airports with two or more runways, it may be desirable to design all airport elements to meet the requirements of the most demanding group of aircraft. However, at some airports, it is more practical to design secondary runways and their associated taxiways to standards relating only to the aircraft that will use those facilities.

Special consideration needs to be given to aircraft that are expected to be used in operations for the California Department of Forestry (CDF) and U.S. Forest Service (USFS) at the Paso Robles Municipal Airport. These aircraft could include turboprop aircraft (e.g., S-2T, C-130 and P-3).

4.2.3 Airport Reference Code

FAA Advisory Circular (AC) 150/5300-13, *Airport Design*, establishes an airport reference code (ARC) to identify specific design criteria appropriate for the types of aircraft expected to be accommodated at a particular airport. The ARC has two components. The first is a letter referring to the "aircraft approach category" in terms of approach speed. The second is a Roman Numeral referring to the "airplane design group" in terms of wingspan. Aircraft in lower ARC would be accommodated by a higher ARC (i.e., A-I or a B-II fits into a C-III).

The most critical aircraft expected to use the Airport on a regular basis are aircraft in ARC C-II with wingspans up to but not including 79 feet e.g., Learjet 25, Falcon 2000, Hawker 800 and Bombardier Challenger. The Airport is also expected to continue to be used by busjet aircraft in approach Category D and design group III (e.g., Learjet 35 and 60, Gulfstream III, IV and V). Therefore, the airfield should be planned to accommodate at least ARC D-III aircraft. However, accommodation for occasional and seasonal use by aircraft within ARC C-IV should be considered. Such accommodation need not be made for wingspans up to but not including 171 feet, but for specific ARC C-IV aircraft expected to use the Airport such as the C-130.

4.2.4 Runway Length

This section discusses the requirements associated with both existing Runways 1-19 and 13-31 and a potential future parallel runway.

4.2.4.1 Runway 1-19

This runway and its associated taxiway system should be designed to accommodate the critical aircraft mentioned above. Aircraft currently using the Airport operate on the 6,009-foot runway with occasional weight restrictions that do not permit the aircraft to take off with a full load of passengers, cargo and usable fuel. However, to accommodate some of the larger business jet aircraft would require a longer runway length.

The runway length requirements for larger business jet aircraft have been determined based on the recommended runway length curves in FAA Advisory Circular 150/5325-4A, *Runway Length Requirements for Airport Design.* The FAA has derived these curves with data from FAA approved aircraft flight manuals and an assumed loading condition.

The degree of aircraft weight restriction has a direct relationship to the utility or usability of the Airport. A 60 percent useful load is considered the minimum

acceptable economic level of utility. Otherwise the cost of operating the aircraft is too expensive relative to the level of utility. Conversely, a 90 percent useful load is considered by the FAA as the maximum cost-effective percentage, based on the cost of construction of airfield improvements. The useful load consists of passengers with baggage, cargo and usable fuel. Tradeoffs between passengers with baggage, cargo and usable fuel can be made as long as the total useful load weight remains the same.

The FAA has developed runway length requirement curves for the business jet fleet of under 60,000 pounds gross weight, considering temperature and airport elevation, that indicate runway length requirements for 75 percent and 100 percent of the fleet at 60 percent and 90 percent useful load. For Paso Robles Municipal Airport, the required runway lengths, uncorrected for runway gradients, are as follows:

Percent of Fleet	Percent of Useful Load	Required Runway Length (feet)
75	60	4,800
75	90	7,100
100	60	5,900
100	90	9,200

The FAA runway length requirement for C-130, P-3 and S-2 aircraft, uncorrected for runway gradients, is 6,000-feet based on FAA AC150/5325-4A.

To accommodate 100 percent of the fleet at 90 percent useful load could require relocation of Dry Creek Road and Tower Road as well as Airport Road to provide required clearances and considerable land acquisition for a 9,200 foot runway. To avoid any relocation of Dry Creek Road and Tower Road all of the runway extension would have to be to the north and the longest practicable physical runway length for Runway 1-19 would be approximately 8,000 feet.

