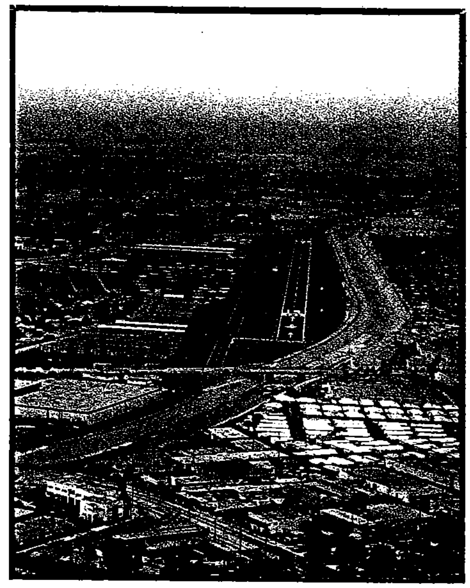
EL MONTE AIRPORT
Master Plan Report
El Monte, California



Prepared for
the
County of
Los Angeles

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EFFECTIVE APRIL 1, 1991, EL MONTE AIRPORT IS OPERATED UNDER THE TERMS OF A MANAGEMENT SERVICES AGREEMENT BETWEEN THE COUNTY OF LOS ANGELES (OWNER) AND COMARCO, INC. (CONTRACTOR).

The preparation of this document was financed in part through a planning grant from the Federal Aviation Administration (FAA) as provided under Section 505 of the Airport and Airway Improvement Act as amended. The contents of this report reflect the views of Hodges & Shutt, who is responsible for the facts and accuracy of the data presented herein. The contents do not necessarily reflect the official views of the FAA. Acceptance of this report by the FAA does not in any way constitute a commitment on the part of the United States to participate in any development depicted herein, nor does it indicate that the proposed development is environmentally acceptable in accordance with Public Laws 91-190, 91-258, and/or 90-495.

Table of Contents

4 Airport Role and Activity

5 Airfield Design

Appendices

Tables

Figures

Airport Plan Drawings
(located at back of report)

1

Introduction

1

Introduction

STUDY BACKGROUND

El Monte Airport is conveniently located in the north-central portion of the greater Los Angeles metropolitan area. The Airport serves as an important community transportation resource for general aviation users desiring ready air access to and from the San Gabriel Valley area and the northeastern Los Angeles Basin. Active general aviation users of the Airport include personal/recreational, business/corporate, and government/military interests.

El Monte Airport features a paved 3,995-foot-long runway which is lighted and offers nonprecision instrument approach capability. The Airport currently accommodates approximately 475 based general aviation aircraft – the large majority of these aircraft being single-engine piston-powered airplanes. In 1993, these based aircraft and visiting aircraft generated over 186,000 takeoffs and landings at El Monte Airport.

Although convenient for users, the Airport's location within a fully-developed, high-density residential and commercial/industrial area presents problems in terms of land use compatibility and facility expansion potential. Noise-sensitive land uses, primarily nearby residences and schools, comprise a significant portion of the Airport's environs. Also affecting airport operations is the presence of several nearby airports and the Class B controlled airspace associated with Los Angeles International Airport. The location of El Monte Airport within this complex airspace creates interactions which restrict both aircraft and airport operational flexibility.

Recognizing the need for a comprehensive evaluation of these and other issues affecting the future of El Monte Airport, the County of Los Angeles obtained a grant from the Federal Aviation Administration (FAA) to fund the preparation of a comprehensive airport master plan. The County then engaged the aviation consulting firm of Hodges & Shutt to conduct the planning study. This report represents the culmination of the various phases of the master plan study process.

It is intended that this report receive wide public review and discussion. Comments received will be evaluated and, as appropriate, incorporated into the *Master Plan* as it proceeds through the process of review and adoption by the Los Angeles County Board of Supervisors.

During the preparation of the *Master Plan*, Hodges & Shutt maintained a high level of interaction with County support staff, El Monte Airport's COMARCO management team, the FAA, and the State of California Division of Aeronautics. County staff contributed to the study effort with timely responses on a wide range of topics. Valuable input was also provided by the City of El Monte, the San Gabriel Valley Airport Association, the general public, airport users, and airport tenants. In addition, key study findings and recommendations were reviewed with the Los Angeles County Aviation Commission at public meetings held throughout the course of the study. The *El Monte Airport Master Plan Report*, as presented herein, reflects the review, input, and contributions of these interested participants.

Contents of the Plan

The *El Monte Airport Master Plan Report* consists of eight chapters, plus a set of appendices. Included with the report is a set of four airport plan drawings.

A summary of the *Master Plan's* major findings and recommendations is presented in the following chapter (Chapter 2). Chapters 3 through 8 set forth the technical data and analyses involved in development of the plan. Background and inventory data (Chapter 3), airport role and activity issues (Chapter 4), runway and taxiway system design issues (Chapter 5), and building area development issues (Chapter 6) are addressed in subsequent chapters. Chapter 7 contains an analysis of off-airport land use planning and environmental issues. The final chapter (Chapter 8) presents an overview of the Airport's current and projected financial condition, as well as an assessment of the Airport's ability to fund the capital improvement projects identified in the *Master Plan*.

The appendices contain supporting information and supplemental documentation, including an Initial Study of environmental impacts.

2

Summary

2

Summary

OVERVIEW

The *El Monte Airport Master Plan* is a comprehensive examination of the current status, anticipated future use, and proposed future course of development of El Monte Airport. This report presents the findings and recommendations of the *Master Plan* study.

- **Function of the Master Plan** – The *Master Plan* serves as a framework within which individual projects can be implemented. By examining not only all components of the Airport, but also the potential facility needs over a time frame of 20 years, the *Master Plan* helps to assure that individual improvements will properly function with other development, both existing and future.

  - This framework is not a detailed plan for construction, however. Such details will be determined – within the context of the interrelationships and constraints identified in the *Master Plan* – if and when individual facility improvements are studied and designed.

  - In this regard, it is important to recognize that the *Master Plan* does not represent a commitment on the part of Los Angeles County or the FAA to proceed with any of the specific projects listed therein. Separate action by the County Board of Supervisors will be required before implementation of any of the plan's key recommendations can proceed.

- **Major Issues** – The focus of the *Master Plan* study has been on several key questions which have had central importance to the entire plan development process. These questions include:

  - What should be the long-term operational/service role(s) of El Monte Airport?

  - Considering the location and nature of approach/departure obstructions, what runway lengths are actually available to users?

- Should extension of the runway be included in the *Master Plan* as a future option and, if so, how much of an extension?

- Should the Airport's existing instrument approach capability be enhanced and, if so, in what manner?

- How much land is needed for future expansion of airport building area facilities?

- Where is the best location for future building area facilities?

- What actions are required to protect the Airport from development of incompatible land uses?

- **Plan Time Frame** — The time frame of the *El Monte Airport Master Plan* is 20 years with an emphasis on the first 10 years of this period. The ultimate build-out of some of the facilities discussed in the plan could be beyond 20 years, however.

- **Future Revisions** — The airport plan drawings, especially the *Airport Layout Plan*, should be reviewed as necessary to ensure that they continue to represent newly arising conditions and facility needs. It is recommended that the plan drawings be updated periodically to reflect new construction and operational requirements. A thorough review and updating of the *Airport Master Plan* should be accomplished within seven to ten years.

PLAN DRAWINGS

For easy reference, copies of the El Monte Airport plan drawings are located at the back of this *Airport Master Plan Report.*

The existing configuration and recommended future development of El Monte Airport are graphically portrayed in four plan drawings which are part of this *Master Plan*.

- **Airport Layout Plan** — The *Airport Layout Plan* (ALP) is the most important of the airport plan drawings for El Monte Airport. An ALP adopted by Los Angeles County and approved by the FAA is a prerequisite to FAA funding of airport improvement projects under the Airport Improvement Program.

- **Airport Data Sheet** — The *Airport Data Sheet* supplements the *Airport Layout Plan* and contains both graphic material and supporting data tables.

- **Building Area Plan** — The *Building Area Plan* shows details of the Airport's core areas (structures, tiedown locations, automobile parking, setbacks, etc.) not fully illustrated in the *Airport Layout Plan*.

- **Airspace Plan** – The purpose of the *Airspace Plan* is to define and help protect the airspace essential to the safe operation of aircraft in the vicinity of the Airport. The criteria which define the limits of this airspace are established in Federal Aviation Regulation (FAR), Part 77, *Objects Affecting Navigable Airspace*.

BACKGROUND AND INVENTORY

- **Location** – El Monte Airport lies entirely within the City of El Monte incorporated limits, approximately 11 miles east-northeast of the Los Angeles City Hall.

- **Historical Setting** – El Monte Airport was originally established in 1936 as a privately-owned general aviation facility. In the late 1960s, Los Angeles County acquired the Airport for public ownership and use. During the ensuing years, the County expended federal, state, and county airport system funds in the improvement of the Airport and its service capabilities.

- **Management and Operation** – The Airport is owned by Los Angeles County and is administered by the County's Department of Public Works, Aviation Division. Since April 1991, the day-to-day operation and management of the Airport has been provided by COMARCO – a private management firm working under contract to the County. In addition to the day-to-day management and operation of the Airport, COMARCO personnel are responsible for airfield maintenance services, and the dispensing of aviation fuel. The ten-member Los Angeles County Aviation Commission serves to advise the County Board of Supervisors regarding the operation and development of the County's five-airport system.

- **Aeronautical Services** – Six fixed base operators at El Monte Airport offer a wide range of general aviation services to the flying public. These services include aircraft rental, flight and ground instruction, aircraft maintenance and repair, aircraft engine maintenance and overhaul, aircraft sales, pilot supplies, and air charter.

- **Aeronautical Setting** – Several large, complex metropolitan airports are located in the vicinity of El Monte Airport. As a result, El Monte area airspace is relatively complex and highly regulated. Aircraft operating to/from El Monte Airport must be equipped with appropriate avionics and must, in certain areas, be in radio contact with FAA Air Traffic Control. El Monte Airport is equipped with an airport traffic control tower operated on a part-time basis by the FAA. El Monte Airport is served by three nonprecision instrument approach procedures, all of which terminate in a "circle-to-land' or *visual* maneuver.

AIRPORT ROLE AND ACTIVITY

For a full discussion of airport role and activity issues, see Chapter 4.

The ultimate development potential of El Monte Airport is expected to be largely determined by the framework established in this *Master Plan*. For this reason, issues regarding the Airport's role, projected activity, and desirable capacity received special attention in the planning study.

Airport Role

- **Present** — El Monte Airport's basic role can be described as providing general aviation service to the surrounding communities. In fulfilling this basic function, the Airport also plays a variety of important individual roles:

  - Base for local personal and recreational flyers;
  - Point of access for personal and recreational visitors to the community;
  - Transportation facility for business/corporate aviation;
  - Place to conduct aviation-related business;
  - Place to practice takeoffs and landings; and
  - Site for emergency access to the community.

- **Future** — Although their relative importance might change to some degree, it is anticipated that the future roles of El Monte Airport will remain essentially the same as at present.

  - *Personal and Recreational Flying* — Users of the Airport give highest priority to enhancement of the Airport's personal- and recreational-use roles for both locally based and visiting pilots.

  - *Aviation Businesses* — Also regarded as having high importance is the continuation and enhancement of the Airport's role as a location for aviation-related businesses.

  - *Business and Corporate Aviation* — Although the Airport's business and corporate aviation role is not expected to change dramatically with respect to its other roles, efforts to enhance this role will continue to be essential to the Airport's overall vitality and are considered to be of high priority by the local business community.

  - *Flight Training* — El Monte Airport will continue to serve as an attractive location for based and transient flight training operations by both light airplanes and helicopters.

  - *Emergency Access* — The role of El Monte Airport as a site for emergency air access to and within the Los Angeles Basin will continue to be an important one.

– *Scheduled Air Passenger Service* – Given the present character of the Airport and the status of the airline industry, establishment of scheduled air passenger service at El Monte Airport is considered unlikely. However, within the 20-year time span of the *Master Plan*, limited air passenger service using small aircraft is a possibility which could be realized.

Historical Airport Activity

Updated 1994 aviation activity counts for El Monte Airport are as follows:

- 440 Based Aircraft
- 186,000 Annual Operations

- **Based Aircraft** – A comprehensive count of based aircraft conducted as part of the present *Master Plan* study found that, as of late 1993, approximately 475 aircraft were based at El Monte Airport. This number is somewhat below the Airport's historical peak of 540 aircraft. Approximately 94% of these aircraft are single-engine airplanes.

- **Transient Aircraft** – On typical busy weekends, some 20 transient aircraft may be parked on the transient apron and in fixed base operations parking areas.

- **Aircraft Operations** – During 1993, aircraft performed an estimated 186,300 takeoffs and landings at El Monte Airport.

Activity Forecasts

- **Based Aircraft** – For planning purposes, the *Master Plan* recommends that space be provided on the Airport for approximately 515 based aircraft. This projection reflects a 0.4% average annual growth rate. The great majority of these based aircraft will continue to be single-engine airplanes. However, the rate of increase of twin-engine airplanes and helicopters is expected to be comparatively faster than that for single-engine airplanes.

- **Transient Aircraft** – Assuming that an airport restaurant/coffee shop is developed and business opportunities within the surrounding community continue to increase, long-term demand for as many as 30 transient aircraft spaces should be anticipated.

- **Aircraft Operations** – For planning purposes, a future activity level of 210,000 annual aircraft operations is projected to occur in conjunction with the Airport's projected 515 based aircraft. This operational projection reflects an average annual growth rate of 0.6%.

Capacity Analyses

- **Airfield Capacity** – Airfield capacity measures the number of aircraft takeoffs and landings that can occur over a given period of time with an acceptable level of delay.

  - *Hourly Capacity* – The El Monte Airport runway/taxiway system can accommodate approximately 95 VFR aircraft operations per hour or 12 IFR operations per hour.

  - *Annual Capacity* – Annual capacity calculations are highly dependent upon assumptions regarding the levels of peak versus off-peak activity. Given the Airport's present peaking characteristics, the existing annual capacity of the runway/taxiway system is approximately 220,000 operations. This capacity is adequate to accommodate foreseeable future demand.

- **Building Area Capacity** – Relatively little land remains undeveloped within the present 103 or so acres of land area at the Airport. Future building area requirements include the need for a public terminal building/coffee shop, additional aircraft storage hangars, and various tenant support facilities.

- **Environmental Capacity** – Environmental capacity, typically measured in terms of cumulative noise impacts, is not a major constraint at El Monte Airport. Measures to minimize noise-related conflicts between the Airport and its surroundings are nonetheless important and should continue to be emphasized.

PROPOSED AIRFIELD IMPROVEMENTS

See Chapter 5 for the complete discussion of airfield design issues.

The airfield portion of El Monte Airport consists of the 3,995-foot paved runway and taxiway system, together with Runway Protection Zones, required safety areas, and visual approach/landing aids.

Basic Design Factors

- **Design Aircraft** – Nearly all of the aircraft now operating or expected to operate at El Monte Airport typically have approach speeds of 121 knots or less, wingspans of less than 49 feet, and weigh 12,500 pounds or less. The FAA airport design classification for this family of aircraft is Airport Reference Code (ARC) B-I/Small. For airfield design purposes, the "critical aircraft" is the Cessna Citation I (CE-500) – a small corporate jet.

- Somewhat larger and/or faster aircraft (e.g., corporate turbo-props and light jets) operate to/from the Airport on an occasional basis. However, use is limited by available airfield facilities – primarily runway length.

- In addition, the Airport is experiencing increasing use by small- to mid-size helicopters. This activity is expected to continue to increase in the future.

- **Airfield Configuration** – Due to physical and economic factors, the current configuration of El Monte Airport's runway/taxiway system will remain essentially the same as is throughout the 20-year planning period. The rather unique *paved continuous drift-off* taxiway system is seen as a useful facility enhancement and should be retained.

Runway Design

- **Runway Extension Option** – Due to the presence of immovable close-in obstructions, the extension of Runway 1-19 is problematic. In addition, no demonstrable need for a runway longer than the current 3,995 feet has been identified as part of the present *Master Plan* study. Accordingly, the current runway length of 3,995 feet is expected to remain the same throughout the 20-year planning time frame.

- **Displaced Threshold Locations** – The *Master Plan* recommends that the current locations of the Displaced Thresholds be maintained throughout the 20-year planning period. The current threshold displacements (Runway 1 – 290 feet and Runway 19 – 641 feet) provide a clear 20:1 Threshold Siting Surface over objects located within the approaches to the Airport's runway.

- **Declared Distances** – As noted previously, the basic configuration and length of El Monte Airport's Runway 1-19 is well defined by existing facilities and site constraints. To take maximum advantage of the constrained site, the runway design identified in the *Master Plan* incorporates the use of Declared Distances as an alternative to a more conventional runway configuration.

  The calculation of El Monte Airport's Declared Distances is based upon the following design factors:

  - Existing Runway 1-19 pavement (3,995 feet) will be retained;
  - Existing runway threshold displacements will be retained;
  - Certain key obstructions within the runway approach and departure surfaces will be removed or otherwise mitigated; and
  - Departure surfaces will provide 20:1 clearance over obstructions.

The resultant Declared Distances for Runway 1-19 are as follows:

	Runway 1	Runway 19
– Takeoff Runway Available (TORA)	3,505′	3,995′
– Takeoff Distance Available (TODA)	3,995′	3,995′
– Accelerate - Stop Distance Available (ASDA)	3,755′	3,995′
– Landing Distance Available (LDA)	3,465′	3,354′

Other Airfield Design Issues

- **Instrument Approach Capability** — To enhance the Airport's existing nonprecision *circle-to-land* instrument approach capability, the *Master Plan* recommends establishment of a new nonprecision *straight-in* instrument approach to Runway 1. This approach would most likely be based upon the emerging Global Positioning System (GPS) technology.

- **Helicopter Facilities** — To better accommodate primarily transient helicopter operations, the *Master Plan* recommends that a helicopter landing/takeoff pad be designated on the parallel taxiway adjacent to the transient helicopter parking area. Helicopters based at the Airport will continue to operate directly to/from their respective on-airport facilities.

- **Visual Approach Aids** — The airfield lighting system (i.e., runway and taxiway lights) should be replaced/rehabilitated within the next 5 to 10 years.

  - Runway End Identification Lights (REIL) should be installed at the landing threshold of Runway 1 to enhance pilots' visual recognition of the threshold environment.

  - It is suggested that a supplemental wind cone be installed near mid-field, possibly on top of the fuel island kiosk.

- **Automated Surface Observation System** — As part of the National Weather Service's nationwide program to enhance airport weather observing capability, El Monte Airport is programmed to receive an Automated Surface Observation System (ASOS). The *Master Plan* recommends that the ASOS equipment array be located on the west side of the Airport — near the existing wind sensor equipment.

BUILDING AREA DEVELOPMENT

The building area of an airport encompasses all of the airport property not required for airfield purposes. At El Monte Airport, the building area is located entirely to the east side of the runway/taxiway system.

Design Considerations

- **FAA Airport Design Standards** – All building area structures, fixed objects, and aircraft parking areas must be located so as to comply with FAA design standards. At El Monte Airport, the appropriate present and future FAA design category is Airport Reference Code B-I/Small. A straight-in nonprecision instrument approach to Runway 1 is anticipated and should be provided for in the layout and use of the building area.

- **Demand Characteristics** – The bulk of the demand for El Monte Airport building area facilities will be generated by light general aviation aircraft – both airplanes and helicopters. It can be anticipated, however, that the Airport will see occasional use by medium-size corporate turboprop aircraft and small corporate jet aircraft.

- **Land Availability** – The existing building area offers sufficient land area to accommodate projected aeronautical demand over the 20-year planning period. Acquisition of additional land area may prove advantageous in maximizing area economic development opportunities.

- **Public Facilities** – The Airport does not currently offer a public terminal building. Many airport users have emphasized the desireablilty of having an on-airport restaurant/coffee shop – possibly located in the terminal building.

- **Aircraft Storage Hangars** – The airport user survey indicates that aircraft operators would like to see additional aircraft storage hangars developed at El Monte Airport. Future growth of El Monte Airport's based aircraft population will, in large measure, be dependent upon the availability of suitable aircraft storage hangars.

- **Airport User Access** – Airport ground access is currently considered to be excellent, and this high level of accessibility should be maintained.

- **Development Staging** – The staging of improvements to the building area must be well-timed and coordinated. The objective is to have a plan that is flexible enough to adapt to changes in type and pace of facility demands, is cost-effective, and also makes sense at each stage of development.

Proposed Building Area Improvements

- **Aircraft Storage and Parking** – One of the primary roles of El Monte Airport is to serve as a convenient location for the basing of light general aviation aircraft. Accordingly, siting and development of additional aircraft storage hangars and tiedown positions has been provided for in the *Master Plan*. Approximately 50 additional hangar units are depicted on the *Airport Layout Plan* and *Building Area Plan*. The existing tiedown aprons will be adequate to accommodate anticipated decreasing future tiedown demand. Some rearrangement of tiedown areas may prove advantageous in accommodating increasing helicopter activity and development of new aircraft storage hangars.

- **Public Terminal Building** – The *Master Plan* provides for the construction of a new public terminal building. The new terminal building should be developed in the east/central portion of the Airport. The new building could include a restaurant/coffee shop, airport administration/operations offices, pilot/passenger lounge, flight planning area, community meeting room, and 24-hour accessible public rest room facilities and telephones.

- **Fixed Base Operations** – There are four principal areas on the Airport utilized for fixed base operations.

  - The existing fixed base operations facilities are well located and configured, both the present and the future.

  - A fifth fixed base operation could be developed in the conventional hangar located immediately west of the air traffic control tower. This site could lend itself to development by a helicopter-oriented fixed base operator.

  - A 32,000-square-foot area of undeveloped land in the east-central portion of the Airport should be reserved for development in support of fixed base operations.