It may be possible to provide up to 9,000 feet for departures on Runway 1-19 using a part of the FAA's Declared Distance concept without impacting Dry Creek Road, Tower Road and Airport Road. The possible solution is extending the runway by 3,000 feet to the north and 1,000 feet to the south and displacing the threshold by 1,000 at each end of the runway. This would provide 9,000 feet for takeoff and 8,000 feet for landing in both directions.

The existing 150-foot runway width is adequate for aircraft in approach categories C and D and wingspans within design groups III and IV. A runway width of 150 feet is desirable for design group III aircraft with a maximum certificated takeoff weight greater than 150,000 pounds, and required for specific (e.g., C-130) aircraft operations, and should be maintained during the planning period.

On the basis of this analysis and discussions regarding the types of aircraft expected to use the Airport, a runway at least 8,000 feet long and 150 feet wide should be planned for during the 20 year planning period.

Runway safety areas 500 feet wide and runway object free areas 800 feet wide and extending 1,000 feet beyond the physical ends of Runway 1-19 would be required if the runway is extended at either end.

4.2.4.2 Runway 13-31

The recommendation for retention of Runway 13-31 is based on several factors. These include an analysis of available wind data, the fact that it is an existing runway used approximately 25 percent of the time, is in good condition, provides a means of crosswind training during normal wind conditions and serves as the only runway when Runway 1-19 is closed for maintenance. The Runway 1-19 orientation does not provide 95 percent crosswind coverage and the FAA considers 95 percent crosswind coverage a desirable goal. Wind coverage is the percent of time that a crosswind component less than a given value occur. For the Runway 1-19 orientation, the wind coverage for 10.5 knots is 91.1 percent and for 13 knots is about 93 percent, based on all-weather winds 24 hours a day for a period of over five years.

However, most light aircraft are flown during visual conditions and daylight through early evening hours. Many of the strong winds blow from a northwesterly direction during visual conditions and daylight through early evening hours. This results in wind coverage well below 95 percent during the period of time when most light aircraft are operating.

Therefore, on the basis of current use and analysis of the need for a crosswind runway, Runway 13-31 should be retained. Together the two runway orientations provide crosswind coverage of 97 percent for 10.5 knots and 99 percent for 13 knots.

The physical length of Runway 13-31 is presently 4,700 feet. This length is adequate to serve 100 percent of the small aircraft fleet. This includes all small aircraft of 12,500 pounds or less including commuter aircraft such as the Beech 99 and Swearingen Metroliner. In addition, as noted above for Runway 1-19, the existing runway length accommodates approximately 75 percent of the business jet fleet with 60 percent useful load. To accommodate 100 percent of the business jet fleet at 60 percent useful load would require a runway length of 5,900 feet. Therefore, it is recommended that providing at least 5,900 feet and preferably up to 80 percent of the recommended 8,000-foot length of Runway 1-19, or about 6,400 feet, be considered for the crosswind Runway 13-31.

If the declared distance concept is applied to Runway 1-19 to protect a 9,000-foot long departure runway then consideration should be given to protecting a length of up to 7,200 feet for Runway 13-31.

The existing runway width of 100 feet is adequate for aircraft in approach categories C and D and wingspans within group III of less than 150,000 pounds maximum certificated take off weight.

Runway safety areas 500 feet wide and runway object free areas 800 feet wide and extending 1,000 feet beyond the physical ends of Runway 13-31 would be required if the runway is extended at either end.

4.2.4.3 Parallel Runway

The requirement for a new parallel runway was addressed. The forecasts prepared as part of the Airport Master Plan do not indicate a need to plan for a parallel runway by 2020. However, based on the long range aviation activity forecasts presented in Chapter 2, and for future long range planning purposes the capability of providing a parallel runway of up to 4,000 feet should be considered. A 4,000-foot runway would accommodate all small (12,500 pounds or less) single- and twin-engine propeller driven aircraft in ARC A-II/B-II. A 2,800-foot runway would accommodate 75 percent of the small aircraft fleet and a 3,400-foot runway would accommodate 95 percent of the small aircraft fleet in ARC A-I/B-I. The centerline of any new parallel runway should be at least 700 feet from the centerline of any existing runway to allow unrestricted simultaneous VFR operations.

A runway width of at least 60 feet and preferably 75 feet should be planned for any parallel runway for use by small aircraft in ARC A-I/B-I.

Runway safety areas 120 feet wide and runway object free areas 250 feet wide and extending 240 feet beyond the physical ends of a parallel runway would be required for group A-I/B-I small aircraft.

4.2.5 Taxiways

Full-length parallel taxiways with runway entry/exit taxiways should be provided for all runways at Paso Robles Municipal Airport. The parallel taxiway for Runway 1-19 should be extended as the runway is extended at 400 feet from the runway centerline.

A full-length parallel taxiway for Runway 13-31 should be considered as aircraft operations increase at the Airport and as new areas are developed for hangars,

tiedowns, and commercial aviation operators. The taxiway should be located southeast of the runway at 400 feet from the centerline of the runway for design groups III and IV aircraft. (Note that Taxiway "G" northeast of the runway has been abandoned.) The parallel and entry/exit taxiways should be 50 feet wide for design group III aircraft and 75 feet wide for design group IV aircraft.

A full-length parallel taxiway for a future parallel runway should be at least 150 feet and, preferably, 240 feet from the centerline of the runway for small aircraft in design groups I and II. The parallel and entry/exit taxiways should be 35 feet wide for group design II aircraft.

4.2.6 Other Airfield Dimensions

Applicable FAA runway/taxiway design and separation standards for ARC A-I/B-I and A-II/BII for small airplanes (12,500 pounds or less) exclusively at the Airport are shown in Table 4-2. The dimensional standards for aircraft in ARC C-III/D-III and C-IV for large airplanes (over 12,500 pounds) are also presented in Table 4-2.

4.2.7 Pavement Strength

The existing pavement strengths for Runway 1-19 are adequate for the 20-year planning period. Runway 1-19 is expected to primarily accommodate general aviation propeller and turbojet (Cessna Citation, Falcon, Hawker 800, Learjet 35/60) aircraft and potentially commuter (Regional jet, DeHavilland DHC-8, Saab 340, Embraer 120 Brasilia) aircraft of less than 60,000 pounds maximum gross takeoff weight. The existing pavement strengths for Runway 13-31 are also adequate. If the runways are to be used more frequently by heavier aircraft of up to 150,000 pounds (e.g., CDF and USFS aircraft such as the C-130, and P-3) than currently forecast then additional pavement strengthening may be necessary in the future.

Therefore, the estimated required airfield pavement strengths, by aircraft landing gear configuration, are as follows:

Aircraft Maximum Gross Weight (in pounds)

Runway	Single-Wheel	Dual-Wheel	Dual-Tandem Wheel
1-19	60,000	150,000	150,000
13-31	60,000	150,000	150,000

Table 4-2

AIRPORT DIMENSIONAL AND SEPARATION STANDARDS
Paso Robles Municipal Airport
(feet)

ITEM	AIRPORT REFERENCE CODE			
	A-I/B-I[1]	A-II/B-II[1]	C-III/D-III	C-IV
Runway Width	60	75	100	150
Runway Shoulder Width	10	10	20	25
Runway Blast Pad Width	80	95	140	200
Runway Blast Pad Length	60	150	200	200
Runway Safety Area Width	120	150	500	500
Runway Safety Area and Object Free Area Length Beyond Each Runway End	240	300	1,000	1,000
Runway Object Free Area Width	250	500	800	800
Obstacle Free Zone Width	250	250	400	400
Runway Centerline to Taxiway Centerline	150	240	400	400
Runway Centerline to Aircraft Parking Area	125	250	500	500
Taxiway Width	25	35	50	75
Taxiway Shoulder Width	10	10	20	25
Taxiway Safety Area Width	49	79	118	171
Taxiway Object Free Area Width	89	131	186	259
Taxiway Centerline to Parallel Taxiway Centerline	69	105	152	215
Taxiway Centerline to Fixed or Movable Object	44.5	65.5	93	129.5
Taxilane Centerline to Fixed to Movable Object	39.5	57.5	81	112.5
Runway Protection Zone[2,3]				
Length	1,000	1,000	1,700	1,700
Inner Width	250	250	500	500
Outer Width	450	450	1,010	1,010