- **Aviation Fueling Facilities** – Two of the Airport's underground aviation fuel storage tanks will eventually need to be replaced. The *Master Plan* recommends that the replacement underground fuel storage tanks be located on the same site as the existing facilities. It is further recommended that "self-service" credit card operated fueling capability be provided at the fueling island.

- **Other Building Area Facilities** – The following facilities are identified as integral elements of the *Building Area Plan:*

  - *Second Aircraft Wash Rack* – The *Master Plan* suggests that a second aircraft wash rack be provided on the north end of the Airport. This wash rack must comply with CEQA/EPA environmental requirements.

- *Tenant Aircraft Maintenance Shelter* — To provide enhanced tenant amenities, the *Master Plan* suggests that a tenant aircraft maintenance shelter be provided near the present aircraft wash rack. Typically, such a shelter consists of a one- or two-bay all-metal structure equipped with electrical power, work bench/vice, overhead lighting/skylights, fire protection, waste oil disposal tank, and in some cases, compressed air. The purpose of this shelter is to permit airport-based users and tenants to work on their own aircraft (in accordance with FAR Part 43) in a safe, convenient, and controlled facility. The County has used one of the hangars in the "T" hangar row for this purpose in the past.

- *Future Building Area Land Acquisition* — Contiguous to the Airport's building area is an 8-acre parcel of land currently being used as a school (Mulhall Elementary). Should this parcel become available on the open market, serious consideration should be given to its acquisition for airport economic support purposes.

- **Supplemental Aviation Support Area** — The Airport owns a 5-acre parcel of undeveloped land located across Santa Anita Avenue from the approach end of Runway 1. It is recommended that this parcel be developed in a manner that is compatible with airport operations and that contributes economically to the Airport. Potential uses for this area include: automobile parking, single-story offices, light industrial, low-density retail sales, and mini-storage facilities.

LAND USE AND ENVIRONMENTAL ISSUES

See Chapter 7 for the complete discussion of land use and environmental issues.

Despite the existing intensive urban, and especially residential, land uses around El Monte Airport, compatibility has not been an issue. This status is undoubtedly attributable to the limited nature of airport operations (predominantly light, general aviation airplanes), the busy, relatively noisy character of the surrounding area, and the mutual understanding of each other's concerns by pilots and area residents. Recommendations in the *Master Plan* therefore focus on further promoting an awareness of compatibility concerns and identifying actions which should be taken to prevent problems from arising.

Compatibility Concerns

- **Noise Impacts** — The Airport's noise impact area will expand slightly over the 20-year planning time frame as a result of the projected 13% increase in total aircraft operations plus a small shift toward higher proportions of helicopters and twin-engine propeller airplanes in the fleet mix. A portion of the Daleview Trailer Park lies within the existing 65-CNEL contour and a few more units will be within the future expansion of this contour. For the most part, though, the area primarily affected by aircraft noise at each end of the runway predominantly consists of commercial and industrial land uses.

- **Safety Status** – The most critical locations with regard to safety are the Runway Protection Zones and immediately adjoining areas. Although the Airport owns less than half of the land within each of the two future RPZs, most of the remaining property consists of road and railroad rights-of-way and the Rio Hondo flood control channel. Except for the flood control channel, the freeway, and major roads, few open spaces suitable for emergency aircraft landings remain in the airport vicinity.

- **Specific Concerns** – Because the character of both the Airport and the surrounding land uses is well established, little change in the current compatibility status is expected to occur in future years. The particular compatibility concerns which need to be monitored to ensure that they do not develop into major problems in the future include:

  - Noise impacts on the Daleview Trailer Park.

  - The high number of schools in the airport vicinity (although none are located within the runway approach zones).

  - The potential for construction of tall structures in the airport flight paths, particularly in the vicinity of the transit terminals south of the Airport.

Land Use Compatibility Measures

- **Fee Simple Title Acquisition** – No compatibility conditions warranting outright acquisition of property near El Monte Airport are currently apparent or anticipated. Nonetheless, the County should continue to keep this option open if it should become necessary for protection of the critical areas in the runway approaches.

- **Avigation Easement Acquisition** – An existing avigation easement covers the portion of one private property situated within the Runway Protection Zone for Runway 19. This easement, however, does not extend to additional portions of the parcel which will be affected by the future increase in RPZ size resulting from establishment of a straight-in instrument approach. Expansion of the easement coverage on this property is recommended.

- **Approach Protection Easement Acquisition** – Approach protection easements – a combination of an avigation easement and the acquisition of development rights to a property – could be of value as an alternative to outright acquisition as a means of preventing new, more incompatible development on critical properties near the runway ends.

- **Land Use Designations** – The existing general plan and zoning designations in the airport environs largely reflect the existing land uses. Short of major redevelopment, significant changes are not anticipated. The one location for which designation of a different land use category would be beneficial from an airport compatibility standpoint is the mobile home park north of the Airport. Some type of light industrial use would be more suitable for this site. It is recognized, though, that this change is not likely to occur unless it were to be supported by factors other than airport compatibility.

- **Airport Overlay Zone** – The City of El Monte has adopted a type of airport overlay zone in the form of the *Airport Approach Height Zone*. Any future proposals for high-rise development or any tall structures in the airport vicinity – and especially in the runway approach corridors – should be carefully reviewed with respect to the airspace protection criteria established by that ordinance.

- **Buyer Awareness** – Buyer awareness is an umbrella category for three types of measures whose objective is to ensure that prospective buyers of property in the vicinity of an airport are informed about the airport's impacts on the property. Two of these types – avigation easement dedication and recorded deed notices – are generally applied only to new development. A more useful type of buyer awareness with respect to El Monte Airport is to promote the need for disclosure of the Airport's proximity and impacts as part of normal real estate transactions involving property in the airport vicinity. As airport owner, the County of Los Angeles should provide local real estate brokers, as well as El Monte and the other nearby cities, with information identifying the areas affected by the Airport's traffic patterns. Having received this information, the real estate agencies would be obligated to pass it along to prospective property buyers. The affected cities are encouraged to adopt policies promoting this form of buyer awareness program.

Airport Facility and Operational Measures

- **Purpose** – Airport facility and operational measures represent the other side of the compatibility coin in that they are intended to ensure that airport activity does not grow or change in a manner that would create new conflicts with already existing land uses.

- **Facility-Related Measures** – Most of the facility-related types of compatibility measures which can be taken at general aviation airports have already been implemented at El Monte Airport. These include capacity limitations (implemented by default because of the lack of expansion capabilities), landing threshold displacements, and visual glide slope indicators with high approach slope angles.

- **Operational Measures** – Only minimal opportunities for limiting the airport's impacts by operation measures are apparent and the lack of significant problems minimizes the need for such actions. As airport activity increases in the future, some restrictions on touch-and-go operations may become necessary not only for noise purposes, but also for reasons of safety and capacity. Projected increases in helicopter activity at the Airport may necessitate examination of helicopter flight routes and their relationship both to airplane traffic patterns and to noise-sensitive land uses. Perhaps most important in this category of actions is for airport management and fixed base operators to continue their efforts to educate pilots regarding noise abatement techniques.

Environmental Issues

As an integral element of the *Master Plan*, an Initial Study of environmental impacts was performed (see Appendix J). The Initial Study concluded that the sum of the airfield development proposed in the *Master Plan* represents a mitigable impact on the environment. Accordingly, it is recommended that a NEGATIVE DECLARATION be prepared.

FINANCIAL AND IMPLEMENTATION ISSUES

Financial and plan implementation topics are examined in length in Chapter 8.

The financial element of the *Master Plan* addresses the timing of the proposed airport improvement projects, the estimated costs of these improvements, and anticipated future airport revenues and expenses.

Capital Improvement Program

- **Project Staging** – Table 2A lists the airport improvements proposed in the *Master Plan*. Also indicated is the timing of the recommended improvements, as well as their estimated costs (in 1994 dollars).

- **Short-Range Projects** – The major projects slated for construction in the short-range (within five years) are as follows:

  - Construct aircraft storage hangars (initially, 30 units)
  - Construct terminal building,
  - Install Automated Surface Observation System (ASOS), and
  - Renovate aviation fuel storage facilities.

	Estimated Costs (in 1994 $ values))		
	Total[a]	Federal[b]	Airport
Short-Range Projects (Within 5 Years)			
Obstruction removal	$ 75,000	$ 67,500	$ 7,500
Install Runway End Identification Lights (REIL) – Runway 1	13,000	11,700	1,300
Install Automated Surface Observation System (ASOS)	85,000	76,500	8,500
Renovate aviation fuel storage facilities including monitoring system for three underground fuel storage tanks and installation of *self-service* fuel dispensing equipment[c]	75,000		75,000
Construct terminal building (4,000 sf) including site preparation, structure, and adjacent auto parking lot[d]	625,000	100,000	525,000
Construct aircraft storage hangars (30 hangar units – northeast area)	690,000	50,000	640,000
Construct second aircraft wash rack	30,000		30,000
Construct tenant aircraft maintenance shelter (2,500 sf)	33,000		33,000
Install automatic controlled-access vehicle gate (ATCT parking lot)	20,000	18,000	2,000
Subtotal	*$1,646,00*	*$ 323,700*	*$1,322,300*
Mid-Range Projects (5 to 10 Years)			
Construct aircraft storage hangars (20-22 units – east-central)	545,000	45,000	500,000
Pave/site prep grassy area (32,000 sf)	65,000		65,000
Replace airfield lighting system including runway lights and taxiway lights	320,000	288,000	32,000
Pavement rehabilitation	920,000	828,000	92,000
Subtotal	*$1,850,000*	*$1,161,000*	*$ 689,000*
Long-Range Projects (Beyond 10 Years)			
Pavement rehabilitation	2,342,000	2,107,800	234,200
Acquire property (8 acres)	6,650,000	5,985,000	665,000
Subtotal	*$8,992,000*	*$8,092,800*	*$ 899,200*
TOTAL	**$12,488,000**	**$ 9,577,500**	**$2,910,500**

Notes

[a] Estimated construction costs based upon preliminary engineering designs; actual costs will depend upon detailed designs and specifications; engineering costs and contingencies included. Estimated land costs based upon anticipated acquisition costs plus escalation factor, administrative costs, and contingencies.

[b] Federal funding for eligible projects calculated at 90% based upon current legislation. Local share equals 10%. State funds could be used (but are not expected to be) on many of the projects in lieu of federal funds.

[c] If replacement of the three underground fuel storage tanks is required, the estimated total cost is $250,000.

[d] County funding of terminal building structure and public-use areas is assumed, although entire building could be privately financed. Federal funding for a portion of the project also may be possible.

Source: Hodges & Shutt (September 1994)

Table 2A

Proposed Airport Improvements

El Monte Airport

- **Costs** — The total estimated cost of the projects identified in the *Master Plan* is approximately $12.5 million. Of this amount, roughly 13% ($1.6 million) is proposed for short-range implementation.

- **Funding Sources** — It is suggested that the recommended airport improvements be funded through a combination of Federal Aviation Administration, California Division of Aeronautics, Los Angeles County airports system funds, and private sources.

  - The FAA Airport Improvement Program is the largest single source of proposed funding. $9,577,500 of the total improvements are eligible for FAA grants. $323,700 of this amount is for short-range projects.

  - The anticipated Los Angeles County share of the improvement costs over the 20-year *Master Plan* period is $2,910,500. The major improvements requiring significant County funding are construction of the new terminal building, renovation of the aviation fuel storage facilities, and construction of aircraft storage hangars. Terminal buildings at reliever airports are currently eligible for partial FAA AIP funding. Aviation fuel storage facilities are not. It is anticipated that the County airport system will fund the construction of all aircraft storage hangars — approximately 50 additional hangar units. State loan program funds, if available, can be used to finance hangar development and fuel farm renovation.

  - It is anticipated that the private sector will fund the development of all fixed base operations and specialty aeronautical facilities.

Financial Projection

- **Summary** — El Monte Airport's projected operating income and retained earnings will be sufficient to totally fund the sponsor's share of the Capital Improvement Program costs over the initial 5-year financial planning period. During this period, supplemental funding and/or interim financing from the Los Angeles County airport system may be required to provide for the timely and cost-effective implementation of El Monte Airport's Capital Improvement Program. However, El Monte Airport revenues should be sufficient to fully repay such supplemental funding.

  Over the course of the 20-year planning period, it is anticipated that airport revenues will continue to remain strong. The Airport will remain capable of operating on a break-even basis and be fully capable of funding all of its capital requirements. Airport revenue could be enhanced by developing new sources of airport-related revenue and/or by increasing the rates charged to airport lessees, permittees and users. Caution must be exercised, however, in establishing higher rates at the Airport. A reasonable balance must be sought among such factors as the need for a financially viable airport, public air access considerations, the continuation of indirect subsidies to the private sector, and general aviation market conditions. In this regard, the Airport's rates and fees structure should be established in a manner which permits the Airport operator to safely operate and improve the Airport while attracting and serving the Airport's target user groups.

Financial Recommendations

- **Revenue/Expenses** — The Airport operator should continue to aggressively develop all revenue resources and strictly control and minimize all operating expenses.
- **Rates and Charges** — Airport rates and charges should be reviewed and adjusted on a regular basis to ensure that maximum reasonable revenue is generated consistent with the Airport's role, facilities, and user demand.
- **Encourage Development** — Additional private and commercial aviation development on the Airport should be encouraged to bolster Airport revenues and service offerings.

Master Plan Adoption

An *Initial Study* covering the improvements proposed by the *Master Plan* is documented in Appendix J of the *Master Plan Report.*

- **Environmental Impact Documentation** — It is anticipated that an *Initial Study,* prepared in accordance with California Environmental Quality Act guidelines and Los Angeles County's environmental review requirements, will be sufficient to enable preparation of a Negative Declaration allowing adoption of the *Airport Master Plan.* An *Initial Study,* covering the improvements proposed by the *Master Plan,* has been prepared as an integral element of this master planning process.
- **Plan Review** — The Los Angeles County Aviation Commission, and the Los Angeles County Regional Planning Commission (designated Airport Land Use Commission) each will be involved in the review of the *Airport Master Plan.*
  - The Los Angeles County Aviation Commission reviews the overall plan and makes recommendations regarding its adoption to the Board of Supervisors.
  - The Los Angeles County Regional Planning Commission, in its role as the designated Airport Land Use Commission, will also review the *Master Plan* as part of the adoption process.

- **Board of Supervisors** — The Los Angeles County Board of Supervisors has the ultimate responsibility for adoption of the *Airport Master Plan*.

- **Federal Aviation Administration** — Following adoption of the *Master Plan* by the County, the FAA will formally review and approve the *Airport Layout Plan* drawing as the basis for future engineering design and grant eligibility of specific projects.

Implementation

- **Project Funding** — Once the *Master Plan* has been adopted and a decision has been made to proceed with implementation, the County should soon thereafter submit an Airport Improvement Program grant preapplication to the FAA.

- **Engineering Design** — The County may choose to enter into a contractual arrangement with a qualified airport engineer to prepare the detailed engineering designs for the proposed improvements. To assure continuity in design and development, it is suggested that the agreement cover not just the immediate projects, but other major improvements proposed to be constructed over the next 3 to 5 years.

3

Background and Inventory

3

Background and Inventory

EL MONTE AIRPORT

Location and Environs

A brief profile of El Monte Airport's major features, air traffic procedures, management and services, and environs is presented in Table 3A. The accompanying paragraphs highlight a number of key points.

El Monte Airport is located in the north-central portion of the greater Los Angeles metropolitan area, some 11 statute miles east-northeast of central Los Angeles and 10 statute miles southeast of Mount Wilson (see Figure 3A). The Airport, comprising 103.3 acres, lies entirely within the City of El Monte incorporated limits at an average elevation of 296 feet above Mean Sea Level.

Most of the land surrounding the Airport consists of heavily urbanized development - both residential and commercial/industrial uses. Virtually no undeveloped property remains. The western edge of airport property abuts the Rio Hondo Flood Control Channel. A Southern Pacific Railroad right-of-way and a major thoroughfare (Santa Anita Avenue) abut airport property to the south. To the north, the Rio Hondo Flood Control Channel and a major thoroughfare/bridge (Lower Azuza Road) define the limits of airport property. To the east of the Airport, residential development comprises the bulk of the land use.

El Monte Airport is well-located with respect to access from local area streets and regional highways. Lower Azuza Road and Santa Anita Avenue provide convenient local road access to the Airport. Interstate Highways 10, 605, and 210 pass within 5 statute miles of the Airport.

A *Metro-Link* public light-rail transit station is located 2 blocks to the south of El Monte Airport at the intersection of Tyler Avenue and the Southern Pacific Railroad right-of-way. In addition, an *RTD* regional bus terminal is located in this same area. There is no public transit service available to or from the Airport itself.

MAJOR FEATURES

Property

- El Monte Airport encompasses approximately 103 acres of property owned by County of Los Angeles.
- Airport property includes the single runway/taxiway system and the entire building area, including a 5-acre noncontiguous parcel.
- Approximately 42% of the two existing Runway Protection Zones located on airport property.
- The Airport holds a 0.5-acre protective aeronautical easement underlying a portion of the approach to Runway 19.

Airfield

- Runway 1-19 is 3,995 feet long and 75 feet wide; the Runway 1 threshold is displaced 290 feet and the Runway 19 threshold is displaced 641 feet. The runway surface is composed of asphaltic concrete.
- Runway 1-19 is equipped with a Medium-Intensity Runway Lighting system (MIRL).
- Runway 1 is equipped with an AVASI-L (angle 4.95°); Runway 19 is equipped with an AVASI-R (angle 4.5°) and REIL. The runway has Basic/Visual markings and signs.
- A full-length paved continuous drift-off area and parallel taxiway are located on the east side of Runway 1-19. A holding bay/runup area is located at the entrance to each runway approach end.
- There are numerous penetrations of the Airport's FAR Part 77 approach and transitional surfaces.
- A Rotating Beacon (white-green) is located in the east-central portion of the airfield.

Building Area

- Located entirely to the east side of the runway/taxiway system.
- Aircraft parking and storage facilities:
  - 315 aircraft tiedowns (including 28 designated for transient airplanes and 5 for transient helicopters)
  - 274 aircraft storage units, a mix of conventional, T-hangar, and box types.
  - 310 automobile parking spaces in the various fixed base operations areas.
- Major aviation-related businesses/facilities:
  - FAA-staffed air traffic control tower (operates daily 1430Z-0500Z).
  - Four conventional fixed base operations hangars with automobile parking areas.
  - County operations/maintenance facility (office/garage and storage yard) located in easternmost corner of airport property.
  - Underground aviation fuel storage and dispensing facilities located in the center of the apron area.
  - Airport users' rest room facilities located throughout hangar areas.
  - Aircraft washrack located adjacent to eastern boundary.
  - Compass calibration rose in northeast corner of Airport.

AIR TRAFFIC PROCEDURES

Visual Procedures

- Traffic Pattern:
  - Pattern altitude is 1,300 feet MSL (approx. 1,000 feet above airport elevation).
  - Non-standard right pattern for Runway 19 fixed-wing aircraft traffic.
  - Helicopters utilize a traffic pattern-based approach/departure procedure.
  - Prevailing wind direction favors Runway 19 approximately 90% of the time.

Instrument Procedures

- Three "circle-to-land" nonprecision instrument approach procedures serve the Airport.
  - VOR or GPS-A: Lowest minimums are 484 feet AGL/1 statute mile visibility.
  - VOR DME or GPS-B: Lowest minimums are 1,044 feet AGL/1.25 statute mile visibility.
  - NDB or GPS-C: Lowest minimums are 664 feet AGL/1 statute mile visibility.
- A non-directional radio beacon (NDB) is located on the Airport – EL MONTE NDB (MHW) @ 359 kHz "EMT".
- Aircraft are permitted to depart the Airport under IMC via the published IFR Departure Procedure or otherwise in accordance with IFR.

Table 3A

Airport Profile

El Monte Airport

AIR TRAFFIC PROCEDURES - continued

Airspace

- The Class B airspace associated with Los Angeles International Airport is located 1.5 statute miles south of El Monte Airport from 3,704 feet to 12,204 feet above airport surface.
- El Monte Airport is located within the Los Angeles 30 NM Mode C Requirement Area.
- Located within 8 miles of El Monte Airport is Class C airspace for Burbank-Glendale-Pasadena Airport.

On-Site Supervision

- COMARCO employees are on duty at the Airport 24 hours per day – 365 days per year.
- Additional administrative support is available through the Los Angeles County Aviation Division.

Fixed Base Operations

- Eight fixed base operators are located at the Airport.
- Services provided include: fixed-wing and rotary-wing aircraft rental, flight and ground instruction, aircraft maintenance and repair, aircraft engine maintenance and overhaul, avionics, aircraft sales, pilot supplies, air freight, and aircraft charter.

Aviation Fuel Service

- COMARCO dispenses all aviation fuel on the Airport.
- Available fuel grades are 100LL aviation gasoline and Jet-A turbine fuel.
- Fuel is dispensed from a fixed location in the central apron area (100LL) and via refueler truck (100LL and Jet-A).

Emergency Services and Security

- On-site surveillance, security, and initial emergency response is provided by COMARCO airport staff.
- Local police and fire response provided by City of El Monte.

ENVIRONS

Topography

- Airport elevation is 296 feet above Mean Sea Level.
- Terrain slopes upwards to the north.

Design Temperature

- Mean-maximum, hottest month: 92.8°F.

Ground Access

- Airport located adjacent to Santa Anita Avenue between Lower Azuza Road and Valley Boulevard.
- Airport located 1.5 miles from Interstate Highway 10 and nearby Interstate Highways 605 and 210.
- Airport is served by three controlled-access gates – two off Santa Anita Avenue, and one off Emery Avenue.

Ground Transportation

- No direct public ground transportation to/from the Airport.
- Taxicabs and rental cars are available at the Airport through prior arrangement.
- Metro-Link light rail and RTD bus service stations are located 2 blocks from the Airport.

Jurisdiction

- Airport is located entirely within the City of El Monte in the County of Los Angeles.