1. For small aircraft (12,500 pounds or less) exclusively.
2. Runway protection zone dimensional standards are for visual runways and runways with not lower than one (1) statute mile approach visibility minimums.
3. For both small and large aircraft, a precision runway protection zone has a length of 2,500 feet, inner width of 1,000 feet and outer width of 1,750 feet.

SOURCE: FAA AC 150/5300-13 *Airport Design.*

4.2.8 Airfield Capacity

The FAA technique for estimating airfield capacity (FAA Advisory Circular 150/5060-5 *Airport Capacity and Delay*) was used to compute hourly capacity and annual service volumes for both the existing airfield and potential improvements evaluated as part of this study.

The hourly capacity of the airfield is defined as a measure of the maximum number of aircraft operations (landings and take-offs) that can be accommodated on the airfield in an hour. This definition contains no assumptions regarding "acceptable" levels of delay to aircraft; it expresses the maximum physical capability of an airfield or any one of its components under a set of specified conditions.

The hourly capacity of the airfield depends on a number of conditions including ceiling and visibility, runway use, aircraft mix, percent arrivals, percent touch-and-go, and exit taxiway locations. These conditions were analyzed on the basis of available operations data, meteorological records, and conversations with Airport management personnel.

The analysis indicates that the existing hourly capacity of the intersecting runway airfield is about 117 operations during visual flight rule (VFR) conditions and 24 operations during instrument flight rule (IFR) conditions. The peak hour demand is forecast to increase from 16 operations in 2000 to 28 operations by the year 2020.

Annual service volume (ASV) is a reasonable estimate of an airport's annual capacity in terms of aircraft operations that may be used as a reference in airport planning. The ASV is the annual volume of aircraft operations beyond which the average delay to each aircraft increases rapidly with relatively small increases in aircraft operations (and beyond which the levels of service on the airfield deteriorate).

The annual service volume of the existing intersecting runway configuration is about 230,000 operations. By comparison, according to the forecasts presented in Table 2-5, air traffic is expected to reach a level of 57,200 operations by the year 2020.

A criterion used by FAA for signaling the need for planning the development of additional airfield facilities is the year in which projected traffic levels reach 60 percent of the estimated annual airfield capacity. At Paso Robles Municipal Airport, this level will not be reached by aircraft operations during the planning period to 2020.

The long-range aviation activity forecasts documented in Chapter 2 forecast 139,300 aircraft operations by 2050. This activity represents about 61 percent of the estimated

annual airfield capacity. Therefore, it would be prudent to preserve the capability of providing a future parallel runway in the long term should it ever be needed.

4.3 AVIGATION

Avigation (air navigation) considerations include (1) airspace and air traffic control, (2) approach areas and obstructions, and (3) navigational and landing aids.

4.3.1 Airspace and Air Traffic Control

Existing airspace procedures and air traffic control (ATC) facilities provide for safe, orderly, and expeditious flow of air traffic. The proximity of other airports does not present delays at Paso Robles Municipal Airport at the present time. There are five other airports within 10 nautical miles (NM) and one at 14 NM from the Airport. They are all relatively low activity airports without published instrument approaches. The California Army National Guard operates Roberts Army Heliport (AHP) in visual meteorological conditions (VMC). During training exercises at Camp Roberts, Roberts AHP activity increases. At times mobile navigational equipment has been temporarily installed for instrument approach training both for pilots and controllers. This activity has been conducted in VMC and has presented no real problem for activity at Paso Robles Municipal Airport. If, however, a permanent instrument approach were established at Roberts AHP some minor delays would be incurred at Paso Robles during inclement weather conditions (IMC). The magnitude of these delays would depend on traffic levels and procedures that would be developed. At present there are poor communications between aircraft on the ground and the Oakland Air Route Traffic Control Center. Improved communications are needed with the Center for IFR operations at Paso Robles Municipal Airport.