Source: Compiled by Hodges & Shutt (January 1994)

Table 3A - Continued

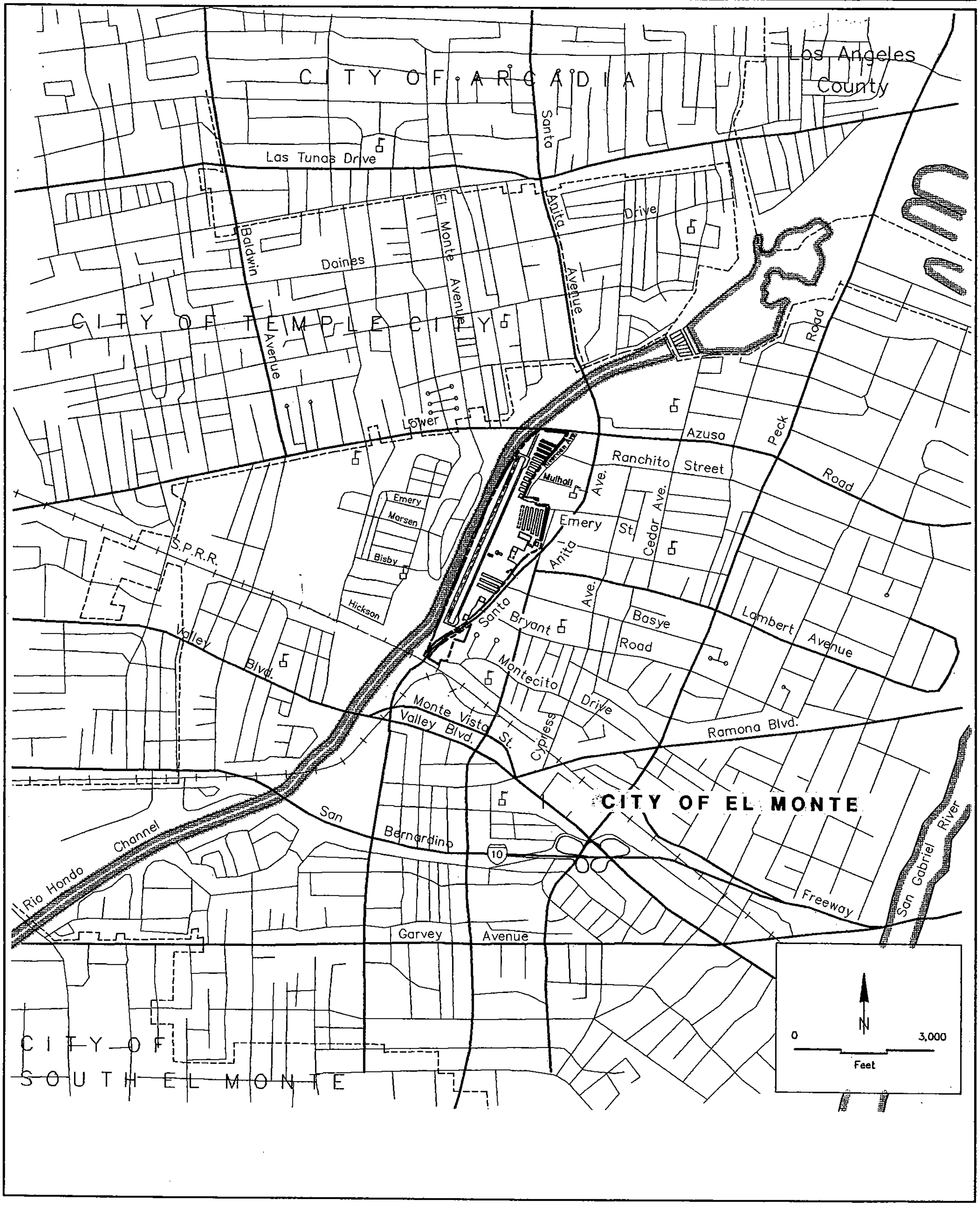


Figure 3A

Airport Vicinity

El Monte Airport

Figure 3B

Airport Aerial View

El Monte Airport

Airport Development

Operational History

General aviation is defined as all civil aviation activity except commercial air carrier operations.

El Monte Airport has been located at its present site for almost 60 years. The Airport was initially established in 1936 by Mr. Nick Lentine on 35 acres of land in the old Rio Hondo Riverbed. During World War II, the Airport, like many other similar facilities, was temporarily closed for national security purposes. After the war, El Monte Airport was re-opened and operated as a privately owned, public-use general aviation facility. In 1965, the County of Los Angeles entered into a lease agreement with the then owner, Mr. Robert Wanamaker, and took over the operation of the field. This action was taken by the County to preserve the Airport for future public aviation use.

The County acquired El Monte Airport in the late 1960's and soon thereafter began to improve both airport services and facilities. Over the past 25 years, the County has expended federal, state, county, and airport funds to further develop and improve the Airport to its current configuration and condition. The Airport is currently one of five general aviation airports owned by the County of Los Angeles.

Updated 1994 aviation activity counts for El Monte Airport are as follows:

- 440 Based Aircraft
- 186,000 Annual Operations

Throughout its 58-year operating history, El Monte Airport has actively accommodated both based and transient general aviation aircraft. By the end of 1993, 475 aircraft were based at the Airport. Based and transient aircraft generated approximately 186,300 annual takeoffs and landings at El Monte Airport in 1993.

Airfield Facilities

El Monte Airport has only one runway. Runway 1-19 is 3,995 feet long and 75 feet wide. Due to off-airport obstacles, each runway end is characterized by a displaced threshold. The runway's asphaltic-concrete construction has a published weight bearing capacity of 12,500 pounds for airplanes with single-wheel landing gear. Runway 1-19 is equipped with medium-intensity runway lights and visual approach aids. The runway is served by a paved full-length parallel taxiway with a paved continuous drift-off area in lieu of the more typical runway exit taxiway configuration. A holding bay/runup area is located at the entrance to each runway approach end. The runway is marked and signed in accordance with Basic/Visual approach criteria.

A detailed listing of existing facilities at El Monte Airport is provided in Appendix A of this report. Figure 3B presents an aerial view of the Airport and its immediate environs.

Three nonprecision instrument approach procedures have been established to guide properly equipped aircraft to the Airport environs during periods of inclement weather. These three procedures are summarized in Table 3A. Each of the instrument approach procedures utilizes a different navigational aid for directional guidance. The lowest available instrument approach minimums are associated with the VOR or GPS-A nonprecision procedure and are currently established at 484 feet above airport elevation and 1 statute mile visibility. All of the approaches terminate in a *circle-to-land* or *visual* operation. Because of the region's typically hazy/smoggy weather, the Airport's three instrument approach procedures see frequent use.

In late 1994, El Monte Airport's instrument approach capability was enhanced with the implementation of GPS *overlay* approaches. This nationwide overlay program permits suitably equipped aircraft to conduct certain nonprecision instrument approaches to airports using GPS (Global Positioning System) guidance and procedures. The three nonprecision instrument approach procedures at El Monte Airport are FAA-approved Phase Three GPS overlay approaches.

Building Area Facilities

An inventory and description of El Monte Airport's building area facilities is presented in Appendix A.

The majority of structures at the El Monte Airport are aircraft storage hangars. Interior storage for approximately 274 aircraft is provided within these storage hangars. In addition, there are five conventional-style, fixed base operator-type (FBO) hangars totaling approximately 40,000 square feet. There are no public terminal facilities other than those provided by the FBOs. Airport tenant-accessible rest rooms are located in the various hangar areas.

Aircraft tiedown/parking facilities are located throughout the Airport's building area. Approximately 315 aircraft tiedown/parking positions are available for use at the Airport. Approximately 61% of the available based aircraft tiedown positions are currently in use.

Also located on the Airport is an FAA-staffed and operated air traffic control tower. This facility is operated on a part-time basis daily from 6:30 a.m. local time through 9 p.m. local time. Airport weather information is provided 24 hours per day through control tower personnel and contract weather observers.

Other on-airport facilities and structures include:

- Aviation fueling facility (including underground storage tanks, island-based dispensing equipment, and attendant kiosk)
- Aircraft wash rack
- Electrical vaults
- County maintenance garage/yard
- Civil Air Patrol office/storage trailer
- Security fencing, gating, lighting, and signing
- Various automobile parking areas

The Airport owns a 5-acre parcel of undeveloped land located to the southeast of the Runway 1 approach threshold. This parcel is physically separated from the Airport by Santa Anita Avenue.

Airport Management and Operations

County of Los Angeles

El Monte Airport is owned by the County of Los Angeles. The administration and major capital development of the Airport is the responsibility of the County's Department of Public Works – Aviation Division. El Monte Airport is one of five general aviation airports owned by the County.

The ten-member Los Angeles County Aviation Commission meets monthly to work with County staff and to advise the County Board of Supervisors regarding the operation and development of the County's airport system. All final policy decisions are the responsibility of the Los Angeles County Board of Supervisors.

COMARCO

Since April 1991, the day-to-day management, operation, and development of the Airport have been provided by COMARCO – a private management services firm working under contract to the County. COMARCO operates all five County-owned airports under the terms of a 20-year operating agreement. Under this arrangement, the County retains administrative oversight and major capital project funding responsibilities, and COMARCO is responsible for the operation, maintenance, and development of the facilities.

An airport manager and supporting staff of 10 COMARCO employees are normally stationed at the Airport. The on-site COMARCO airport personnel are further supported by COMARCO administrative and technical staff based throughout the County airport system. COMARCO airport personnel stationed at the Airport are responsible for airport management, operations, and maintenance. COMARCO personnel dispense aviation fuel at the Airport. COMARCO personnel also provide the Airport's initial response to on-airport emergencies. A County-owned emergency response vehicle (Ansul unit with 100 gallons of AFFF foam and 450 pounds of Purple K) is stationed near the aviation fueling facility. COMARCO personnel are present at the Airport on a 24-hours-per-day, 365-days-per-year basis.

Aeronautical Service Providers

El Monte Airport's numerous fixed base operators and specialty service operators offer a variety of general aviation services to the public including aircraft rental, flight and ground instruction, aircraft maintenance and repair, aircraft engine maintenance and overhaul, avionics, aircraft sales, aircraft charter, air freight/package delivery, pilot supplies, and auto rental. The above services are offered primarily in support of fixed-wing

A *fixed base operation* is a business operating at an airport that provides one or more aviation services to the general public. Such services may include, but are not limited to, sale of aviation fuel and oil; new and used aircraft sales; aircraft rental, maintenance, and repair; parking, tiedown, and/or storage of aircraft; flight and ground instruction; air taxi/charter operations; and *specialty services*, such as instrument and avionics maintenance, aircraft painting and upholstery, engine overhaul, aerial application, and aerial photography.

airplanes. However, increasing helicopter activity in the Los Angeles Basin is generating new helicopter-related business interest among the Airport's various fixed base operators.

Most of the Airport's fixed base operations are conducted from dedicated conventional hangars. One fairly recent fixed base operation, Universal Air Academy, is utilizing an on-airport office trailer and adjacent ramp area for its operations.

Tiedown space rental for both based and transient aircraft is provided by the County and administered by COMARCO. The County and the private sector provide a mix of individual aircraft storage hangars – both *T* type and *box* type. As noted previously, aviation fuel (100LL and Jet-A) is dispensed by COMARCO personnel.

There is no scheduled commercial air carrier or commuter air service at El Monte Airport at the present time.

Federal Aviation Administration

The FAA operates a VFR-Level II air traffic control tower at El Monte Airport. In-flight IFR coordination in the El Monte area is provided by the FAA's Ontario Approach Control. Other than the air traffic control tower facility itself, the FAA has no on-airport maintenance responsibilities.

AERONAUTICAL SETTING

Area Airports

Due to the high population density and extensive commercial/industrial development in the greater Los Angeles metropolitan area, a relatively large number of airports are located in the vicinity of El Monte Airport. Table 3B briefly describes the 14 airports – public, private, and military – located within 25 statute miles of El Monte Airport. Of these 14 airports, 12 are available for public use. It is anticipated that these 12 airports will continue to serve as public-use aviation-related facilities throughout the 20-year master planning period. No new airports are expected to be developed within the subject area.

As the listing in Table 3B indicates, a number of these area airports are large, busy metropolitan airports serving complex, high-performance air carrier and general aviation aircraft. Fullerton Municipal, Compton, Brackett Field, Whiteman, and Chino airports serve somewhat the same general aviation markets as does El Monte Airport. The nearest public-use airport to El Monte is Brackett Field, a County-owned general avi-

Airport	Location			Owner	Based Aircraft	Facilities[2]					Services[3]						
	Community	County	Direction[1]			Rwys	Long	Surf	Lgt	Appr	Gas	Jet	Mntn	Rent	Food	ATCT	Psgr
PUBLIC-USE AIRPORTS																	
El Monte	*El Monte*	*Los Angeles*	–	*Public*	*475*	*1*	*3,995*	*Asph*	*Yes*	*NP*	X	X	X	X	–	X	–
Brackett Field	LaVerne	Los Angeles	14 E	Public	484	2	4,839	Asph	Yes	Pre	X	X	X	X	X	X	–
Burbank-Glendale-Pasadena	Burbank	Los Angeles	20 NW	Public	327	2	6,902	Asph	Yes	Pre	X	X	X	X	X	X	X
Chino	Chino	San Bernardino	23 SE	Public	881	2	6,221	Asph	Yes	Pre	X	X	X	X	X	X	–
Compton	Compton	Los Angeles	18 SW	Public	352	2	3,670	Asph	Yes	Vis	X	–	X	X	–	–	–
Fullerton	Fullerton	Orange	15 S	Public	575	3	3,121	Asph	Yes	NP	X	X	X	X	X	X	–
Hawthorne	Hawthorne	Los Angeles	20 SW	Public	307	1	4,956	Conc	Yes	NP	X	–	X	X	X	X	–
Long Beach	Long Beach	Los Angeles	20 SSW	Public	700	5	10,000	Asph	Yes	Pre	X	X	X	X	X	X	X
Los Alamitos AAF	Los Alamitos	Orange	20 S	Mil	–	–	–	–	–	–	–	–	–	–	–	–	–
Los Angeles Int'l	Los Angeles	Los Angeles	23 WSW	Public	22	4	12,091	Conc	Yes	Pre	X	X	X	–	X	X	X
Ontario Int'l	Ontario	San Bernardino	25 E	Public	45	2	12,200	Conc	Yes	Pre	X	X	X	X	X	X	X
Santa Monica	Santa Monica	Los Angeles	25 W	Public	552	1	4,987	Asph	Yes	NP	X	X	X	X	X	X	–
Whiteman	Pacoima	Los Angeles	24 NW	Public	665	1	3,725	Asph	Yes	Vis	X	–	X	X	X	X	–
PRIVATELY-OWNED AIRPORTS																	
Cable	Upland	San Bernardino	20 E	Private	437	1	3,779	Asph	Yes	NP	X	–	X	X	X	–	–
Shepherd (Prvt. Use)	Los Angeles	Los Angeles	5 S	Private	–	1	2,700	Asph	No	Vis	–	–	–	–	–	–	–

[1] Distance (in Statute Miles) and Direction from El Monte Airport.

[2] Facilities:
- Rwys = Number of Runways
- Long = Length of Longest Runway (feet)
- Surf = Runway Surface (concrete/asphalt)
- Lgt = Runway Lighted (yes/no)
- Appr = Approach Type (precision/nonprecision/visual)

[3] Services:
- Gas = Aviation Gasoline
- Jet = Jet Fuel
- Mntn = Aircraft Maintenance
- Rent = Aircraft Rental
- Food = Restaurant
- ATCT = Air Traffic Control Tower
- Psgr = Scheduled Passenger Airline Service

Source: Hodges & Shutt (January 1994)

Table 3B

Area Airports

El Monte Airport

GEOGRAPHY

Location
- North-central portion of Los Angeles County.
- Approximately 10 miles east of central Los Angeles.

Size
- The City of El Monte encompasses 9.78 square miles.

Topography
- El Monte lies in the San Gabriel Valley where elevations are as low as 200 feet along the San Gabriel River.
- The San Gabriel Mountains, which run east to west just north of El Monte, rise to over 10,000 feet.

CLIMATE

Temperatures
- Hottest month (August)
  - –Average high: 89° F.
  - –Average low: 61° F.
- Coldest month (January)
  - –Average high: 68° F.
  - –Average low: 55° F.

Precipitation
- Average annual precipitation - 17.8 inches.

Winds
- Prevailing winds from the south (90%).

SURFACE TRANSPORTATION

Major Highways
- Primary access is the San Bernardino Freeway (I-10).
- The Pomona Freeway (I-60), the San Gabriel River Freeway (I-605), and the Foothill Freeway (I-210), provide rapid, easy access from El Monte to any point in the Los Angeles area.

Railroads and Public Transportation
- Metro-Link commuter train system provides access to Los Angeles, Riverside, San Bernardino, Santa Clara, and Ventura County.
- RTD EL Monte Bus Terminal is accessible by feeder buslines or cars with destinations throughout Los Angeles and Orange Counties.

POPULATION AND ECONOMY

Current Population (1993)
- Los Angeles County: 9,158,400
- City of El Monte: 109,796

Basis of Economy
- The two largest employment sectors are the retail and service industry, and manufacturing.

(Source: El Monte/South El Monte Chamber of Commerce.)

Source: Hodges & Shutt (January 1994)

Table 3-3

Community Profile
El Monte Area

Figure 3-3

Area Airports and Airspace

El Monte Airport

ation facility, located approximately 14 statute miles east of El Monte Airport. All of these public-use airports offer a wide range of sophisticated aviation services and capabilities.

Area Airspace

The primary components of the airspace in the vicinity of El Monte Airport are depicted in Figure 3C. Not surprisingly, the airspace is relatively complex – typical for a major metropolitan area with numerous busy airports. The significant airspace features presently impacting El Monte Airport operations include:

- **Class G (Uncontrolled) Airspace** – Exists at El Monte Airport from the surface to 700 feet AGL when Class D airspace is not in effect.

- **Class D (Tower Controlled) Airspace** – Exists at El Monte Airport from the surface to 2,500 feet AGL when the El Monte Airport air traffic control tower is operational (Daily 6:30 a.m. local time through 9 p.m. local time).

- **Class E (Controlled) Airspace** – Overlies El Monte Airport from 2,500 feet AGL to 14,500 feet MSL when Class D airspace is in effect and from 700 feet AGL to 14,500 feet MSL otherwise.

- **Class B (formerly the Los Angeles Terminal Control Area) Airspace** – Located 1.5 statute miles south of El Monte Airport from 4,000 feet MSL through 12,500 feet MSL (i.e., between 3,704 feet and 12,204 feet above the Airport's surface).

- **Los Angeles 30 NM Mode C Requirement Area** – El Monte Airport lies within this area and, as a result, virtually all aircraft operating to/from El Monte Airport must be equipped with an operating Mode C transponder (i.e., transponder with automatic altitude reporting capability).

In addition, Class C and D airspace associated with Burbank-Glendale-Pasadena Airport, Ontario International Airport, and Brackett Field lie within 8-10 statute miles of El Monte Airport. Aircraft operating to/from El Monte Airport must remain clear of Class C and D airspace until communications have been established with Air Traffic Control and an air traffic clearance/acknowledgement is received.

Area Weather Conditions

El Monte Airport is located in an area of the Los Angeles Basin that is popularly characterized as having relatively good weather. The El Monte area typically has less marine layer cloudiness, less fog/smog, less wind, and greater visibility than other areas of the Los Angeles Basin. Accordingly, El Monte Airport is used by a number of general aviation aircraft operators as an alternate when other Basin airports are experiencing marginal weather conditions.

Airport Safety Record

A review of an airport's historical safety record can provide valuable insight into the location of airport hazards and the need for physical or operational improvements to mitigate those hazards.

Data from the National Transportation Safety Board (NTSB) reveals that a total of 17 reported aircraft accidents and lesser incidents have occurred at El Monte Airport since 1982. These accidents and incidents are summarized in Appendix B. There is no indication that airport facilities or operational procedures contributed to any of these events.

COMMUNITY PROFILE

The functioning of any airport is interrelated in two basic ways with the community in which it is located:

- Economically — The demand for aviation facilities and services is generated by the local community and the airport, in turn, produces economic benefits for the community.
- Physically — Airport activities have environmental effects upon the airport's surroundings and the characteristics of these surroundings also affect how an airport functions.

A recognition and general understanding of the local community, as highlighted here and in Table 3C, is essential to the preparation of an airport master plan.

The area surrounding El Monte Airport is comprised of high-density single-and multi-family residences and commercial/industrial development. Virtually no undeveloped property remains. A public elementary school is located adjacent to the Airport's northeast corner. In addition, several other schools are located within two miles of the Airport. Much of the development in the area dates back to the 1960's and 1970's. The only relatively new development has been to the east and north of the Airport — primarily commercial offices/buildings and warehouses.

The Airport and surrounding community have co-existed in relative harmony throughout the past 58 years. With the exception of a few specific areas (notably the high-density mobile home park located immediately to the north of the Airport), aircraft noise impacts have not been a significant environmental issue at El Monte Airport.

PREVIOUS AIRPORT PLANS AND STUDIES

Apart from its inclusion in regional and system-wide Los Angeles area airport studies, El Monte Airport has not been the subject of any specific planning study. A set of noise contours was developed for El Monte Airport as part of the Los Angeles County Airports Noise Study in 1972. In 1991, an analysis of the potential costs associated with closing down and relocating El Monte Airport was conducted by County staff. The analysis estimated that the cost of closing down and relocating El Monte Airport was $124 million.

The Airport's existing Airport Layout Plan was prepared by the Los Angeles County Department of Public Works in December 1986 and last revised in 1989. The existing Airport Layout Plan is superseded by the new *Airport Layout Plan* presented herein.

This *El Monte Airport Master Plan Report (1994)* is the first comprehensive contemporary study of the Airport — its functional role, operations, configuration, and development.