4.3.2 Approach Areas and Obstructions

None of the approach areas for the runways at Paso Robles have obstructions as defined by FAR Part 77, *Objects Affecting Navigable Airspace*, for their present usage. However, a controlling object for Runway 31 was identified in Chapter 3, Existing Airport Facilities. All the other runways have better than a 50:1 actual approach slope with no penetrations. The controlling object for Runway 31 is a tree at 1,950 feet from the threshold and on the runway centerline. This object establishes an actual approach slope of 32:1 with no penetration. This is more than adequate for the existing visual approaches. However, the tree should be removed or topped to accommodate any future nonprecision approach requiring a 34:1 approach surface.

Existing runway protection zones (formerly called clear zones) are adequate for forecast activity through the planning period to the year 2020. Precision instrument

runway protection zones with approach surfaces of 50:1 have been established for both ends of Runway 1-19 and should be retained. As instrument approach activity increases, particularly with jet aircraft, a precision instrument approach system will become a requirement. This requirement can be met by installation of either an instrument approach system (ILS) or potential future precision digital global positioning system (DGPS).

Runway protection zones for nonprecision approaches for aircraft in approach categories A and B with speeds of less than 121 knots, with approach surfaces of 20:1, have been established for both ends of Runway 13-31 and should be retained at a minimum. However, the practicality of protecting nonprecision approaches should be evaluated during the alternatives evaluation, and if practical, consideration should be given to establishing nonprecision instrument runway protection zones with 34:1 approach surfaces to protect the capability for straight-in approach minimums for crosswind landings in inclement weather conditions (IMC). This would require a runway protection zone 1,700 feet in length, 500 feet inner width and 1,010 feet outer width for approach Category C and D aircraft for not lower than 1 mile visibility minimums. Ideally, precision instrument runway protection zones with approach surfaces of 50:1, which have already been established for Runway 1-19, should also be established for Runway 13-31.

If a parallel runway is planned for, then some existing or planned for hangars may penetrate the future BRL, or runway protection zone, for a parallel runway depending upon where the runway is located. Ideally, the BRL should be at least 370 feet from the centerline of a parallel runway. The required relocation of the existing BRL will be considered during the evaluation of the alternatives presented in Appendix A as they relate to alternative locations for a parallel runway.

The taxiway object free area (building restriction line) is 100 feet on either side of the centerline of Taxiway F. This meets the requirements for Group III aircraft. A portion of Building 40 penetrates this BRL and should be relocated or removed.

For a new parallel runway visual approach runway protection zones 1,000 feet in length, 250 feet inner width and 450 feet outer width with a 20:1 approach surface would be required.

4.3.3 Navigational and Landing Aids

Protection for all existing and future navigational aid critical areas should be provided through the 20-year planning period. In particular protection for the VORTAC, ASOS, and future ILS components should be maintained. At least a 500-foot separation from the existing VORTAC to any new runway centerline, 250 feet from

any new taxiway centerline, 1,000 feet from any new building and 1,200 feet from any overhead power and telephone lines, should be provided. Any lesser separations will require review with FAA concerning any possible waiver of these recommended dimensions.

The components of the ILS of primary concern are the localizer and glide slope antennas and the localizer antenna. The light plane for the approach lighting system should be protected.

A medium intensity approach lighting system with runway alignment indicator lights (MALSR) would be appropriate for Paso Robles Municipal Airport. An ILS with MALSR should be installed for precision instrument approaches to Runway 19. All other landing aids should be retained.

The automated surface observing system (ASOS) wind sensor should be at least 15 feet above the height of any obstruction (e.g., vegetation, buildings) within a 500-foot radius and, if practical, should be at least 10 feet higher than the height of any obstruction outside the 500-foot radius, but within a 1,000-foot radius. For a precision instrument approach procedure some of the ASOS sensors would need to be relocated behind the ILS glide scope facility.

The existing precision approach slope path indicator (PAPI) equipment presently installed for Runways 1-19 and 13-31 should be retained, but will require relocation for any runway extensions. The PAPIs on Runways 1 and 13 are currently notamed out of service and should be reactivated or replaced in the future. Runway end identifier lights (REIL) should be considered for Runways 1, 13 and 31.

Additional high intensity runway lights (HIRL) and medium intensity runway lights (MIRL) will be required for any extension of Runways 1-19 and 13-31 respectively. Additional medium intensity taxiway lights (MITL) will be required for any taxiway extensions.

4.4 GENERAL AVIATION

On the basis of the general aviation demand forecasts presented in Chapter 3, it is estimated that space will be required for about 220 based aircraft by the year 2020. It is estimated that at least 80 percent (180 aircraft) of the general aviation aircraft could be accommodated in hangars (T-hangars, portable hangars, executive hangars or large conventional hangars) on approximately 18 acres. At present approximately 75 percent of the based aircraft are in hangars. Ideally, the aircraft storage hangars should be consolidated in a few areas in the future. To accommodate the other 20 percent (40 aircraft) of the based general aviation aircraft in tiedown spaces would require approximately 4 acres.

Approximately 40 itinerant spaces (both City and commercial aviation/fixed base operator) covering about 4 acres will be required for transient aircraft parking through the year 2020. The parking apron(s) for itinerant aircraft should be provided close to the terminal/administration building and fixed base operator areas. There are currently about 20 itinerant aircraft parking spaces on the Airport east of the terminal apron.

Based on the long range forecasts presented in Chapter 2, space should be reserved for up to 320 hangar and 70 tiedown spaces for based aircraft by 2050. Approximately 100 transient tiedown spaces would be required by 2050.

Adequate space should be provided for lease plots for full-service fixed base operator/commercial aviation activity. The plots should have expansion capability and exposure to the airfield and should be sized to provide adequate automobile parking space for employees and visitors. In addition, sufficient area should be reserved for the development of additional plots for other fixed base operator/commercial aviation activity, or for the expansion of existing plots as required. These requirements include the taxiways and roadways necessary to serve these areas.

Space will be required for the helicopter activity at the Airport. This includes space for landing and take-off helipads that can operate essentially independent of the fixed-wing aircraft activity on the runways and in the surrounding airspace. The existing helipads are located so that they can operate compatibly with fixed-wing aircraft operations in either the Runway 1-19 or 13-31 directions. Space should be provided near the take-off and landing helipads for helicopter fixed base operators and storage facilities (apron and hangars). Helicopter facilities should preferably be located in one area to minimize interactions with fixed-wing aircraft facilities and aircraft operations.

Aircraft wash rack(s) will be required and locations will be identified on the Airport Master Plan.

4.5 PASSENGER TERMINAL

The passenger terminal requirements include the aircraft parking apron and passenger terminal building and depend on the type and frequency of service to be provided at the Airport in the future. Based on the aviation activity forecasts presented in Chapter 2, and the recent air service analysis prepared for the San Luis Obispo Council of Governments, the demand does not exist at this time for commuter airline service. However, it would be prudent planning to preserve the capability for this type of service in the long term. Therefore, the potential for the Airport to be served by commuter airlines using turboprop (e.g., DeHavilland DHC-8, Embraer Brasilia and

Saab 340) type aircraft and potentially regional jet (e.g., Bombardier CRJ200 and 700 and Embraer RJ135 and 145) type aircraft in the future should be preserved. It is essential that any terminal building requirements and plans be flexible and capable of staged development to satisfy a variety of future requirements including the need for security screening of passengers.

4.5.1 Aircraft Parking Apron

The passenger terminal aircraft parking apron should be located adjacent to the passenger terminal building. The number of aircraft parking positions needed depends on the number of peak hour operations, the Airport's gate use policy, and the time each aircraft spends at the gate position. The length of time an aircraft spends in a parking position depends on the type of aircraft, the number of deplaning and enplaning passengers, the amount of baggage and cargo, the fueling and routine services required and airline schedules. Space for at least two power-in/power-out commuter-type aircraft parking positions (up to 50,000 square feet or about 300 feet by 150 feet) should be preserved.