AIRPORT USER QUESTIONNAIRE RESULTS

An important early element of the *Master Plan* was to obtain the views and comments of airport users and prospective users regarding the need for improvements or service enhancements at El Monte Airport. In May 1993, an Airport User Questionnaire was prepared and distributed to all airport users and tenants of record. The objective and distribution of the questionnaire is briefly described below and prominent findings are noted. The complete tabulated results are included in Appendix C.

The Airport User Questionnaire received wide distribution, including owners of aircraft based at the Airport and pilots who rent aircraft locally, as well as a sampling of transient pilots visiting the Airport. Approximately 500 questionnaires were distributed with a 30+% response rate. This response rate is considered to be very good for this type of questionnaire. This above-average response rate indicates an active and interested airport user group. Some of the more noteworthy findings and results of this survey are as follows:

- 96% of the respondents were users of aircraft based at El Monte Airport. 74% were the sole owner of the aircraft, 15% owned aircraft jointly with others, and 10% used company aircraft.

- The median usage level was 50 landings per year at El Monte Airport. 38% of the respondents said they occasionally use El Monte Airport for "touch-and-goes."

- 60% indicated that the majority of their flying was for pleasure and recreational purposes; company business and personal business accounted for 35%, while flight training accounted for 5%.

- 27% of the respondents' aircraft are certified for IFR operation — 31% of the respondent pilots are IFR current.

- The top factors positively influencing the users' choice of El Monte Airport as a base or destination airport were, in rank order:

  1. Close to home/friends/relatives
  2. Easy to fly to/from Airport
  3. Good runway/taxiway system
  4. Friendly atmosphere

- The airport facilities and services marked by a majority of the respondents as needing the most improvement or to be provided were:

  1. On-airport restaurant/coffee shop
  2. Enhanced instrument approach capability
  3. Lower fuel prices
  4. Pilot facilities (passenger lounge, flight planning area, rest rooms, etc.)
  5. Improved maintenance of rest rooms and hangars
  6. Other FBO services

- 50% of the respondents would like El Monte Airport to continue to serve the same types of aircraft as it serves at present but expand its facilities and services, 27% would like to see the Airport remain essentially "as is," and 22% would like to see the Airport expanded to attract greater use by corporate aircraft.

4

Airport Role and Activity

4

Airport Role and Activity

AIRPORT ROLE

Present

Categories of General Aviation Flying

- *Personal/Recreational Flying* – The use of aircraft by individuals (in their own, rented, or borrowed aircraft) for pleasure, recreational, or personal transportation not in furtherance of their occupation or company business.
- *Business Flying* – The use of aircraft by pilots (not receiving direct salary or compensation for piloting) in connection with their occupation, their employer's business, or in the furtherance of private business.
- *Corporate Flying* – The use of aircraft owned or leased, and operated by a corporation or business firm for the transportation of personnel or cargo in furtherance of the corporation's or firm's business, and which are flown by professional pilots receiving a direct salary or compensation for piloting.

El Monte Airport's principal role within the Los Angeles County's regional five-airport system can best be described as providing general aviation facilities and services in support of local communities and businesses. The large majority of aircraft utilizing El Monte Airport do so for personal, business, and flight training purposes. In fulfilling its basic function, the Airport also plays a variety of important individual roles. These roles are characterized as follows:

- **Local Base for Personal Aviation** – To pilots who fly primarily for personal reasons, whether strictly for pleasure and recreation or occasionally on personal business, the enjoyment of flying is usually paramount. Aircraft operating and storage costs and airport/airspace operational complexity are major concerns. Most of these users seek only a simple, relatively inexpensive and hassle-free "friendly" airport which provides for basic general aviation needs. Such users are unlikely to use more advanced facilities to any significant extent and, in most cases, do not want to pay for them. Primarily because of rising aircraft operating costs over the past decade, the number of active personal aviation aircraft owners and pilots has decreased at most general aviation airports, especially in urban areas. Only in the last two or three years has personal use of general aviation aircraft begun to rebound somewhat. El Monte Airport has been unusual in this regard in that the Airport's personal aviation pilots have remained a relatively large and active user group.

  The importance of personal aviation, and especially pleasure and recreational flying at El Monte Airport, is also evident from the results of the user survey conducted as part of the *Master Plan*. Some 59% of the El Monte-based pilots responding to the questionnaire indicate that they use their airplane a majority of the time for pleasure and recreational purposes. In addition, the "friendly atmosphere" of El Monte Airport was noted by the respondents as a primary factor influencing their selection of the Airport as a base or destination.

- **Point of Access for Pleasure and Recreational Visitors to the Community** — Pilots who fly for pleasure and recreation like to fly to places which are interesting and enjoyable to visit. The popularity of the Los Angeles metropolitan area as a tourist destination attracts pilots from other communities. These pilots' aeronautical facility needs are largely similar to the local personal aviation flyers. Ideally, facilities used by visitors should be designed to somewhat higher standards — a minimum of confusing taxiways, increased use of signs, greater airplane wingtip clearance in apron areas, etc. — to account for many visiting pilots' unfamiliarity with the Airport. In addition, visiting pilots need aviation and nonaviation services — readily available aircraft fuel and servicing, 24-hour publicly accessible rest rooms, local tourist information, ground transportation, emergency aircraft maintenance, convenient restaurant/coffee shop, etc. — which make their visit more pleasant and convenient.

A summary of the airport users' questionnaire responses is presented in Appendix C.

- **Transportation Facility for Business/Corporate Aviation** — According to the user questionnaire results, over 23% of pilots use El Monte Airport a majority of the time for business-related purposes. To the extent that the Airport is used for business flying, the nature of the demand fits well with the capabilities of the facility. With a few exceptions, business aircraft users of El Monte Airport are small to mid-sized companies which typically fly small general aviation aircraft of the kind El Monte Airport is designed to accommodate. One improvement of particular interest to pilots who use the Airport for business purposes is an enhanced instrument approach. Although many pilots who do not fly on business would also like to have a better instrument approach, the interest is greater among those who fly for business reasons.

- **Location to Conduct Aviation-Related Business** — In addition to serving the business community and other users, El Monte Airport is itself a place of business. Currently, a number of aviation and airport-related businesses are located at the Airport on land leased from the County. These businesses provide a wide range of services to the users of general aviation aircraft as well as to the public in general. Also, these businesses contribute to the economic base of the community. The principal facility need of the Airport's fixed base operations and other aviation-related businesses is for sufficient land on which to conduct and perhaps expand their businesses. In addition, they require an airport which is conducive to both locally-based and transient aircraft activity. Given the marginal nature of most fixed base operations in these days of limited general aviation growth, the cost of their leases and any additional fees or restrictions are important concerns.

- **Place to Practice Takeoffs and Landings** – El Monte Airport sees considerable flight training activity – both by based and transient aircraft users. El Monte Airport's relatively simple airspace (at least in comparison to other Los Angeles Basin airports) and better-than-average weather conditions provide an operating environment which is conducive to both basic and advanced flight training activity.

- **Site for Emergency Access to the Community** – Following calamities such as a major earthquake, fire, or flood, airports are often of critical importance as points of community access for emergency and relief services. In addition, when regional ground access routes (i.e., roads, highways, interstates, and rail lines) are severed transportation by air may be the only means of effectively moving about. It is essential that airport facilities remain operational or can quickly become operational after such events. In these emergency circumstances, airports often see use by aircraft that are larger than those normally accommodated. It is also vital that the airport have usable local ground access to the surrounding community. El Monte Airport is well positioned in this regard, thus making this operational role an important one.

  El Monte Airport also sees occasional use as a primary support base for aerial forest fire fighting operations in the Los Angeles area. The Airport most recently played this important community support role during the August 1994 Mt. Baldy forest fire.

- **Potential Scheduled Air Passenger Service Point** – From time-to-time over the past few decades, the concept of using El Monte Airport for scheduled air passenger service has been proposed. In fact, during the period 1967 through 1970, Aero Commuter and Golden West Airlines offered scheduled air passenger service to/from El Monte Airport. Neither of these commercial services was a financial success, however, and both eventually ceased operations. There is no scheduled air passenger service at the Airport at the present time. The Airport's configuration and facilities do not readily lend themselves to scheduled air passenger service by any but the smallest (i.e., under 12,500 pounds MGTOW) aircraft. It is unlikely that scheduled air passenger service will be a significant factor in the operation and development of El Monte Airport over the 20-year planning period.

Future

For the foreseeable future, it is anticipated that the operational role of El Monte Airport will remain essentially the same as at present. That is, the Airport will continue to serve as a base of operations and destination for personal/recreational and business/corporate general aviation aircraft. Flight training operations will continue to contribute to the Airport's overall activity. In addition, operators of business/corporate aircraft of the single-engine and light twin-engine class will make increasing use of

El Monte Airport as an alternate to the larger, more operationally complex airports in the area (e.g., Los Angeles International Airport, Van Nuys Airport, Burbank-Glendale-Pasadena Airport, etc.). Due to the increasing cost and complexity of general aviation operations in urban areas, it can be anticipated that the Airport user population will experience a shift towards more highly-utilized, better-equipped, and more sophisticated general aviation aircraft in the next 5-10 years.

Supplementing this fixed-wing aircraft activity at El Monte Airport will be an increase in helicopter activity, particularly flight training and air charter operations by El Monte Airport fixed base operators. Additional helicopter activity may be generated by local municipalities who choose to base their public-service (i.e., police, fire, emergency response, and community support) helicopters at El Monte Airport. Also, the Airport will see occasional use by transient military/government helicopters – primarily stopping to refuel.

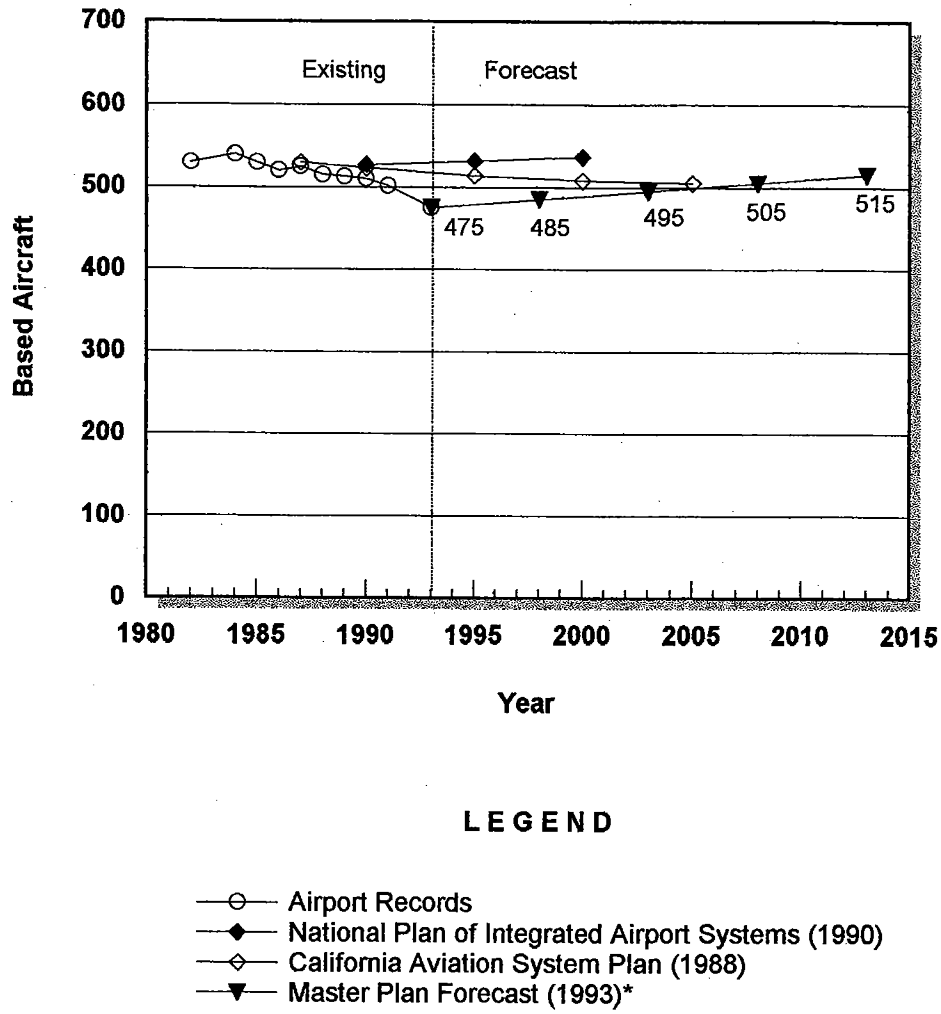
Beyond the *Master Plan's* 20-year time frame, it can be anticipated that El Monte Airport will continue to serve as an important public-use aeronautical facility for the north-central Los Angeles metropolitan area. Although it is difficult to predict the specific aeronautical role and use of the Airport beyond the year 2013, it can be anticipated that the Airport property, facilities, and capabilities will prove to be of considerable value and utility to the Los Angeles and El Monte communities in responding to future public air transportation needs.

HISTORICAL AIRPORT ACTIVITY

Based Aircraft

Total Aircraft Counts

The number of aircraft based at El Monte Airport has decreased over the past 10 years (1983 through 1993) from a high count of 540 in 1984 to the current low count of 475 in 1993. Factors which have influenced this decline in El Monte Airport's based aircraft include the pervasive national and regional decreases in general aviation activity, particularly in the personal/ recreational aircraft market segment, and the increasing complexity and costs associated with general aviation aircraft operations in high-density urban areas. Figure 4A illustrates the historical based aircraft count at El Monte Airport for the years 1982 through 1993.



* "Master Plan Forecast (1993)" reflects a 0.4% compounded annual rate of growth.

Figure 4A

Based Aircraft

El Monte Airport

Aircraft Types

As is typical of most general aviation airports, the dominant type of aircraft based at El Monte Airport is the single-engine, propeller-driven, piston-powered airplane – comprising approximately 94% of the total. Twin-engine, propeller-driven, piston-powered airplanes based at the Airport comprise 5% of the total. The remaining 1% consists of helicopters – primarily light helicopters of the R-22 and Hughes 500 class. In addition, two turbine-powered helicopters are currently based at the Airport.

Aircraft Ownership Distribution

The based aircraft users of El Monte Airport are predominantly Los Angeles County residents or businesses. According to the County's listing of based aircraft owners, 92% of the based-aircraft are registered to owners from the Los Angeles County area, with more than 15% of the Airport's based aircraft registered to residents and businesses located in the City of El Monte.

Aircraft Operations

For the purposes of recording airport activity, an *operation* is considered to be a takeoff or a landing. A *touch and go* is recorded as two operations.

The principal method of estimating annual aircraft operational activity at El Monte Airport is via the FAA's air traffic control tower records. These records can be supplemented by the County's monthly airport operational reports and FAA *Airport Master Record* data.

As can be seen in Figure 4B, the number of annual aircraft operations at El Monte Airport has been relatively consistent – around 185,000 – since 1983. Prior to 1983, the annual operations counts were somewhat higher reflecting the dramatic growth period that characterized general aviation during the mid-to-late-1970s. The annual aircraft operations count for 1993 was 186,302.

Distribution of Activity

The historical distribution of operational activity (i.e., day/night, VFR/IFR, local/itinerant) can be estimated from air traffic control tower records and the experience of on-airport personnel. Airport management and tower representatives estimate that less than 10% of the total aircraft operations occur between sunset and sunrise. The large majority of operations at El Monte Airport are conducted during daylight hours. This distribution is consistent with activity indices at comparable general aviation airports.

Approximately 9,600 instrument approaches to El Monte Airport were recorded by the FAA's Ontario Approach Control during 1993. A num-

A *Local operation* is defined as an arrival or departure performed by an aircraft: (1) operating in the traffic pattern, (2) known to be departing or arriving from flight in local practice areas, or (3) executing practice instrument approaches at the airport. An *Itinerant operation* is an arrival or departure performed by an aircraft to or from a point beyond the local airport area.

ber of these approaches were accomplished for flight training purposes. This level of annual instrument approach activity is characterized by Airport and tower representatives as "about normal" for El Monte Airport.

A substantial portion of the Airport's annual operations are conducted for flight training or local purposes. This includes operations by both fixed-wing aircraft and helicopters. It is estimated that the existing split between *local* (primarily flight training) and *itinerant* operations is 40%/60%. The majority of the local operations are *touch-and-goes* or *options*.

Fuel Flowage

As depicted in Figure 4C, County records for the period 1986 through 1993 indicate that airport aviation fuel flowage (and, indirectly, based aircraft and aircraft operations) has decreased over the past eight years. This finding is consistent with the historical record of both based aircraft and annual operations. Some of this reduction in fuel flowage, however, may be attributable to the users' perception that El Monte Airport's fuel prices are slightly higher than at nearby airports. Personal and recreational aircraft users tend to be very price-sensitive when it comes to purchasing aviation fuel. They will occasionally purchase lower-priced fuel at outlying airports and *tanker* it to their home base to save money.

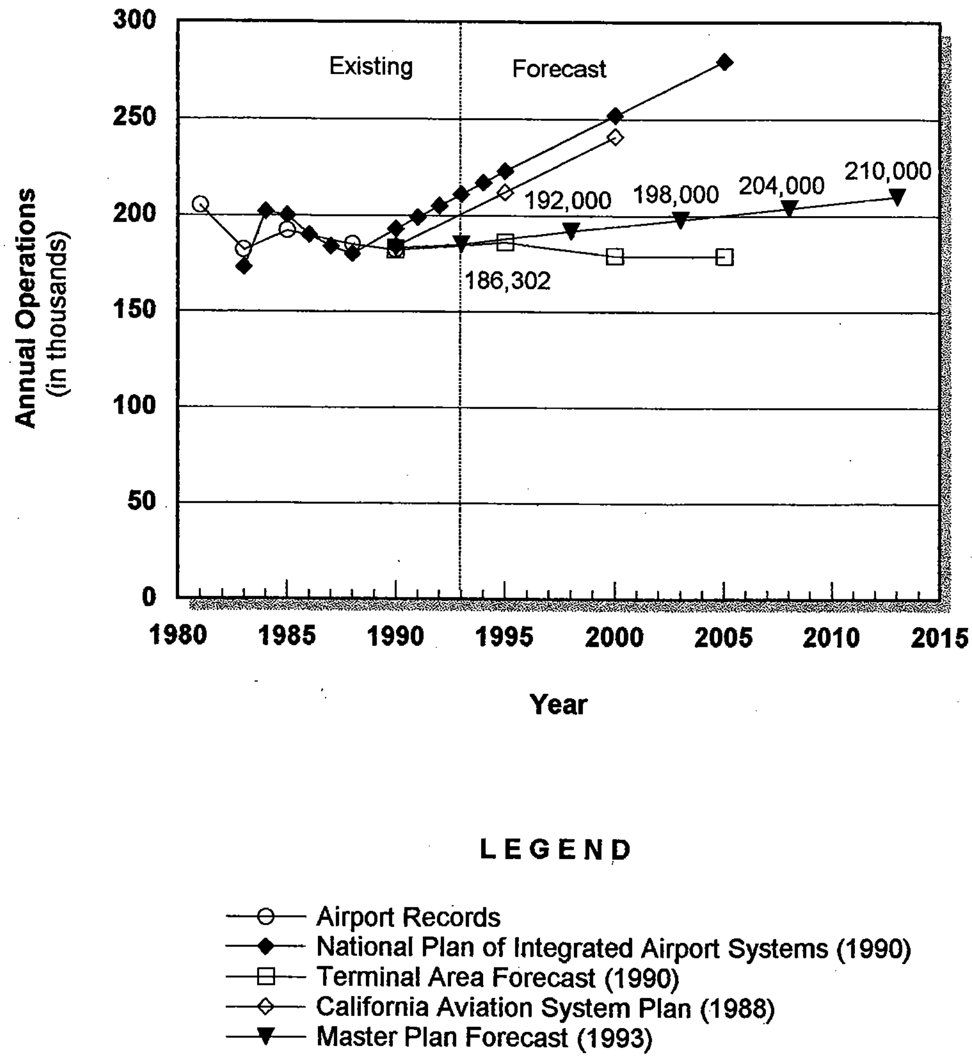
BASED AIRCRAFT DEMAND FORECASTS

Current and future demand for based aircraft parking space in hangars, tiedowns, and transient parking at El Monte Airport is influenced by a variety of factors. Some of these factors are national or regional in character; others are specific to El Monte Airport. Each of these demand factors needs to be considered in the development of based aircraft forecasts for the Airport.

National and Regional Demand Factors

National and regional influences on local based aircraft demand are significant in that they are external influences, beyond the direct control of the Airport. Among these influences are:

- **National Aircraft Growth Trends** – The current nationwide pattern of limited growth in the general aviation fleet is one of the strongest influences on future based aircraft demand in the Southern California region. Less than 5% as many aircraft were built in the U.S. in 1993 as in 1978. Many reasons have been cited for this limited growth trend:



* "Master Plan Forecast (1993)" reflects 0.6 compounded annual rate of growth.

Figure 4B

Annual Operations

El Monte Airport

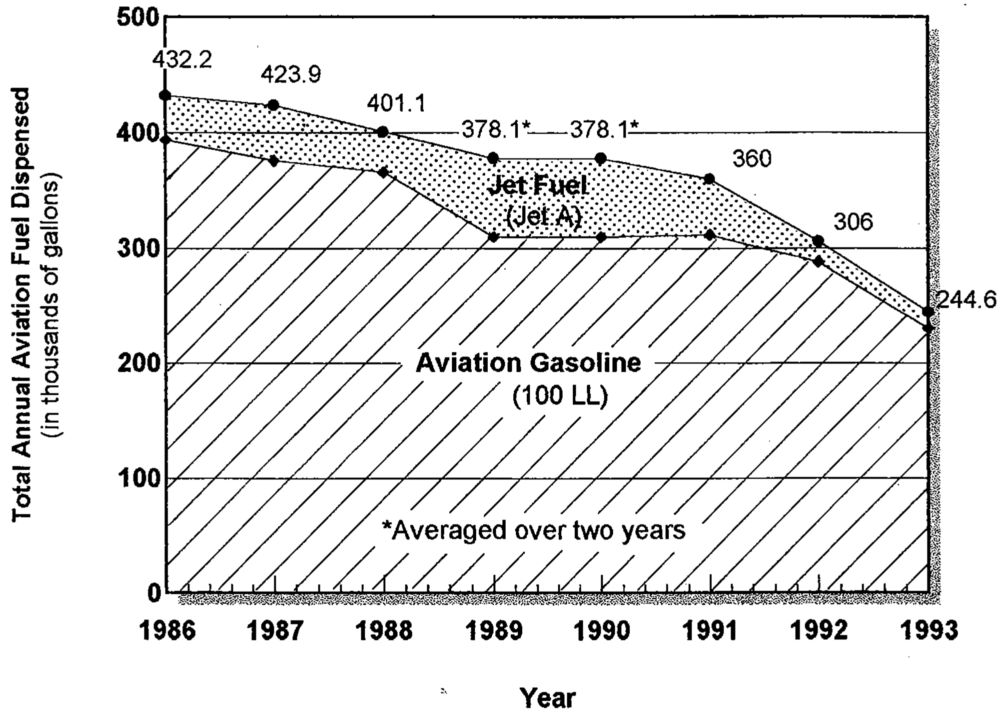


Figure 4C

Annual Aviation Fuel Dispensed

El Monte Airport

- The high cost of new aircraft, partially due to low manufacturing volume and high product liability costs.
- High aircraft operational and maintenance costs.
- Airspace and airport operational restrictions in metropolitan areas.
- The operational complexity of aircraft and of flight regulations.
- The lack of simple, efficient, and comfortable new aircraft.
- The continuing availability of lower-priced used aircraft with performance characteristics that remain comparable to new higher-priced aircraft.

Although some recovery is projected over the next 5 to 10 years, it is expected to be very gradual. Current FAA forecasts (1993) indicate that the nation's active general aviation fleet will grow at an annual rate of only 0.6% over the next 12 years. Active single-engine, piston-powered aircraft are projected to increase at an annual rate of approximately 0.3% during the same period. The strongest area of growth is business and corporate aircraft, especially sophisticated turbine-powered aircraft. This latter group is projected to increase at an annual growth rate of 2.9% over the next 12 years. These national figures vary somewhat by region. The FAA forecasts for the Western-Pacific region, however, indicate that the growth in based aircraft will be similar to that of the country as a whole. By all indices, the rate of growth of general aviation will be very modest in the years ahead.

The obvious consequence of this condition is that for any particular airport to have a significant increase in based aircraft, it must attract more business and corporate aircraft, or it must gain additional personal and recreational based aircraft from other airports. This gain in based aircraft can result from changes in the relative advantages of one airport over another (i.e., additional storage hangars, pricing incentives, IFR approach capability, etc.) or the closure/restriction of a nearby competitive airport.

- **Regional Aircraft Growth Trends** – The number of aircraft based within the Southern California region decreased by approximately 1% between 1984 and 1987. The Southern California Association of Governments (SCAG) forecasts that the number of aircraft based in the SCAG region will increase at an annual rate of 1% for the next 18 years (SCAG - 1987). This overall forecast was broken down into two categories:

  - *Urban Core Airports:* Airports at full capacity and busy, are forecast to lose based aircraft over the next 8 years, and then hold even for the remaining 10 years. El Monte Airport is classified by SCAG as an *Urban Core Airport.*

  - *Fringe and Remote Airports:* Airports with excess capacity and not as busy are projected to grow slowly over the next several years, accelerating to a growth rate of 2% per year from 1995 to 2005.

SCAG is currently updating its forecasts of aviation activity for Southern California. It is anticipated that these updated forecasts will continue to reflect a flat or very slow rate of growth in Southern California's general aviation activity.

Demand Factors Specific to El Monte Airport

The remaining airport-specific demand influences partially overlap the above national and regional demand factors, but are more reflective of the conditions existing at El Monte Airport.

- **Airport Role** – As noted above, the growth potential of one of El Monte Airport's primary user groups – personal and recreational use aircraft – is projected to be very limited. High aircraft operational costs and increasing airspace complexity may cause some marginal personal and recreational aircraft users to dispose of their aircraft or relocate them to other, less costly and less complex facilities – in most cases outside of the Los Angeles Basin.

- **Facilities and Services Available** – Existing facilities and services at El Monte Airport, particularly runway length and approach instrumentation, are somewhat less comprehensive than other public airports in the central Los Angeles area. This is judged to have negative implications with respect to forecasting future demand potential. Because of physical limitations, there is only a modest opportunity to improve El Monte Airport's relative attractiveness to users of sophisticated, high-performance business and corporate aircraft.

- **Demand for Hangar Space** – Increasingly more sophisticated and expensive equipment is being added to aircraft. Thus, more owners are seeking hangar storage space for their aircraft. El Monte Airport currently has the capability of storing 274 aircraft in various hangars on the Airport. It is anticipated that any significant increase in the number of based aircraft will only occur if additional aircraft storage hangars are made available.

- **Airspace/Equipment Complexity** – El Monte Airport is located within the 30-nautical-mile Mode C requirement arc associated with Los Angeles International Airport. Virtually all of the aircraft operating in the vicinity of El Monte Airport are required by federal regulation to be equipped with a Mode C altitude-reporting transponder (only aircraft originally certificated without electrical systems are exempt). This requirement has caused some owners of non-Mode C equipped aircraft to relocate to airports beyond the 30-nautical-mile Mode C arc. In addition, the Class B airspace associated with Los Angeles International Airport is located less than 2 miles south of El Monte Airport. This complex, multi-layered airspace configuration undoubtedly has caused some aircraft owners to relocate their aircraft to outlying, less complex airports. The airspace structure and operating requirements in the vicinity of El Monte Airport are anticipated to become increasingly more complex and restrictive in the years ahead. Potential changes in FAA airspace allocations could result in El Monte Airport being further encroached upon by reconfigured controlled airspace and, at some point in the future, a "Super Class B Area" encompassing much of the Los Angeles Basin's airspace.

- **Nearby Airports** – Burbank-Glendale-Pasadena Airport, Long Beach Airport, Brackett Field, Compton Airport, and Fullerton Municipal Airport are all located within 20 statute miles of El Monte Airport, creating a highly competitive general aviation environment. Four of these airports are well-equipped, public-use facilities capable of serving a wide variety of sophisticated general aviation piston- and turbine-powered aircraft, particularly business and corporate class aircraft. The fifth area airport, Compton Airport, is a non-towered County-owned facility which caters primarily to smaller general aviation aircraft. The availability of such sophisticated nearby facilities has influenced El Monte Airport in two significant ways. Owners of high-performance and well-equipped aircraft generally prefer one of El Monte's competitor airports due to the availability of longer runways, better instrument approach capability, and multiple ground services. Users of low-performance and less well-equipped aircraft view El Monte Airport as a relatively low-cost alternative to the larger, more complex airports.

- **Proximity to Nearby Industry** – Commercial/industrial growth in the El Monte area will have a positive effect on El Monte Airport's aviation activity. Small business and corporate aircraft owners and pilots desiring easy access to the north-central Los Angeles industrial region may choose, runway length and approach instrumentation permitting, to operate to/from El Monte Airport.

- **Public-Service Helicopter Activity** – Two municipalities currently base their police helicopters at El Monte Airport. In addition, the Los Angeles Impact Drug Enforcement unit bases its helicopters at the Airport. Because of the scarcity of suitable helicopter basing areas in the Los Angeles Basin, it is anticipated that additional municipalities will choose to base their public-service helicopters at El Monte Airport. These based public-service helicopters have the potential to generate an increasing number of operations at the Airport.

- **User Perceptions** – Many aircraft users, in particular, personal and recreational aircraft operators, perceive El Monte Airport to be a desirable location for operating or basing an aircraft. El Monte Airport's good weather conditions, relatively less complex operating environment, storage hangar availability, and adequate aeronautical facilities are seen as positive growth factors. In addition, the recent resealing and restriping of the Airport's paved areas has significantly enhanced the overall appearance of the Airport.

Other Based Aircraft Demand Forecasts

Federal, state, and regional forecasts offer another view of possible future based aircraft demand at El Monte Airport. Figure 4A provides a graphic comparison of various based aircraft forecasts for El Monte Airport versus historic activity levels. As can be seen, the various forecasts start from different base year counts and project varying rates of growth. The rapid growth projected by the NPIAS forecast in 1990 was consistent with the general aviation aircraft activity expectations prevalent at the time. The SCAG (1987) and CASP (1988) forecasts project virtually no growth and a loss of based aircraft, respectively, over the next 15 years.

It must be recognized, however, that each of these forecasts is developed in a top-down manner; that is, the forecasts are first determined for the respective geographic area, then allocated to sub-areas and ultimately to individual airports. Particularly at the federal and state levels, little attention is given to the localized conditions that may influence future activity changes at specific airports.

Based Aircraft Demand Conclusions

Despite the projected slow growth trend in national and regional general aviation activity, the *Master Plan* concludes that there is potential for modest growth of El Monte Airport's based aircraft population – both fixed-wing and rotary-wing aircraft. This assumes that the Airport's facilities and services are appropriately improved, instrument approach capability is enhanced, additional hangar space is provided, and the County/COMARCO team effectively market the Airport.

Depicted in Figure 4A and summarized in Table 4A is the *Master Plan's* 20-year forecast of future based aircraft for El Monte Airport. The *Master Plan* forecast projects that based aircraft at the El Monte Airport will increase from the current (1993) level of 475 aircraft to 515 aircraft in the year 2013. This increase of 40 based aircraft reflects a 0.4% per annum compounded growth factor.

The timing of new development should be set to stay just slightly ahead of actual demand. Construction too far in advance of demand provides no near-term return on the investment. On the other hand, lack of new user-desired facility development, such as aircraft storage hangars, may result in fewer based aircraft at the Airport than the forecasts indicate.

TRANSIENT AIRCRAFT PARKING DEMAND

The demand for transient aircraft parking positions at the Airport is influenced by a combination of factors, including those mentioned above with respect to based aircraft, and those discussed subsequently which affect aircraft operations. The *Master Plan* forecasts project that peak transient aircraft parking demand will increase by approximately 50% over the 20-year planning period, a rate greater than that projected for based aircraft growth. Much of this future growth in transient aircraft demand is expected to result from the enhanced user amenities (e.g., new terminal building, restaurant/coffee shop, etc.) and will be somewhat dependent upon the Airport's implementation of an effective marketing program. Growth of El Monte area businesses and commercial enterprises will also likely result in increased demand for transient aircraft facilities and services.

AIRCRAFT OPERATIONS FORECASTS

Forecast Influences

As with based aircraft, the number of aircraft operations at a general aviation airport is influenced both by national and regional conditions and by various circumstances specific to the individual airport. Major influences impacting El Monte Airport aircraft operations forecast include:

- **National Trends** – The factors which determine general aviation operations levels nationally will also be the overriding influences locally. Unlike the essentially flat forecast of active based aircraft, FAA forecasts project a modest increase in the number of hours flown by the general aviation fleet over the next decade. A slight rise in the average number of annual operations per aircraft can consequently be anticipated. Use of helicopters and turbine-powered airplanes is expected to increase more rapidly than that of piston-powered airplanes.

- **Number and Type of Based Aircraft** – The minor shift toward proportionately more complex single-engine and multi-engine airplanes at El Monte Airport will tend to push operations counts upward more rapidly than the rate of based aircraft growth. Typically, such aircraft are used more frequently and thus generate more operations per aircraft.

- **Availability of Services** – El Monte Airport's facilities and services are primarily focused to attract the personal and recreational aircraft operator, flight training student, and small business-aircraft operator.

	Historical	Projected			
	1993	1998	2003	2008	2013
BASED AIRCRAFT					
Aircraft Types					
Single-Engine	445	451	457	461	465
Twin-Engine	25	27	29	32	35
Helicopters	5	7	9	12	15
Total	475	485	495	505	515
Storage Demand					
On Tiedowns	175	170	165	160	160
In Storage Hangars	290	303	317	331	340
At FBO Facilities	10	12	13	14	15
Total	475	485	495	505	515
TRANSIENT AIRCRAFT					
Parking Demand at Peak Periods	20	22	24	27	30
ANNUAL AIRCRAFT OPERATIONS					
Aircraft Mix					
Single-Engine	156,302	158,000	159,650	161,325	163,000
Twin-Engine	10,000	10,750	11,850	12,925	14,000
Helicopters	20,000	23,250	26,500	29,750	33,000
Total	186,302	192,000	198,000	204,000	210,000
Type of Operation					
Local (90% training)	74,520	71,800	69,300	66,150	63,000
Itinerant	111,782	120,200	128,700	137,850	147,000
Total	186,302	192,000	198,000	204,000	210,000
Average Operations per Based Aircraft					
Local	157	148	140	131	123
Itinerant	235	248	260	273	285
Total	392	396	400	404	408

Sources: *Historical data provided by County of Los Angeles Aviation Division and El Monte Airport ATCT. Projected data by Hodges & Shutt (1993).*

Table 4A

Master Plan Activity Forecasts

El Monte Airport

Such facilities and services include general aviation-oriented fixed base operators, available single-unit storage hangars, and a somewhat less complex operating environment than at competitive area airports. This range of services will need to be supplemented if additional business and corporate aircraft activity is to be captured.

- **Flight Training** — Flight training is currently a significant generator of aircraft operations at El Monte Airport. One primary reason for this is that El Monte Airport has less congested airspace and a somewhat less complex operating environment than nearby alternative airports. Flight training activity at El Monte Airport is expected to increase in the future.

- **Extent of Transient Aircraft Use** — The addition of user-oriented facilities and amenities such as a public terminal and restaurant/ coffee shop at El Monte Airport will generate increased transient aircraft activity, thereby increasing total aircraft operations. In addition, as Los Angeles Basin airport congestion increases, it can be anticipated that more transient aircraft operators will use El Monte Airport as an alternative means of accessing the north-central Los Angeles Basin area.

- **Business Aircraft and Helicopter Activity** — As noted in the previous section on based aircraft demand, both business aircraft activity and helicopter activity at El Monte Airport are projected to increase in the years ahead. This additional based and transient activity will contribute to an increase in aircraft operations at the Airport.

- **Instrument Operations** — The future enhancement of nonprecision instrument approach capability at the Airport will have a positive effect on El Monte's forecast activity. Such enhancements (e.g., a straight-in approach utilizing a GPS-based procedure) would make the Airport a more convenient and accessible base of operations or destination — particularly for users of business and corporate aircraft.

National and Regional Forecasts

Federal, state, and regional forecasts provide aircraft operations forecasts for El Monte Airport. A comparison of these federal, state, and regional forecasts is shown in Figure 4B. As with the forecasts of based aircraft, the various forecasts of operations are somewhat contradictory. The CASP (1988) forecast projects a relatively flat rate of growth, whereas the NPIAS (1990) and TAF (1990) forecasts project a significant increase in aircraft operations. As noted in the discussion of based aircraft forecasts, these operations forecasts have been generally developed using a "top-down" methodology.

Annual Operations Demand Conclusions

Continued modest growth in annual aircraft operations at El Monte Airport is anticipated. As noted previously, this growth in operations will be generated by the increase in based and transient aircraft (fixed-wing and rotary-wing), continued high levels of flight training activity (by based and transient aircraft), and greater utilization of aircraft by El Monte Airport-based active aircraft users. The rate of growth in El Monte Airport's annual operations is somewhat higher than the rate of growth of based aircraft, due to a projected increase over time in the average utilization of aircraft.

The percentage split between local (primarily flight training) operations and itinerant operations is projected to shift over the 20-year planning period from a current value of 40% local/60% itinerant to a year 2013 value of 30% local and 70% itinerant. This shift is influenced by: (1) the increased use of the Airport by transient aircraft operators for access to the north-central Los Angeles Basin area, (2) the greater utilization of based aircraft for transportation purposes beyond the local area, and (3) expansion of Class B airspace with the corresponding effect of discouraging touch-and-go operations.

Depicted in Figure 4B and summarized in Table 4A is the *Master Plan* 20-year forecast of future annual aircraft operations for El Monte Airport. The *Master Plan* forecast projects that annual aircraft operations at El Monte Airport will increase from the current (1993) level of 186,300 to 210,000 in the year 2013. This increase in operations reflects a 0.6% per annum compounded growth factor.

CAPACITY ANALYSES

At most public-use airports, three basic forms of capacity have particular significance to master plan development — the airfield or runway/ taxiway system capacity; the capacity of the building area for aircraft parking, passenger handling, and other uses; and the environmental capacity, usually measured in terms of noise impacts. With respect to El Monte Airport, an assessment of these capacities reveals the following.

Airfield

An airport's airfield capacity is measured in terms of the number of aircraft operations the runway and taxiway system can accommodate in an hour or over the course of a year. Calculation of airfield capacity, particularly annual capacity, is dependent upon a variety of physical and operational factors such as those listed to the left.

Runway Capacity Factors

- Runway configuration.
- Location of runway exits.
- Existence of air traffic control facilities and navigational aids.
- Mix of aircraft types (including helicopters) using the airport.
- The amount of touch-and-go training activity.
- The extent of instrument versus visual weather conditions.
- Peaking conditions (i.e., the hourly, daily, and seasonal variations in traffic demand).
- The proximity of nearby airports and other factors affecting airspace use.

One of the most significant variables affecting annual capacity is the extent of off-peak versus peak-period usage. At present, El Monte Airport tends to have fairly pronounced peak activity periods in the early mornings, late afternoons, and on weekends. These peaking characteristics are typical of general aviation airports. Given the present peaking characteristics, the annual capacity of the existing airfield configuration is approximately 220,000 operations. For peak-period activity, the airfield's existing hourly capacity is approximately 95 VFR operations per hour or 12 IFR operations per hour.

The Airport's rather unique *paved continuous drift-off area* utilized in lieu of the more conventional runway exit taxiway system contributes to the Airport's operational capacity. This drift-off area permits pilots to more quickly and efficiently clear the runway following landings.

Other than during special events or other unusual peak activity periods, the annual and hourly capacities noted above are adequate to accommodate foreseeable future demand. In the 15- to 20-year timeframe, occasional delays can be anticipated during special events or other unusual peak activity periods.

As the number of annual operations at the Airport approaches the runway's capacity, increasing delays can be anticipated. Such delays may cause a shift in the Airport's peak activity periods. To further reduce delays, it may be necessary to implement operational restrictions (such as limiting touch-and-go's) during peak activity periods.

Building Area

Aircraft Parking/Storage

An airport's building area is normally considered to encompass all portions of airport property not devoted to runways and major taxiways and their associated clear areas, Runway Protection Zones, Runway Safety Areas, etc.

Approximately 475 aircraft were based at El Monte Airport in 1993. There are 274 individual aircraft storage hangar spaces and 285 tiedown positions currently available at the Airport. Of the 285 available tiedown positions, only 175 (or 61%) are currently occupied. All of the available storage hangars have been occupied. However, within the past year, there have been vacancies in the Airport's aircraft storage hangars. In addition, there is room within the five fixed base operations-type conventional hangars to store or work on some 25 aircraft. This combination of available facilities and space for future hangar development is sufficient to accommodate the forecasted aircraft parking/storage demand through the 20-year planning period.

Fixed Base Operator Facilities

Sufficient space is available on the Airport to adequately accommodate the future growth requirements of the Airport's fixed base operators. For future planning purposes, the grassy area in the east-central portion of the building area should be reserved for future expansion of the Airport's fixed base operations. A conventional hangar, suitable for fixed base operations, could be located in this area.

In addition, the 6,400-square-foot conventional aircraft storage hangar, located immediately to the west of the control tower, could be utilized as a limited fixed base operations facility. This site is somewhat limited by its restricted public accessibility, however.

Environmental

Environmental capacity — the most significant component typically being noise — is frequently the most critical form of airport capacity, particularly for those airports located amid noise-sensitive land uses. However, aircraft noise has not been a significant environmental factor at El Monte Airport.

The area within 5 miles of El Monte Airport is totally developed and heavily urbanized. Numerous roadway and railroad corridors bisect the area. It is unlikely that any significant new incompatible uses will be developed in the years ahead that will substantially impact the Airport. In addition, the nature and extent of Airport activity is not expected to change significantly during the forecast period. Incompatibilities and sensitivities are not expected to increase. Nevertheless, the Airport should remain alert to any potential close-in development or change in land use that might negatively impact airport operations or safety. In addition, the Airport's users should continue to practice *good neighbor* flight procedures to minimize aircraft noise impacts on surrounding noise-sensitive land uses.

Measures to minimize noise-related conflicts between the Airport and its surroundings are discussed in Chapter 7.

5

Airfield Design

5

Airfield Design

BASIC DESIGN FACTORS

An airport's airfield system includes the runways and taxiways, related visual approach and landing aids, and required clear areas beyond the runways ends and elsewhere adjoining these facilities. This chapter assesses the technical factors and requirements which influence the design of El Monte Airport's airfield system. Various airfield configuration refinements are reviewed and a recommended airfield development plan is presented.

The basic configuration of El Monte Airport's runway/taxiway system is well defined by existing facilities and site constraints. Also, as noted in Chapter 4, the Airport's operational role – that of a general aviation facility serving the personal and business air transportation needs of the surrounding communities' residents and businesses – is well established and is expected to remain essentially the same as at present throughout the 20-year planning period. The purpose of future airfield improvements is to enhance, not expand, this established role. Such improvements must both fit within the present facility framework and be consistent with the County's airport operational and community service objectives.

At the outset of the *Master Plan* study, a number of airfield design issues were identified as requiring special attention. Figure 5A graphically summarizes these issues. The remainder of this chapter addresses pertinent airfield design requirements, facility enhancements, and other airfield-related issues.

Airport Classification

Note: The ARC classification system has replaced the former FAA airport design classification hierarchy of Basic Utility, General Utility, Basic Transport, etc.

For airfield design purposes, the FAA has established a set of airport classifications known as *Airport Reference Codes* (ARC) applicable to each airport and its individual runway and taxiway components. The primary determinants of these classifications are the most critical types of aircraft a runway or taxiway is intended to serve and the form of instrument approach, if any, that is available or planned for the runway.