4.5.2 Passenger Terminal Building

While there is no scheduled commuter service at the Airport at present, the Airport should continue to reserve space for this type of activity. The gross terminal building space requirements were analyzed on the basis of generally accepted planning criteria for terminal development at U.S. airports of comparable size**.**

The new 8,000 square foot passenger terminal could be adequate for future requirements based on the guidance provided in FAA AC 150/5360-9, *Planning and Design of Airport Terminal Facilities at Non Hub Locations.* The building has space for passenger ticketing and check-in, airline operations, baggage handling, waiting lobby, restrooms and concessions (e.g., restaurant, rental cars, vending machines). In addition, a departure gate area can be provided to accommodate the then current security requirements, (e.g., passenger and baggage security screening and enclosed departure lounge). Depending upon the type of service provided (e.g., aircraft seating capacity), it may be necessary to expand the passenger terminal building. In addition, given the increased security provisions of the Transportation Security Administration for passenger and baggage screening and handling, an additional 5,000 to 7,000 square feet will be required to adequately accommodate passenger services.

In the future, air cargo will continue to be carried on aircraft providing small package services from various locations on the Airport as currently occurs. Consideration should be given to providing a consolidated area for small package/air cargo and

freight forwarders including a cargo building, aircraft parking apron and truck and vehicular parking area as the demand warrants. If schedule passenger service is reintroduced in the future, some air cargo will be accommodated as belly cargo on passenger aircraft. Therefore, the Airport Master Plan should provide for the handling of some cargo through the passenger terminal building.

4.6 AIRPORT ACCESS AND PARKING

It is assumed that vehicular traffic volumes and parking requirements will increase approximately in proportion to forecast aviation demand activity.

4.6.1 Airport Access

The primary access to the Airport terminal area is currently provided by an extension of Wing Way to the south and Rollie Gates Drive, which are both two-lane roadways.

Based on traffic counts conducted in 2000 for the City General Plan Circulation Element there were approximately 4,400 average daily trips on Airport Road north of State Route 46 and 980 average daily trips on Dry Creek Road near the southeast end of the Airport. According to the General Plan Circulation Element there are forecast to be a total of 9,000 average daily trips on Airport Road north of State Route 46 and 3,000 average daily trips on Dry Creek Road by 2025, which includes non-Airport-related traffic. The average daily trips on Airport Road by the Airport are forecast to be 3,000 average daily trips by 2025. The existing two-lane Wing Way, Rollie Gates Drive and other access roads serving the Airport, can accommodate these volumes of traffic.

Depending upon the Airport development concept selected by the City, new access roads into other areas of the Airport could be required. These could include access into areas for new development on the Airport from Tower Road on the north side, from Beacon Road and Aerotech Center Way on the east side, and from Dry Creek Road on the south side as well as from Airport Road on the west side.

There may be a requirement for transit service to the Airport in the future as aviation and other activity at the Airport increases. Transit would also serve the industrial and other areas near the Airport as they develop.

4.6.2 Parking

The required number of terminal area vehicular parking spaces has been forecast to increase in proportion to the forecast general aviation and commuter airline activity. Up to 100 vehicular parking spaces will be required in the terminal area for aviation and related activity by the year 2020 compared to the existing 68 spaces in the present terminal area.

The number of additional vehicular parking spaces required in the general aviation and terminal areas will depend on the City's policy regarding aircraft owners being able to park their vehicles in hangars or on tiedown spaces as they currently do. It is assumed that future Airport tenants will be required to provide adequate vehicular parking space within their respective lease plots for employees and visitors.

4.7 AIRPORT SUPPORT

Airport support elements include an air traffic control tower, aircraft rescue and firefighting (ARFF) facilities, airport administration facilities, fuel storage, City maintenance facilities and utility systems.