Each ARC consists of two components relating to the airport's design aircraft:

- **Aircraft Approach Category** – Depicted by a letter (A-E), this component relates to aircraft approach speed, an operational characteristic.

- **Airplane Design Group** – Depicted by a Roman Numeral (I-VI), the second component relates to airplane wingspan, a physical characteristic.

Generally, Aircraft Approach Category applies to runways and runway related facilities. Airplane Design Group primarily relates to separation criteria involving taxiways and taxilanes. Also important in the design of the airport and its runway/taxiway components is the maximum weight of the aircraft that will operate at the airport. Appendix D lists size and performance data of typical aircraft accommodated within various ARC classifications.

Design Aircraft

The majority of aircraft operations at El Monte Airport are generated by single-engine and twin-engine, piston-powered, general aviation aircraft that fall within Aircraft Approach Categories A and B (approach speeds less than 91 knots and from 91 to 121 knots, respectively) and Airplane Design Group I (airplanes with wingspans less than 49 feet). Virtually all of these aircraft have a maximum certificated takeoff weight of 12,500 pounds or less – considered to be *Small* aircraft by the FAA.

Typical aircraft in these categories/group include the Beechcraft Bonanza (A-I/Small), Piper PA-31-350 Chieftain (B-I/Small), Cessna 414 Chancellor (B-I/Small), and Cessna Citation I (B-I/Small).

El Monte Airport sees occasional use (less than 500 operations per year) by larger, primarily corporate, aircraft in ARC B-II (e.g., Cessna Citation II and Beechcraft Super King Air B 200), C-I (e.g., Gates Learjet 25), and C-II (e.g., Gulfstream III) categories. These larger aircraft generally weigh less than 30,000 pounds, although a few times a year the Airport may be used by aircraft weighing up to 60,000 pounds (e.g., G-II). Because of their runway length requirements, these aircraft are typically weight-restricted when operating from El Monte Airport's 3,995-foot-long runway.

The Cessna Citation I (CE-500) is a small business jet which carries a crew of two pilots plus six passengers. It is powered by two Pratt and Whitney JT15D-1A turbofan engines and is capable of cruising at over 400 miles per hour

Master Plan analysis indicates that the largest general aviation aircraft projected to use El Monte Airport on a frequent basis during the next 20 years are encompassed within ARC B-I/Small. For the purposes of this *Master Plan*, the Cessna Citation 1, an ARC B-1/Small aircraft, is considered to be the *critical aircraft*.

Aircraft in more demanding ARC categories (e.g., B-II, C-II, etc.) can still be safely accommodated at the Airport on an occasional, weight-restricted basis. Such aircraft are not expected to generate more than 500 operations in any one year at El Monte Airport.

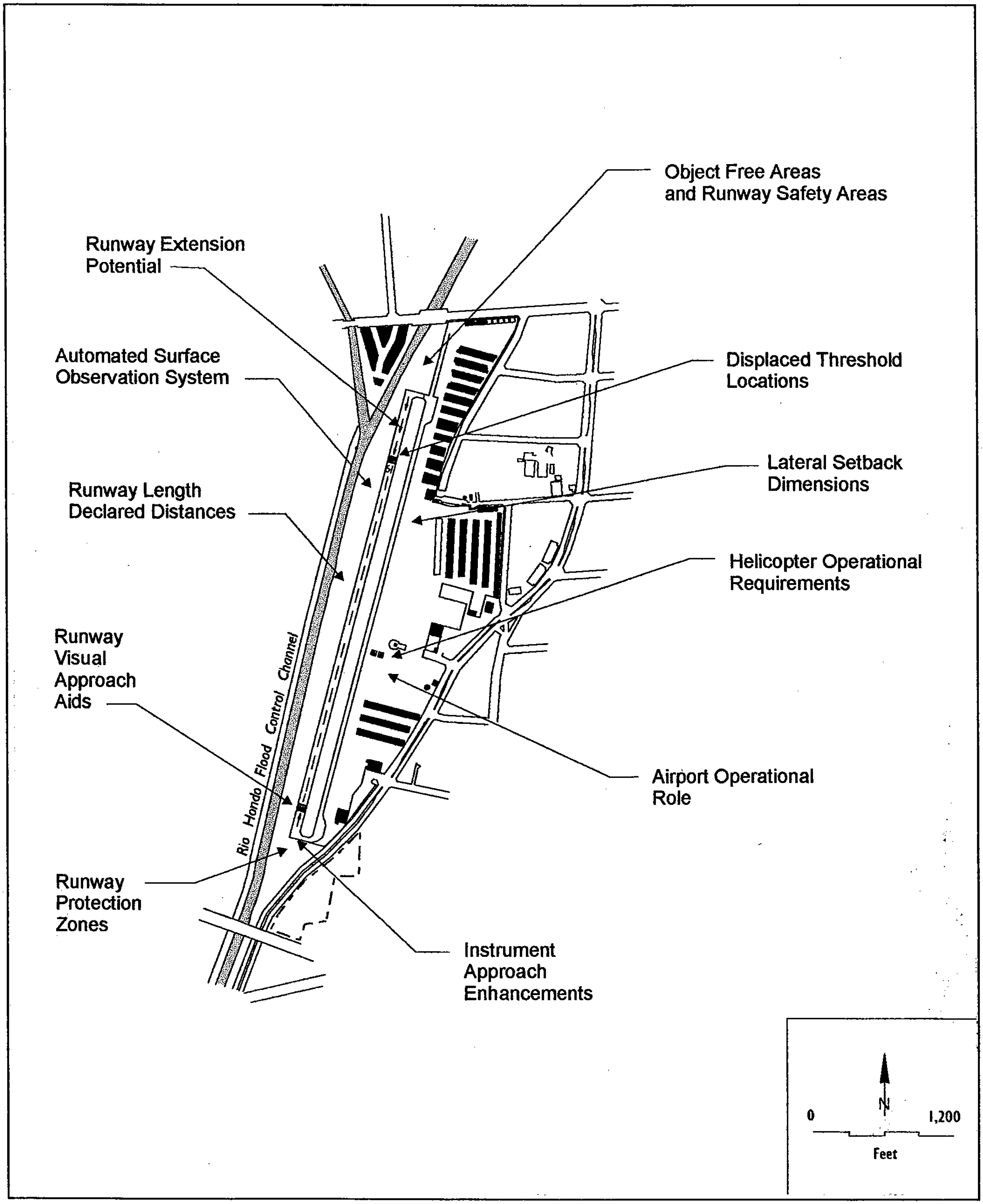


Figure 5A

Airfield Design Issues

El Monte Airport

Instrument Approach Capability

In terms of the associated airfield design standards, nonprecision instrument procedures are considered the same as visual approaches unless they enable straight-in approach to less than standard traffic pattern altitude. Even if a runway has a straight-in nonprecision approach procedure, the principal design difference compared to a strictly visual runway is with regard to the size of the Runway Protection Zones.

El Monte Airport is presently served by three nonprecision instrument approach procedures: VOR-A, VOR DME-B, and NDB-C. All three approaches are considered *visual* in that they nominally terminate in a *circle-to-land* visual approach and landing on the runway. The lowest approach minimums for the Airport are 484 feet above Airport elevation and 1 statute mile visibility (VOR-A approach – Aircraft Categories A and B).

One of the approaches, NDB-C (No. 16-1), utilizes a low-frequency non-directional beacon located on Airport property. The beacon can also be used to determine the *missed approach* point for the other two approach procedures. This beacon and its antenna were recently refurbished by the Airport operator.

As indicated in the responses to the Airport User Questionnaire (see Appendix C) improved instrument approach capability at El Monte Airport is a top user priority. Most frequently mentioned is the desirability of a straight-in approach to Runway 1. While the winds generally favor the use of Runway 19, off-site terrain considerations (i.e., mountains five miles to the north of the Airport) suggest that an instrument approach to Runway 1 is more operationally viable. In addition, during the low visibility weather conditions that typically require the use of an instrument approach, surface wind velocity is generally not a significant factor in selecting a runway for landing.

While a precision instrument approach (e.g., Instrument Landing System) is highly desired by all instrument-rated pilots, its implementation at El Monte Airport is problematic. Airfield site constraints, local obstructions, and high terrain five miles to the north of the Airport generally preclude the establishment of a cost-effective and usable precision instrument approach. In addition, a number of nearby airports (e.g., Brackett Field, Burbank-Glendale-Pasadena, Ontario International, and Chino airports) already offer precision instrument approaches for those pilots requiring such capability.

As an alternative to a full precision instrument approach at El Monte Airport, the three existing circle-to-land nonprecision instrument approaches could be augmented by a new straight-in nonprecision instrument approach to Runway 1. Such an approach might be based on emerging LORAN-C or GPS (Global Positioning System) technologies – a stand-alone GPS-based approach being the most likely option.

A straight-in approach to Runway 1 may interact with other area airport approaches. However, it is anticipated that the FAA will soon implement its Southern California TRACON program with its resectorization of Los Angeles air traffic control areas. It is hoped that this new program will enable more flexible use of airspace, thus facilitating a straight-in nonprecision instrument approach to El Monte Airport's Runway 1.

Accordingly, for master planning purposes, Runway 1 is depicted on the *Airport Layout Plan* as having a future straight-in nonprecision instrument approach. Runway 19 will continue to be used for visual and circle-to-land approaches. It is anticipated that the visibility minimums for the future straight-in approach to Runway 1 will be more than 3/4 statute mile (i.e., FAR Part 77 Approach Category A/NP). The determination of approach visibility minimums will be dependent upon the exact type of approach procedure used and a procedure-specific analysis of local airport area obstructions. It is likely that on-going advances in GPS-based instrument approach technology may result in lower nonprecision instrument approach minimums in the future.

It is recommended that no action or development be permitted which would preclude future establishment of a straight-in nonprecision instrument approach to El Monte Airport's Runway 1. A completed *Navigational Facility and Related Airport Data Requirements* form documenting the data required to implement a GPS-based nonprecision instrument approach to Runway 1 at El Monte Airport is provided in Appendix E.

Airfield Design Standards

It should be noted that in late 1989, the FAA revised its airport design standards. Although most of the established guidelines remain the same as before, some are now considered to be *recommendations* rather than *standards*. Also, certain previous criteria are given greater emphasis, some new criteria are added, and the terminology for others has been changed. These updated standards and recommendations are documented in Advisory Circular 150/5300-13 (Change 4), *Airport Design*. The *El Monte Airport Master Plan* is prepared in accordance with these revised FAA design standards and recommendations.

Associated with each ARC and runway instrument approach type is a set of FAA-established runway and taxiway system design standards. These standards have been developed to assist airport sponsors and operators in the appropriate planning, development, operation, and maintenance of aviation facilities funded in part through FAA grant programs. The airport should be designed to the highest set of standards needed to accommodate the critical aircraft likely to use the facility on a regular basis in the future. In the case of El Monte Airport, the determination of the appropriate ARC is relatively straightforward.

Table 5A compares the FAA design standards associated with different ARCs to El Monte Airport's existing dimensions. As can be seen, there is relatively high correlation between the Airport's existing dimensions and the nonprecision instrument runway design standards associated with the most critical category of aircraft expected to regularly use the Airport — those in ARC B-I/Small. This is not unusual for a modern, well-maintained facility such as El Monte Airport which has been designed and developed over the years to accommodate primarily private-use and small, business-use, general aviation aircraft.

Given the above factors, it is recommended that El Monte Airport's Runway 1-19 and associated taxiways be designed in general accordance with ARC B-I/Small standards. However, as noted previously, the Airport should be capable of accommodating occasional restricted use by aircraft in the ARC B-II and C-II (approach speeds up to 140 knots and wingspans less than 79 feet) categories.

Wind Coverage

FAA airfield design guidelines set the acceptable crosswind component for ARC B-I/Small runways at 10.5 knots (12 M.P.H.). *Master Plan* analysis of historical wind rose data indicates that Runway 1-19 has 10.5-knot crosswind coverage of 99%. This level of wind coverage exceeds the FAA's minimum desired level of 95% and indicates that the existing runway orientation provides satisfactory wind coverage for all-weather aircraft operations. According to FAA air traffic control tower personnel, the prevailing winds favor Runway 19 approximately 90% of the time.

RUNWAY LENGTH, WIDTH, AND STRENGTH

Runway Length Requirements

Today's diverse fleet of airplanes requires a wide range of runway lengths under a variety of operational and environmental conditions. A few of the more obvious conditions which alter the recommended runway lengths are airport elevation, wind velocity, daily temperature, aircraft operating weight, runway gradient, and runway surface conditions. FAA Advisory Circular 150/5325-4A, *Runway Length Requirements for Airport Design*, provides guidelines for determining the appropriate length for a runway or runways. The recommended length for an airport's primary runway is determined by considering either the family of user airplanes having similar performance characteristics or a specific airplane needing the longest runway. In either case, the choice should be based on the airplanes that are forecasted to use the runway on a regular basis. A regular basis is considered to be at least 500 operations per year.

When the maximum gross weight of airplanes forecasted to use the runway is 60,000 pounds or less, FAA design criteria suggests that the runway length should be designed for a family of airplanes. This is the case at El Monte Airport. For heavier airplanes, the runway length is normally designed for a specific *critical* airplane. The recommended runway length for a specific airplane is a function of that airplane's landing and takeoff operating weights, the wing flap settings, the airport elevation and temperature, wind component, the runway surface conditions, and the maximum difference in runway centerline elevations. For design purposes, worst case assumptions are used for conditions that vary from operation to operation.

It should be noted that local airport area obstructions and site-specific facility design factors may reduce the effective length of runway available for use by landing and departing aircraft. Displaced Thresholds and Declared Distances are the two principal design mechanisms used to

	Current FAA Airfield Design Standards[a]			Existing Dimensions
				Runway 1-19
Airport Reference Code (ARC)	B-I/Small	B-I	B-II	B-I/Small
Aircraft Approach Speed	< 121 kts.	< 121 kts.	< 121 kts.	< 121 kts.
Aircraft Wingspan	< 49 ft.	< 49 ft.	< 79 ft.	< 49 ft.
Aircraft Weight	≤ 12,500 lbs.	> 12,500 lbs.	> 12,500 lbs.	≤ 12,500 lbs.
Runway Approach Type	Vis or NP	Vis or NP	Vis or NP	Vis
Runway Design				
Width	60 ft.	60 ft.	75 ft.	75 ft.
Blast Pad				
Width	80 ft.	80 ft.	95 ft.	None
Length beyond Runway End	60 ft.	100 ft.	150 ft.	None
Runway Safety Area (RSA)				
Width	120 ft.	120 ft.	150 ft.	120 ft.
Length beyond Runway End	240 ft.	240 ft.	300 ft.	240 ft.[b]
Obstacle Free Zone (OFZ)				
Width	250 ft.	400 ft.	400 ft.	250 ft.[b]
Object Free Area (OFA)				
Width	250 ft.	400 ft.	500 ft.	250 ft.[b]
Length beyond Runway End	240 ft.	240 ft.	600 ft.	300 ft.
Gradient (maximum)	2.0%	2.0%	2.0%	.35%
Taxiway Design				
Width	25 ft.	25 ft.	35 ft.	40 ft.[c]
Safety Area Width	49 ft.	49 ft.	79 ft.	49 ft.[c]
Object Free Area Width	89 ft.	89 ft.	131 ft.	120 ft.[c]
Runway Setbacks				
From Runway Centerline to:				
Hold Line	125 ft.	200 ft.	200 ft.	125 ft.
Parallel Taxiway	150 ft.	225 ft.	240 ft.	175 ft.
Aircraft Parking Line (APL)	125 ft.	200 ft.	250 ft.	235 ft.
Building Restriction Line (BRL)[d]	370 ft.	495 ft.	495 ft.	300 ft.
Taxiway and Taxilane Setbacks				
From Taxiway Centerline to:				
Parallel Taxiway/Taxilane	69 ft.	69 ft.	105 ft.	N/A[e]
Fixed or Movable Object	45 ft.	45 ft.	66 ft.	120 ft.[c]
From Taxilane Centerline to:				
Fixed or Movable Object	40 ft.	40 ft.	58 ft.	60 ft.

a Source: FAA Advisory Circular 150/5300-13 Change 4 *Airport Design* (1993)
b Centerline dimension -- available length/width decreases due to off-airport development.
c Existing dimensions apply to Runway 1-19 parallel taxiway.
d The current Advisory Circular regards the Building Restriction Line setback distance as a recommendation, not a standard. Dimension shown as "standard" provides for 7:1 transitional surface clearance of a 35-foot-high structure.
e N/A = Not applicable.

Source: Hodges & Shutt (January 1994)

Table 5A

FAA Airfield Design Standards

El Monte Airport

adjust effective runway lengths to appropriately reflect FAA-specified landing/departure protected surfaces. Application of these design mechanisms at El Monte Airport is discussed in subsequent sections of this chapter.

El Monte Airport's Runway 1-19

The FAA disseminates runway length information to pilots via the federal flight information publication *Airport/Facility Directory*. This publication is updated on a 56-day cycle. Privately-published airport directories are also available and provide much the same information.

Table 5B presents an analysis of FAA recommended runway lengths for various aircraft families and selected large aircraft types. This analysis reflects the site characteristics specific to El Monte Airport's Runway 1-19. As can be seen from this analysis, the present published length of Runway 1-19 (3,995 feet) is capable of accommodating all small airplanes (i.e., airplanes weighing 12,500 pounds or less), as well as a portion of the aircraft fleet weighing between 12,500 and 60,000 pounds. In addition, larger/heavier aircraft are capable of utilizing the Airport with certain operating restrictions. This capability encompasses virtually all of the aircraft anticipated to use the Airport within the 20-year planning period.

Most larger/heavier aircraft, particularly certain commuter aircraft types and first-generation corporate jets, are only able to utilize El Monte Airport's runway if the aircraft's weight is reduced through restricted loading of fuel, passengers, and/or cargo. Further impacting such larger/heavier aircraft operations are the two Displaced Thresholds associated with Runway 1-19. These Displaced Thresholds effectively reduce the landing distance available to a value that is less than the runway's published length of 3,995 feet. As presently published, the landing threshold for Runway 1 is displaced 290 feet and the landing threshold for Runway 19 is displaced 641 feet.

Operational impacts such as these affect only a few large, high-performance aircraft and are not considered to be a significant factor in the overall operation, development, and use of the Airport. In addition, physical constraints (e.g., Southern Pacific railroad right-of-way and Rio Hondo Flood Control Channel) make the extension of Runway 1-19 problematic.

Accordingly, the *Airport Layout Plan*, as described herein, provides that the Airport's existing physical runway length of 3,995 feet be maintained essentially as is. No extension of this runway is anticipated or required. However, due to the presence of various immovable obstructions within the runway's protected surfaces, the actual calculated runway length available to pilots for takeoff and landing is, in some cases, reduced. When such reductions are required, they are made known to pilots in the form of Declared Distances. Declared Distances and their application at El Monte Airport are discussed in a subsequent section of this chapter.

RUNWAY LENGTH CALCULATION PARAMETERS FOR EL MONTE AIRPORT

- Airport Elevation = 296 feet above Mean Sea Level
- Mean Daily Maximum Temperature of the Hottest Month = 93° F
- Dry Runway Surface
- Maximum Difference in Runway Centerline Elevation = 14 feet
- Existing Runway Length = 3,995 feet

Aircraft Category	Recommended Runway Lengths
• Small airplanes having approach speed of 50 knots or more and maximum certificated takeoff weights of 12,500 pounds or less	
– 75% of Fleet / Less than 10 Passenger Seats	2,630 feet
– 95% of Fleet / Less than 10 Passenger Seats	3,190 feet
– 100% of Fleet / Less than 10 Passenger Seats	3,800 feet
– 10 Passenger Seats or More	4,370 feet
• All airplanes with maximum certificated takeoff weights of 12,500 to 60,000 pounds	
– 75% of Fleet / 60% of Useful Load	4,880 feet
– 75% of Fleet / 90% of Useful Load	7,100 feet
– 100% of Fleet / 60% of Useful Load	5,770 feet
– 100% of Fleet / 90% of Useful Load	8,960 feet
• Selected large aircraft types (Balanced Field Length)	
– Cessna Citation I (MGTOW* = 11,850 lbs.)	3,640 feet
– Cessna Citation II (MGTOW = 13,300 lbs.)	3,900 feet
– Beechjet 400 (MGTOW = 16,100 lbs.)	4,700 feet
– Gulfstream III (MGTOW = 69,700 lbs.)	5,200 feet
– Gulfstream IV (MGTOW = 73,200 lbs.)	7,200 feet

*MGTOW: Maximum Growth Takeoff Weight

Source: FAA AC 150/5325-4A, Runway Length Requirements for Airport Design (including Change 1). Aircraft manufacturer's performance data.

Table 5B

Recommended Runway Lengths
El Monte Airport

Runway Width Requirements

El Monte Airport's Runway 1-19 is 75 feet wide. This width is slightly greater than the minimum recommended width of 60 feet for an ARC B-I/Small runway. When crosswind effects on light aircraft performance are considered, this increased runway width is entirely appropriate for a single-runway airport configuration. No changes are required or recommended.

Pavement Strength Requirements

Runway 1-19 has a published pavement strength rating of 12,500 pounds for airplanes with single-wheel landing gear. This rating is adequate throughout the 20-year planning period. Occasional use by aircraft weighing up to 30,000 pounds should not have a deleterious effect on the overall condition of the pavement.

In late-1993, all pavement areas at El Monte Airport were resurfaced with an FAA-approved rubberized slurry seal treatment. While not contributing directly to the strength of the pavement, this treatment improves surface traction, prolongs pavement life, and enhances the appearance of the Airport. All airfield surface striping and markings were renewed following this treatment.

As part of the *Master Plan* study, an evaluation of the condition of all existing airfield and building area pavements was conducted. A summary of this evaluation is included in Appendix F, together with recommendations regarding pavement maintenance.

OTHER RUNWAY DESIGN CONSIDERATIONS

Runway length, width, and strength are only a few of the runway design characteristics that must be considered in preparation of an airfield plan. Other design components of particular significance to El Monte Airport's airfield design include: Runway Safety Areas, Object Free Areas, FAR Part 77 imaginary surfaces, and Runway Protection Zones (formerly known as *Clear Zones*). Also a factor at El Monte Airport is the Declared Distances concept used in the determination of available takeoff and landing distances for aircraft operations.

Runway Safety Areas

FAA design standards for ARC B-I/Small facilities, such as El Monte Airport's Runway 1-19, specify that the Runway Safety Area (RSA) be 120 feet wide the full length of the runway and extend a minimum of

A *Runway Safety Area (RSA)* is a cleared, drained, graded, and preferably stabilized surface, symmetrically located about the runway. Under dry conditions, an RSA should be capable of supporting aircraft rescue and fire-fighting equipment and of accommodating the occasional passage of aircraft without causing major damage to the aircraft. The area must be free of objects, except ones whose function requires their location in the RSA, in which case they must be installed on frangible supports.

240 feet beyond the ends of the runway pavement. The RSA at the approach end of Runway 1 meets or exceeds this minimum standard. The RSA at the approach end of Runway 19 is truncated on its northwest corner by the Airport's chain link perimeter security fence, a public jogging path, and the Rio Hondo Flood Control Channel. Since removal of these obstacles is not feasible and relocation of the runway pavement end is not desirable, Declared Distances must be utilized to account for this nonstandard RSA configuration. The Declared Distances calculations for El Monte Airport's Runway 1-19 are presented in Table 5C and depicted in Figure 5B.

Object Free Areas

FAA design standards (AC 150/5300-13, Change 4) for ARC B-I/Small facilities, such as El Monte Airport's Runway 1-19, specify that the Object Free Area (OFA) be 250 feet wide the full length of the runway and extend 240 feet beyond the ends of runway pavement. Prior to the issuance of Change 4, the OFAs extended 300 feet beyond the ends of runway pavement.

The OFA at the approach end of El Monte Airport's Runway 1 substantially meets this FAA design standard. A small portion of the Airport's chain link perimeter security fence intrudes upon the southwest corner of the OFA. In addition, Santa Anita Avenue slightly truncates the southeast corner of the Runway 1 OFA. These minor intrusions are not considered to significantly compromise the intended purpose of the OFA.

The OFA at the approach end of Runway 19 does not fully meet current FAA design standards. Similar to the Runway 19 RSA, the Runway 19 OFA is truncated on its northwest corner by the Airport's chain link perimeter security fence, a public jogging path, and the Rio Hondo Flood Control Channel. This substandard Runway 19 OFA, even though not fully meeting current standards, can be operationally addressed through the use of Declared Distances (see Table 5C and Figure 5B).

In addition to the above noted objects, various visual approach and operational aids (e.g., VASIs, REILs, and runway lights, etc.) are located within the OFAs of both runways. These aids are considered to be acceptable objects whose locations are fixed by their aeronautical function.

If Runway 1-19 is ever substantially upgraded (e.g., lengthened, widened, overlaid, etc.), the FAA could require that the then-current RSA and OFA requirements be fully met or Declared Distance criteria strictly applied. This would require: (1) the Airport's purchase of additional property and removal of inappropriate objects/terrain in the RSA and OFA, (2) further displacement of the runway thresholds, and/or (3) removal of runway pavement. Since it may be physically or economically impractical to remove the offending objects (e.g., Rio Hondo Flood Control Channel),

RUNWAY INPUT DATA

Aircraft Approach Category B
Airplane Design Group I / Small Airplanes
Runway 1 is Nonprecision / Straight-In > 3/4-statute mile
Runway 19 is Visual / Circle-To-Land

Runway 1-19 length	3995 feet
Stopway length at the far end of Runway 1	0 feet
Stopway length at the far end of Runway 19	0 feet
Clearway length at the far end of Runway 1	0 feet
Clearway length at the far end of Runway 19	0 feet
Runway Safety Area length beyond the far end of Runway 1	0 feet
Runway Safety Area length beyond the far end of Runway 19	240 feet
Object Free Area length beyond the far end of Runway 1	0 feet
Object Free Area length beyond the far end of Runway 19	240 feet
Distance from approach end of Runway 1 to the threshold	290 feet
Distance from approach end of Runway 19 to the threshold	641 feet
Distance from start end of Runway 1 to the start of takeoff	0 feet
Distance from start end of Runway 19 to the start of takeoff	0 feet
Distance from far end of Runway 1 to the start of Clearway	0 feet
Distance from far end of Runway 19 to the start of Clearway	0 feet
Distance from far end of Runway 1 to the start of departure RPZ	-290 feet
Distance from far end of Runway 19 to the start of departure RPZ	200 feet

DECLARED DISTANCES

	Runway 1 (feet)	Runway 19 (feet)
Takeoff run available (TORA)	3505	3995
Takeoff distance available (TODA)	3995	3995
Accelerate-stop distance available (ASDA)	3755	3995
Landing distance available (LDA)	3465	3354

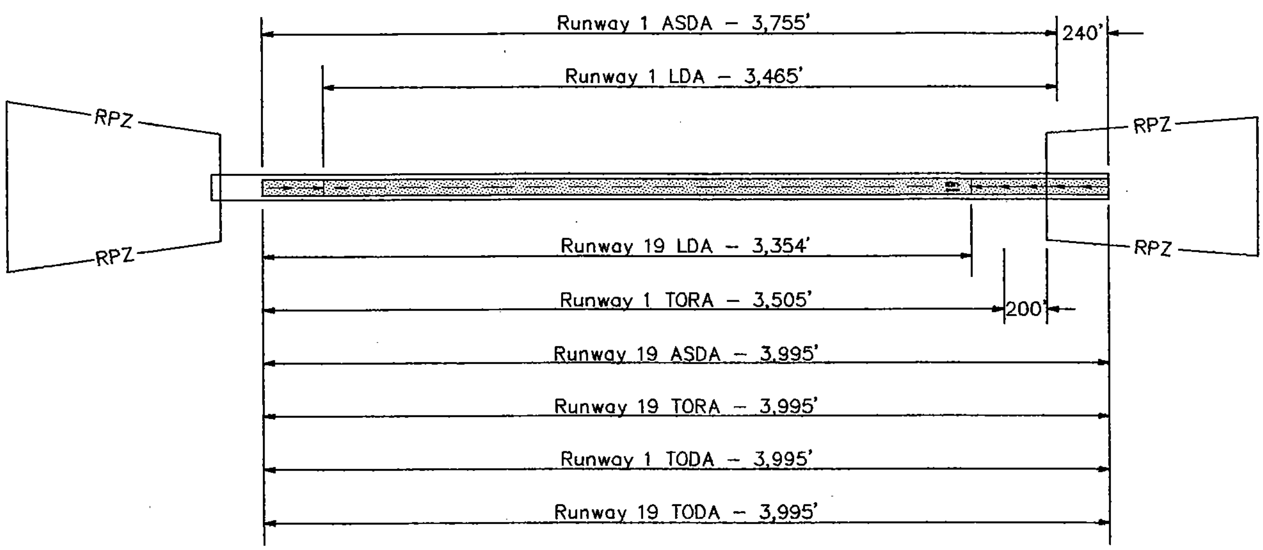
RPZ location limits RW 1 TORA
RSA length limits RW 1 ASDA
RSA length limits RW 1 LDA

Reference: AC 150/5300-13 (Change 4), Airport Design, Appendix 14 and FAA computer program, Airport Design, Version 4.1.

Table 5C

Runway Data for Modified RSA and OFA Lengths

El Monte Airport



NOTES:

- Location of Runway 1 departure end RPZ is established by immovable Obstruction Number 15 (See Approach Zone Plan).
- Location of Runway 19 departure end RPZ is established 200 feet from end of runway pavement.
- Approach end RPZ's are not controlling for this runway configuration.

Figure 5B

Declared Distances

El Monte Airport

use of Declared Distances is the most practical way of addressing this nonstandard configuration.

FAR Part 77 Surfaces

The FAR Part 77 imaginary surfaces for El Monte Airport are illustrated in the *Airspace Plan* and *Approach Zone Plan* located in the airport plan set.

Federal Aviation Regulation (FAR) Part 77, *Objects Affecting Navigable Airspace*, identifies the airspace necessary to ensure the safe operation of aircraft to, from, and around airports. This airspace is defined for each airport by a series of imaginary surfaces. The dimensions and slopes of these surfaces depend on the configuration and approach categories of each airport's runway system. Generally, most critical among the FAR Part 77 surfaces are the Approach Surfaces. Approach Surfaces are, in effect, extensions of the RPZs, but in the air rather than at ground level.

Existing Configuration

The Airport's current Approach Surfaces are configured in accordance with an ARC B-I/Small-Visual facility. The dimensions of the existing Approach Surfaces for El Monte Airport's Runway 1-19 are as follows:

Length:	5,000 feet
Inner Width:	250 feet
Outer Width:	1,250 feet
Slope	20:1

These Approach Surfaces begin at the surface 200 feet outward from the ends of the runway pavement.

Future Configuration

The dimensions of the future Approach Surfaces for El Monte Airport's Runway 1-19 are as follows:

	Approach End of Runway 1	Approach End of Runway 19
Length	5,000 feet	5,000 feet
Inner Width	500 feet	500 feet
Outer Width	2,000 feet	1,250 feet
Slope	20:1	20:1

These Approach Surfaces also begin at the surface 200 feet outward from the ends of runway pavement.

These future Approach Surface dimensions reflect the anticipated enhancement of the Airport's instrument approach capability to a straight-in nonprecision approach to Runway 1 (by *small* aircraft) with visibility minimums more than 3/4 statute mile. It is anticipated that Runway 19 will continue to be used for visual and circle-to-land approaches.

Any object penetrating the Part 77 surfaces must be evaluated by the FAA to determine if it constitutes a hazard to air navigation. Because the land around El Monte Airport is essentially level, there are no terrain penetrations of any of the close-in airspace surfaces. However, numerous objects (e.g., buildings, fences, signs, light standards, poles, and trees) have been identified by the FAA as penetrating the Approach Surfaces and/or adjacent Transitional Surfaces. These objects are documented in the FAA's *Obstruction Chart* (OC 5639) for El Monte Airport (dated November 1992) and depicted in the *Airspace Plan* and *Approach Protection Plan* drawings in the back of this *Master Plan Report*. The following sections discuss the manner in which these Approach Surfaces relate to RPZs and the use of Declared Distances. The need for a greater degree of County control over airspace obstructions is addressed in Chapter 7 — Land Use and Environmental Issues.

Runway Protection Zones

A *Runway Protection Zone (RPZ)* is a trapezoidal area situated at ground level and located beyond each end of an airport runway. The RPZ is centered upon the extended runway centerline and, under most circumstances, begins at the end of the Primary Surface. RPZs may also be sited at locations other than at the end of the Primary Surface. Typically, this is done to address immovable obstructions in the runway's approach and departure paths. Such is the case for the departure end of El Monte Airport's Runway 1. The term *Runway Protection Zone* has replaced the formerly-used term *Clear Zone*.

The FAA's *Airport Design* Advisory Circular recently redefined the purpose of a Runway Protection Zone (RPZ) from one of enhancing the safety of aircraft operations to that of enhancing the protection of people and property on the ground. Accordingly, the FAA recommends that airport operators acquire sufficient property interest in RPZs to effectively control the use of land within those areas.

Ideally, RPZs should be clear of all objects other than aviation-related objects which functionally must be located there. Where this objective is impractical to achieve, the FAA considers certain activities to be acceptable within various areas of the RPZ. Where it is determined to be impractical for the airport owner to acquire and plan the land uses within the entire RPZ, the RPZ land use standards have recommendation status for that portion of the RPZ not controlled by the airport owner.

At El Monte Airport, approximately one-half of the RPZs' land area is located off-Airport and is not directly under the control of the County. The status of each RPZ is discussed in the following paragraphs. Future land use planning implications related to RPZs are discussed in Chapter 7.

Existing Configuration

Runway 1-19 is currently designed to serve ARC B-I/Small airplanes landing and departing under visual flight conditions. As such, the RPZs currently serving the approach and departure ends of Runway 1-19 are configured as follows:

Length:	1,000 feet
Inner Width:	250 feet
Outer Width:	450 feet
RPZ Area:	8.04 Acres

The physical locations of the two approach end RPZs as shown in the 1986 *Airport Layout Plan* are not consistent with current FAA planning standards. Current standards require that the RPZ's inner portion be sited 200 feet beyond the end of the area usable for takeoff and landing. The "area usable for takeoff and landing" includes consideration of minimum OFA and RSA requirements and obstructions in the approach and departure paths.

The inner edge of the RPZ at the approach end of Runway 1 is located 200 feet south of the end of runway pavement. This is the standard location for an RPZ. The location of this RPZ is predicated upon the removal of several existing obstructions (trees, poles, and a light standard) which penetrate the 20:1 departure surface for Runway 19.

Obstructions referenced in the text are as identified on the El Monte Airport *Obstruction Chart* (OC 5639 – dated November 1992).

The inner edge of the RPZ at the approach end of Runway 19 is located 290 feet south of the end of runway pavement. This nonstandard location is necessitated by an immovable obstruction (a building obstruction light – No. 15) located off the departure end of Runway 1.

Future Configuration

For future planning and operational purposes, it is recommended that the RPZs serving the respective approach and departure ends of Runway 1-19 be configured to accommodate the following instrument approaches:

- Runway 1 – Straight-in nonprecision approach by ARC B-I/Small aircraft with visibility minimums of more than 3/4 mile.
- Runway 19 – Visual/circle-to-land approach.

Accordingly, the future dimensions of the RPZs serving Runway 1-19 should be as follows:

	Approach End of Runway 1	Approach End of Runway 19
Length	1,000 feet	1,000 feet
Inner Width	500 feet	500 feet
Outer Width	800 feet	650 feet
RPZ Area	14.92 acres	13.20 acres

The locations of the future RPZs are the same as the existing RPZs' locations. The future RPZs are somewhat wider in dimension to allow for a straight-in nonprecision instrument approach to Runway 1.

Only about 30% (4.4 acres) of the future RPZ at the approach end of Runway 1 will be on airport property – the remainder of the RPZ is characterized by a public road (Santa Anita Avenue), railroad right-of-ways and bridge, and the Rio Hondo Flood Control Channel.

Similarly, the future RPZ at the approach end of Runway 19 is located partially off of airport property. Approximately 52% (6.8 acres) of the future RPZ at the approach end of Runway 19 will be on airport property. The remainder of the RPZ is characterized by a major road (Lower Azuza Road), commercial structures and warehouses, auto parking lots, and the Rio Hondo Flood Control Channel.

The existing and future RPZs for Runway 1-19 described above are depicted on the *Airport Layout Plan*.

Declared Distances

As noted previously, the basic configuration and length of El Monte Airport's Runway 1-19 is well defined by existing facilities and site constraints. Extension of the runway is not physically or economically practical. To take maximum advantage of the constrained site, the runway design identified in the *Master Plan* incorporates the use of Declared Distances as an alternative to a more conventional runway configuration (i.e., one having clear approach/departure surfaces and full RSA and OFA lengths as defined above).

Alternatives to this design concept were considered as part of the *Master Plan*. Design alternatives are available which could provide clear approach/departure surfaces and standard RSA and OFA lengths beyond the runway pavement ends, thus eliminating the requirement for Declared Distances. However, these alternatives would substantially shorten the runway length available for certain operations. The takeoff distance to obstacles at the departure end of the runway would be less with a conventional configuration than with the Declared Distance method of determining runway length. Also, the published runway length would be substantially less if a conventional layout were to be used.

Landing Threshold Displacement

The landing thresholds are shown on the *Airport Layout Plan* as being displaced approximately 290 and 641 feet from Runway 1 and 19 pavement ends, respectively. This threshold configuration has existed at El Monte Airport for many years. The siting of these Displaced Thresholds was established at some point in the past, undoubtedly to provide for 20:1 Approach Surface clearance over obstructions.

The *Master Plan* recommends that the current locations of the Displaced Thresholds be maintained throughout the 20-year planning period. This recommendation is based upon the following factors:

- The current Displaced Threshold locations provide a clear 20:1 Threshold Siting Surface.
- The current Displaced Threshold markings were recently repainted and are in very good condition.
- Changing the threshold locations would require repositioning the threshold lights, REILs, and visual glide slope indicators.
- The current Displaced Threshold locations have been well established by historic use and are accepted by the Airport's user group.
- The current Displaced Threshold locations are consistent with present and future operational needs.
- The current Displaced Threshold locations have the added benefit of reducing aircraft noise and overflight impacts – particularly to the north of the airport.
- There has been no significant demand for altering the location of the current Displaced Thresholds.

It should be noted that, with the removal of certain obstructions within the approach/departure surfaces, the displacement of the runway thresholds could be reduced or eliminated. However, for the reasons listed above, this course of action is not believed to be necessary or desirable at this time.

The dimensions and characteristics of Threshold Siting Surfaces are described in Advisory Circular 150/5300-13, Appendix 2).

With the runway thresholds displaced as at present, the appropriate Threshold Siting Surfaces (TSS) clear all known objects on the approaches to both Runway 1 and 19. The TSS appropriate to El Monte Airport's Runway 1-19 is Runway Type "B." The TSS begins at the Displaced Threshold where it is 250 feet wide and flares upwards and away from the runway threshold at a 20:1 slope. The lateral dimensions of the TSS are somewhat less than the dimensions of the RPZ. The TSS are depicted on the *Approach Zone Plan*.

Resultant Runway Lengths

The physical length of El Monte Airport's Runway 1-19 pavement is 3,995 feet. This is the length of runway pavement that appears on aeronautical charts and other flight information publications. As noted previously, however, this full length is not usable for all takeoff and landing operations. The application of Declared Distances is required to adjust the length of runway available for specific types of operations.

At El Monte Airport, RSA standards and departure end obstruction clearance requirements determine the applicable Declared Distances.

A key factor in the calculation of Declared Distances is the location of controlling departure end obstructions. There is no FAA airport design requirement for a specific clear slope to be provided beyond the departure end of a runway. FAA design standards do not formally define a departure end surface in the manner that an approach end surface is defined. The full length of a runway pavement can be considered usable for takeoff even if a tall object exists immediately beyond the runway end. Although not required, FAA guidance allows for the establishment of departure end surfaces and RPZs at a location other than the runway end. Establishment of departure end surfaces and RPZs at El Monte Airport is, in the Consultant's view, warranted and appropriate.

Accordingly, the *Master Plan* recommends that the runway lengths be calculated on the basis of providing a clear 20:1 departure surface over immovable departure-end obstructions. Moving the departure surfaces and RPZs inward to clear such obstructions will reduce the Takeoff Runway Available (TORA) as indicated below.

The controlling factors for locating El Monte Airport's respective runway departure surfaces and RPZs are as follows:

- For the departure surface and RPZ at the departure end of Runway 1, a building obstruction light located 319 feet above Mean Sea Level (Obstruction #15 – see *Approach Zone Plan*). This building is considered to be an immovable obstruction of the departure surface.
- For the departure surface and RPZ at the departure end of Runway 19, the physical end of runway pavement (plus 200 feet).

There are numerous other obstructions that currently penetrate the proposed departure end surfaces. However, it appears that all of these obstructions can be removed or otherwise mitigated (i.e., topping of trees, relocation of light standards, etc.). The proposed disposition of these obstructions is indicated on the *Airspace Plan*. For master planning purposes, it is assumed that these "other" obstructions will be removed or otherwise mitigated by the Airport owner prior to official publication of Declared Distances data. Failure to address these obstructions could result in further reductions in the Declared Distances.

It should be recognized that 20:1 is a somewhat arbitrary slope with regard to aircraft departures. Unlike approach profiles which can be relatively consistent from aircraft to aircraft, especially where there is visual or instrument guidance, departure profiles are highly dependent upon aircraft performance (which is affected not only by aircraft type, but also by pilot technique, takeoff weight, wind, and air temperature). Considering the type and nature of aircraft operations at El Monte Airport, a 20:1 slope for the departure end surfaces appears reasonable.

Calculation of Declared Distances

The Declared Distances applicable to El Monte Airport are described below and indicated on the *Airport Layout Plan*. Following FAA approval of the *Airport Layout Plan* and removal/mitigation of the noted obstructions, this Declared Distances data will be included in the FAA's *Airport/Facility Directory*.

- The *Takeoff Runway Available* (TORA) is defined as "the distance to accelerate from brake release to lift-off, plus safety factors". At El Monte Airport, it is limited by the repositioning of the Runway 1 departure surfaces and RPZs. The distances are 3,505 feet for Runway 1 and 3,995 feet for Runway 19.

- The *Takeoff Distance Available* (TODA) is defined as "the distance to accelerate from brake release past lift-off to start of takeoff climb, plus safety factors." In the proposed El Monte Airport design, TODA would equal the runway pavement length (i.e., 3,995 feet) for both runway directions.

- The *Accelerate-Stop Distance Available* (ASDA) is "the distance to accelerate from brake release to V_1 and then decelerate to a stop, plus safety factors". The ASDAs for El Monte Airport are 3,755 feet for Runway 1 and 3,995 feet for Runway 19. The Runway 1 ASDA is limited by the substandard RSA length at the departure end of the runway.

- The *Landing Distance Available* (LDA) is "distance from the threshold to complete the approach, touchdown, and decelerate to a stop, plus safety factors". This is calculated as the runway length minus the threshold displacement distance minus the substandard RSA length at the departure end of the runway. This works out to 3,465 feet and 3,354 feet, respectively, for Runways 1 and 19.

Although these distances are somewhat less than the currently published length of 3,995 feet for the existing runway configuration, it should be emphasized that the real difference is "truth in packaging." Being a relatively new runway design and operational consideration, very few airports have determined, much less published, applicable Declared Distances data for their runways.

Implementation of these Declared Distances at El Monte Airport will not require the remarking of the runway ends. However, the runway lights on the departure ends of Runway 1 and 19 should be modified to show the appropriate advisory colors during night operations.