4.7.1 Air Traffic Control Tower

In accordance with FAA Order 7031.2C, *Airway Planning Standard Number One Terminal Air Navigation Facilities and Air Traffic Control Services*, Paso Robles Municipal Airport will not become a candidate for consideration of establishment of an air traffic control tower (ATCT) during the planning period. Based on FAA criteria the Airport will not qualify for an FAA Air Traffic Control Tower based on the aircraft operations forecasts presented in Chapter 2.

FAA has the responsibility for selection of a site for location of an FAA Air Traffic Control Tower based on traffic patterns, terrain, access and utilities. This includes the location of FAA contract towers. The location of an ATCT should be considered as part of the Airport Master Plan although the FAA reserves the right of any decision on the location. A site was previously selected along Taxiway B, north of Taxiway C, and this site will be re-evaluated. If FAA does not fund a tower, the City could fund a private contract tower as the level of aircraft operations increases.

4.7.2 Aircraft Rescue and Firefighting

The City currently holds an FAA FAR Part 139 Limited Operating Certificate for the Airport. Under the requirements of FAR Part 139, *Certification and Operations: Land Airports Serving Certain Air Carriers*, the City must maintain the minimum Index A aircraft rescue and firefighting (ARFF) requirements for those aircraft operations, either scheduled or unscheduled, that use aircraft with more than 30 passenger seats.

Index A requirements include one vehicle carrying at least 500 pounds of sodium-based dry chemical or Halon 1211, or one vehicle carrying 450 pounds of potassium-based dry chemical and water with a commensurate quantity of pre-mix aqueous film forming foam (AFFF) application. The current on-Airport fire equipment meets these specifications.

The City currently requires prior permission for operations of aircraft with more than 30 passenger seats. In those instances where prior permission is requested and granted, the City can provide on-Airport standby, fifteen minutes prior to landing and fifteen minutes after takeoff to satisfy Index A requirements.

The Airport Master Plan should preserve space for an expanded ARFF facility on the Airport either by expansion of the existing facility or development of a new facility. The facility should be of sufficient size to provide for existing ARFF requirements and any expansion capabilities should they be required as a result of the type of aircraft then serving the Airport and also the increase in development in the surrounding residential, commercial and industrial areas.

4.7.3 Airport Administration and Maintenance

The Airport Administration offices are located in the new terminal/administration building. The building has sufficient space to provide for expansion of these facilities through the planning period. Additional space could also be provided in the former administration building adjacent to the new terminal building.

Space should be reserved for a future City maintenance shop and vehicular equipment storage facility for City-owned maintenance equipment. This could be either a separate facility or combined with a new or expanded ARFF facility.

4.7.4 Fuel Storage

Aviation fuel storage is currently provided underground in one location on the Airport at the fuel island. There is also an underground tank for private use in the Port-a-Port lease area. An area will be reserved on the recommended Airport Master Plan for a consolidated fuel storage area.

4.7.5 Utilities

The future requirements for drainage, water, sewer, power, communications and other support systems will be developed based on the long-range airport development concept selected by the City.

4.7.6 Perimeter/Service Roads

The perimeter/service road system will have to be extended around future airfield improvements on the Airport. This roadway should be extended and located so that vehicles do not obstruct the runway primary surfaces or penetrate the approach surfaces in the runway protection zones or the runway safety areas.

4.7.7 Fencing

The Airport perimeter fencing will require extensions if additional land is acquired. In other areas the existing fencing should be replaced with 6-foot chain-link fencing with 3 strands of barbed wire. Security fencing modifications will also be required in the terminal area.

4.8 OTHER AREAS

The California Department of Forestry constructed new facilities for their Air Attack Base in 2001. Based on discussions with the California Department of Forestry, they do not require any additional space for their Air Attack Base at the Airport.

The California Highway Patrol (CHP) leases a hangar north of the terminal and they have indicated they may require additional facilities for their air operations in the future.

The long-range Airport Master Plan will identify space for additional commercial/industrial development on the Airport along both Airport Road and Dry Creek Road.