Although not required by the FAA, we recommend that informational signs advising departing pilots of these Declared Distances be posted near the respective runway entrance taxiways.

Building Restriction Lines

Building Restriction Lines (BRLs) identify suitable locations for airport buildings and other stationary structures. The FAA *Airport Design* Advisory Circular no longer establishes standard setback distances or BRLs. Rather, the FAA recommends that the BRL encompass the runway OFA, RPZs, areas required for airport traffic control tower clear line-of-sight, and navigational aid critical areas.

At El Monte Airport, the east side BRL for Runway 1-19 has historically been established 300 feet from the runway centerline. This distance reflects an old FAA standard. As depicted in Figure 5C, this 300-foot BRL encompasses the Runway 1-19 OFA and adequately protects those areas required for airport traffic control tower line-of-sight and navigational aid critical areas. This 300-foot BRL would permit a 25-foot-high structure to be sited at the BRL without penetrating the *existing* FAR Part 77 7:1 transitional surface. The 300-foot BRL does not fully protect the FAR Part 77 7:1 transitional surfaces associated with the future Runway 1-19 Primary Surface. In this future case, a 500-foot-wide Primary Surface is specified for runways with straight-in nonprecision instrument approaches. However, due to the presence of numerous existing structures (e.g., aircraft hangars, control tower, and apron light towers), it is reasonable to continue to utilize the 300-foot BRL. Structures penetrating the transitional surfaces associated with the future 500-foot-wide Primary Surface may need to have obstruction lighting. It is recommended that the 300-foot BRL setback distance be maintained along the east side of Runway 1-19 into the future.

Due to the absence of buildings, structures, and developable areas on the west side of the runway, a BRL is not formally designated for this portion of the Airport. In addition, the presence of the Rio Hondo Flood Control Channel effectively precludes incompatible development in this area.

Blast Pads

Runway blast pads provide blast erosion protection beyond runway ends. While useful on all runways, blast pads are particularly beneficial on runways used by jet and large propeller-powered aircraft.

At the present time, there is no blast pad at either end of Runway 1-19. Due to the infrequent use of the Airport by jet and large propeller-powered aircraft, no blast pads are required or depicted on the *Airport Layout Plan*.

AIRFIELD PROPERTY ACQUISITION REQUIREMENTS

The FAA provides relatively little guidance regarding the appropriate minimum amount of property an airport should own around the major airfield features. The practical criterion is that the airport should own any property on which the private property owner's use of the property is so restricted as to be of no value in private ownership.

Runway Protection Zones and Approach/Departure Surfaces

The FAA strongly encourages airport operators to own, in fee-simple, all property located within approach/departure RPZs. Where fee-simple ownership is not practical, easements may suffice. Over the years, the County has endeavored to acquire the land within El Monte Airport's two RPZs. However, due to the extensive development and compatible use of this off-Airport land, acquisition of the entire RPZ areas has not been feasible nor is it necessary at this point.

While it is desirable to clear all objects from the RPZ, some uses are permitted, provided they do not attract wildlife, are outside of the runway OFA, and do not interfere with navigational aids. For example, golf courses (but not club houses) and agricultural operations (other than forestry or livestock farms) are expressly permitted under this proviso. Automobile parking facilities, although discouraged, may be permitted provided the parking facilities and any associated appurtenances, in addition to meeting all of the preceding conditions, are located outside of the OFA extension. Land uses prohibited from the RPZ are: residen-

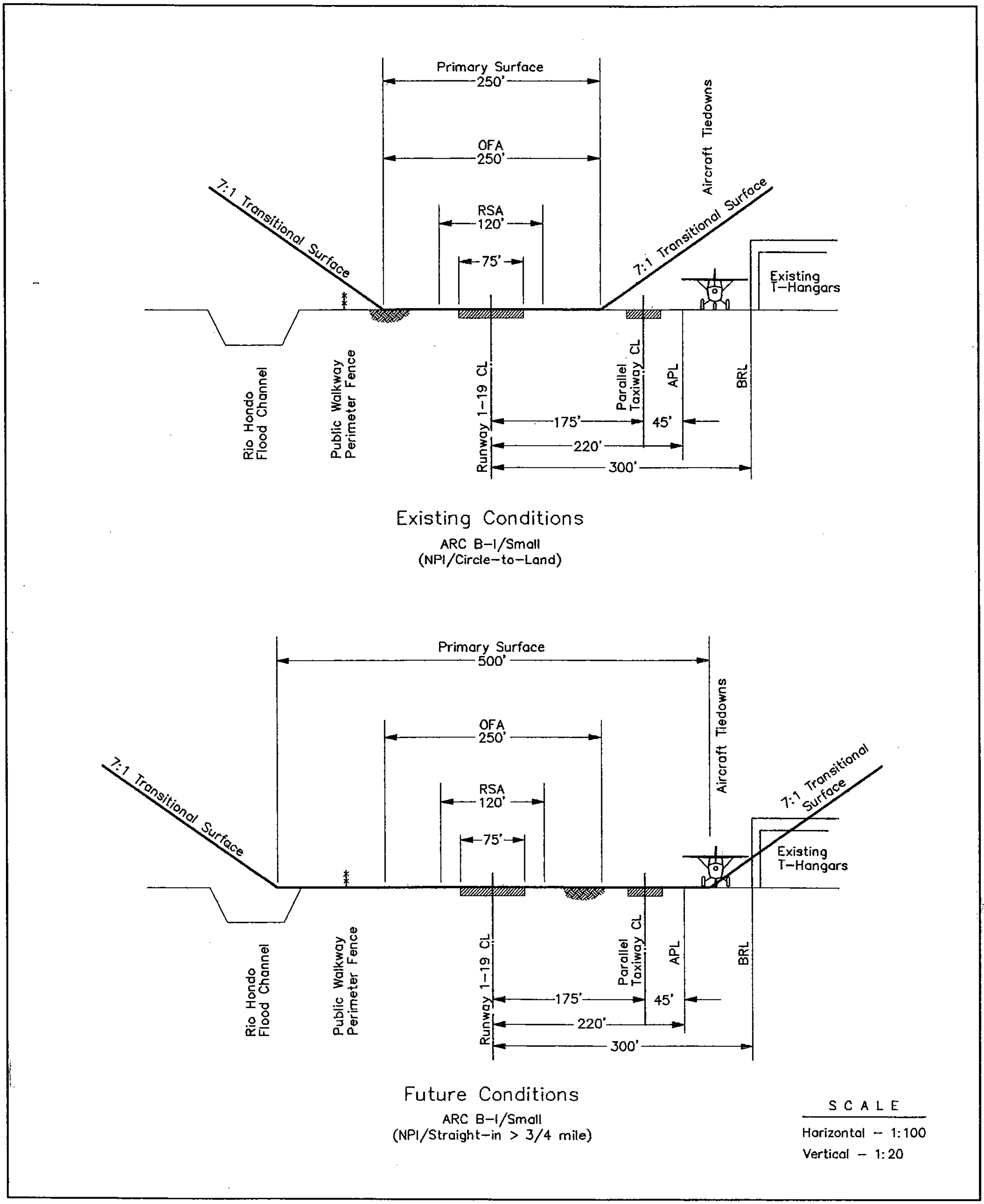


Figure 5C

Runway Lateral Dimensions

El Monte Airport

ces and places of public assembly, churches, schools, hospitals, office buildings, shopping centers, and other uses with similar concentrations of persons typifying places of public assembly.

Where it is determined to be impracticable for the airport owner to acquire and plan the land uses within the entire RPZ, the FAA's RPZ land use standards have recommendation status for that portion of the RPZ not controlled by the airport owner.

In the specific case of El Monte Airport, the established land uses located on private and government property within the RPZs are substantially compatible with Airport operations. No change in these land uses is anticipated. Nevertheless, it is recommended that the Airport continue in its efforts to gain effective and appropriate control over the land areas defined by the RPZs. Such control, ideally, would be in the form of fee-simple property acquisition by the Airport. Since this may be impractical, an acceptable alternative would be to acquire avigation/approach protection easements for some or all of the subject property.

The County already has one such easement over private warehousing/ commercial property located between Lower Azuza Road and the Rio Hondo Flood Control Channel. This existing easement is depicted on the *Airport Layout Plan*.

Recommended property/easement acquisition and related land use control issues are further discussed in Chapter 7 — *Land Use and Environmental Issues*.

Adjacent to the Runways

Adjacent to runways, the minimum amount of airport property should encompass the runway and taxiway OFAs. Preferably, it should also include property on which objects of normal height would penetrate the FAR Part 77 approach and transitional surfaces.

For runways designed to ARC B-I/Small standards (i.e., Runway 1-19 — existing and future), the OFAs extend 125 feet laterally from the runway centerline and 45 feet laterally from a parallel taxiway centerline. The FAR Part 77 transitional surfaces begin at the outer edge of the OFA (also the Primary Surface in this case) and slope upwards 1 foot for each 7 feet laterally. For example, a 20-foot-tall building or tree thus would require an additional 140 feet of setback distance beyond the OFA/PSA width to remain below the overriding 7:1 transitional surface.

The area immediately to the west of the runway is fully developed. It is unlikely that any further off-airport development will occur in this area that would significantly impact Airport operations. Similarly, on the Airport's east side, it is unlikely that any development will occur off of Airport property that would significantly impact airport operations.

Nevertheless, it is recommended that the County maintain a high level of vigilance to ensure that all proposed off-airport development penetrating the Airport's FAR Part 77 surfaces is properly considered by the FAA and appropriately addressed.

TAXIWAY SYSTEM

The FAA defines a *taxiway* as a designated path established for the taxiing of aircraft from one part of an airport to another. A *taxilane* is that portion of the aircraft parking area used for access between taxiways and aircraft parking positions. Typically, taxilanes offer less clearance than taxiways.

Proposed Improvements

El Monte Airport is well-served by its existing taxiway system. The recent extensive resealing and remarking of the Airport's paved surfaces substantially enhances the operational safety, efficiency, and appearance of the Airport.

The centerline of the full-length parallel taxiway serving the east side of Runway 1-19 is currently located 175 feet from the runway centerline. This value exceeds the 150-foot minimum dimension recommended by the FAA for an ARC B-I/Small facility. In light of the Airport's wider-than-average runway (i.e., 75 feet actual versus 60 feet minimum recommended) and the Airport's somewhat unusual, but highly effective, *paved continuous drift-off area,* this greater than FAA-recommended minimum distance is appropriate and should be retained.

Taxiway Widths

The width of the parallel taxiway serving Runway 1-19 is 40 feet, and the widths of the tiedown apron/T-hangar/FBO access taxiways are generally 40 feet as well. These taxiway widths are somewhat greater than current FAA design standards which specify a 25-foot-wide taxiway for ARC B-I/Small facilities. This greater taxiway width facilitates the occasional passing of aircraft on the taxiways.

Aircraft Parking Limits

The appropriate setback distances from taxiways to fixed or movable objects or to an Aircraft Parking Limit (APL) line is based primarily upon the size of aircraft intended to use the facilities. In the case of ARC B-I/Small facilities, the distance between the taxiway centerline and fixed or movable object should be a minimum of 45 feet. It is recommended that the ARC B-I/Small distance of 45 feet be applied as a minimum to all taxiways on the Airport.

The location of the APL along a runway is usually dictated by the APL's relationship to an adjacent parallel taxiway. The location of the APL is determined by the application of the above-noted setback distances. On the parallel taxiway side of a runway (i.e., on the east side of Runway 1-19) the APL should be located a minimum of 45 feet from the centerline of the parallel taxiway. The current APL at El Monte Airport is located 60 feet from the centerline of the parallel taxiway. To accommodate occasional use by aircraft that are larger than ARC B-I/Small, it is recommended that this 60-foot setback be retained.

The appropriate setback distance from a taxilane to fixed or movable objects or to an APL should be a minimum of 40 feet.

Holding Bays

Also known as *run-up areas*, holding bays provide a standing space for airplanes (1) to test their engine(s) and equipment immediately prior to takeoff, and (2) to wait for an opportunity to fit into the aircraft arrival/departure stream. El Monte Airport's Runway 1-19 is well-served by appropriately located and sized holding bays – one at each runway end. A recent improvement to these holding bays was the painting of directional arrows on the ground to identify appropriate aircraft run-up orientation. This action reduced the noise, prop blast, and debris impacting adjacent FBO and aircraft operational areas. No change in the configuration or positioning of the holding bays is required or desirable.

OTHER AIRFIELD DESIGN ELEMENTS

Helicopter Operations

Five light helicopters are currently based at El Monte Airport. These helicopters, primarily R-22s, are parked throughout the airport building area and are used primarily for flight training purposes. These based helicopters access the runway area for takeoff/landing by hover-taxiing through the aircraft parking aprons and taxilanes. While not necessarily a desirable routing, this procedure represents a reasonable operational compromise that reflects the Airport's constrained layout and available facilities.

El Monte Airport also sees occasional operations by light-to-medium-sized transient helicopters (e.g., Robinson R-22s, Bell Jet Rangers, etc.). In addition, large transient military helicopters (e.g., CH-47 and UH-1) occasionally utilize the Airport for refueling. Due to the relatively infrequent need to accommodate such helicopters, a formal helipad has not been established on the Airport. Five helicopter parking positions are identified on the old Airport Layout Plan some 150 feet southwest of the aviation fueling island. Each of these five positions is marked with a large painted "H" surrounded by a dashed triangle.

To facilitate current and future helicopter operations at the Airport, particularly transient helicopter operations, it is recommended that a helicopter landing/takeoff target pad (helipad) be designated adjacent to the transient helicopter parking area. A location mid-field on the parallel taxiway appears to be the best compromise for siting the pad. This site is depicted on the *Airport Layout Plan*. From this pad, helicopters would hover-taxi a short distance to/from the designated transient helicopter parking positions located immediately to the southwest of the fueling island. It is anticipated that the operators of small helicopters based at El Monte Airport will continue to operate directly to/from their respective on-airport facilities.

Future decreases in demand for airplane tiedown facilities could result in more apron becoming available for development of a dedicated helicopter operations area on the Airport. In this event, a portion of the unused airplane tiedown area could be developed for dedicated helicopter operations.. Due to the uncertainty of such a scenario, a specific layout for this area/use has not been identified on the *Airport Layout Plan*. Such an area, however, should be located near suitable helicopter-oriented hangar/office facilities and should be located so as to minimize helicopter/airplane operational interaction.

Runway Lighting, Visual Approach Aids, and Marking

Runway 1-19 is equipped with Medium-Intensity Runway Lights (MIRL) which are in fair condition. Replacement/rehabilitation of the MIRL system will be needed within the next 5 to 10 years. Due to the unique operational nature of EL Monte Airport's paved continuous drift-off area, the MIRL locations are visually highlighted with a 4-foot diameter disc of white paint located at the base of each light. To further enhance the conspicuousness of these light stanchions to pilots exiting the runway after landing, particularly in daylight conditions, it is suggested that a small, highly-visible, frangible cone could be placed over each light stanchion. A small plastic reflective-surface traffic cone might be readily adapted for this purpose. FAA concurrence should be obtained before this visual enhancement is installed.

A Visual Approach Slope Indicator (VASI-V2L) with an approach slope angle of 4.95° and a threshold crossing height of 64 feet serves the approach end of Runway 1. A Visual Approach Slope Indicator (VASI-V2R) with an approach angle of 4.50° and a threshold crossing height of 37 feet serves the approach end of Runway 19. When the obstructions in the approach/departure surfaces are mitigated, it is recommended that the need for these greater-than-normal VASI approach slope angles be reevaluated. This reevaluation process should also consider the effect the greater-than-normal VASI approach slope angles have on reducing aircraft noise impacting the residential areas underlying the runway approaches.

Runway 19 is equipped with Runway End Identification Lights (REILs). For the future, it is recommended that the approach end of Runway 1 also be equipped with REILs. REILs on the approach end of Runway 1 will greatly assist pilots in visually identifying the runway threshold during marginal visual or instrument meteorological conditions. These REILs will be of particular value when the proposed straight-in nonprecision instrument approach to Runway 1 is implemented.

Runway 1-19 is marked as a *Basic/Visual* runway. Repainted in late-1993, these markings are in very good condition. In anticipation of a future enhancement to El Monte Airport's instrument approach capability, it is recommended that these markings be upgraded to *Nonprecision* type markings when the runway is next repainted.

A painted 100-foot diameter segmented circle with traffic pattern direction indicators is located near the center of the runway/parallel taxiway system. The traffic pattern direction indicators depict a left traffic pattern for Runway 1 and a right traffic pattern for Runway 19. Repainted in late 1993, these markings are in very good condition.

The name "EL MONTE" is painted in 20-foot-high white letters immediately north of the segmented circle. This large marking aids pilots in visually identifying the Airport. The markings are in good condition and serve a useful purpose.

Taxiway Lighting and Marking

The full-length parallel taxiway serving Runway 1-19 is equipped with an in-pavement flush-mounted centerline lighting system. Due to its older design and aging components, this system is costly to operate and maintain. It is suggested that when the airfield's lighting systems are next renewed, this centerline lighting system be replaced by more modern state-of-the-art centerline lighting equipment.

All of the airfield's taxiway markings were repainted in late 1993. As part of this project, the edge stripes delineating both outer limits of the parallel taxiway were repainted as double solid yellow stripes. This marking format is not consistent with current FAA marking standards.

Advisory Circular 150/5340-1G *Standards for Airport Markings* (dated 9/27/93) states that *dashed* taxiway edge markings are used when there is an operational need to define the edge of a taxiway on a paved surface where the pavement contiguous to the taxiway edge is intended for use by aircraft (e.g., an apron or drift-off area). The dashed taxiway edge markings consist of a broken double yellow line, with each line being at least 6 inches (15 cm) in width, spaced 6 inches (15 cm) apart (edge to edge). The lines are 15 feet (4.5 m) in length with 25-foot (7.5 m) gaps.

Since aircraft are able to utilize (i.e., cross onto) the paved surfaces located on both sides of the parallel taxiway, dashed edge stripes are appropriate. Accordingly, it is recommended that the current solid taxiway edge stripes be changed to dashed stripes.

Hold Lines

The FAA requires hold lines on all taxiways intersecting with runways. The hold lines at the two entrance taxiways serving Runway 1-19 are currently located 125 feet from the runway centerline. This is the appropriate hold line setback distance for an ARC B-I/Small facility such as Runway 1-19.

Signing

El Monte Airport is equipped with lighted runway/taxiway guidance signing in accordance with FAA standards. In addition, supplemental advisory and directional signing is provided throughout the airfield and building area.

Wind Indicators

The Airport is currently equipped with two wind indicators – a lighted wind cone near the Runway 19 touchdown zone (west side) and an unlighted supplemental wind cone near the touchdown zone of Runway 1 (west side). These two wind cones provide adequate visual wind information for El Monte Airport's Runway 1-19. To further enhance airport safety, it is suggested that a third wind cone be located at midfield near the transient parking/future terminal area. A possible location for this third wind cone is above the aviation fuel dispensing island.

Automated Surface Observation Capability

As part of the National Weather Service's (NWS) nationwide program to enhance weather observing capability, El Monte Airport is programmed to receive a NWS-funded Automated Surface Observation System (ASOS). This electronic system automatically senses current local weather conditions and reports these conditions to pilots via aircraft radio and telephone.

Basic ASOS provides wind speed, wind direction, temperature, dew point, and barometric pressure readings. More sophisticated systems also register visibility, cloud height, and form of precipitation. The availability of such a system at El Monte Airport would substantially enhance airport utility and facilitate safe aircraft operations.

El Monte Airport's ASOS was originally programmed for installation in the 1992-1993 timeframe. However, the installation schedule has slipped and it is now thought that the system might be installed by early 1995.

The ASOS siting team identified a location for the sensor array that is approximately 300 feet northeast of the air traffic control tower – where the Civil Air Patrol office trailer is currently located. This proposed location does not appear to be satisfactory – it is too shielded by surrounding trees and structures to accurately reflect airfield wind/weather conditions. As part of the *Master Plan* study, alternative sites for the ASOS were explored.

The *Master Plan* analysis concluded that a more desirable site for the ASOS sensor array would be on the west side of the Airport–near to the existing wind sensor equipment. While not fully con-forming with the FAA's ASOS siting criteria, this location may represent the only available site for the ASOS on the Airport. This site is depicted on the *Airport Layout Plan*.

6

Building Area Development

6

Building Area Development

OVERVIEW

The building area of an airport encompasses all of the airport property not devoted to runways, major taxiways, required clear areas, and other airfield-related functions. Among the facilities found at most public-use general aviation airports are:

- Based aircraft tiedowns and storage hangars.
- Transient aircraft parking.
- Fixed base operations facilities.
- Fuel storage and dispensing equipment.
- Public rest room(s).
- Aircraft washing area(s).
- Access roads and automobile parking.
- Security/perimeter fencing and access gates.
- Lighting, marking, and signing.
- Public telephone(s).

Also common, particularly at busy public-use general aviation airports, are:

- Public terminal.
- Air traffic control tower.
- Emergency response equipment.
- Corporate aircraft storage hangars/offices.
- Airport maintenance facilities.
- Tenant aircraft maintenance shelter(s).
- Public airport viewing area(s).
- Aviation support facilities, such as restaurant/coffee shop, rental car facilities, etc.
- Commercial/industrial buildings.

This chapter examines the factors which affect the siting and development of future building area facilities at El Monte Airport and alternative ways of accommodating projected demand. The focus is on providing direction for the appropriate expansion and use of the core building area of the Airport. The various design and use issues associated with El Monte Airport's building area are graphically presented in Figure 6A.

DESIGN FACTORS

Many factors influence the planning and, later, the development decisions associated with El Monte Airport's building area. Most of these factors can be grouped under six basic headings:

- **Demand** – The demand for additional building area facilities at El Monte Airport is forecast to be modest over the 20-year planning period. This modest level of growth is typical of a community-oriented, primarily general aviation airport. As documented in Chapter 4, based aircraft are forecast to increase less than 10% – from the current 475 to 515 – by the year 2013. This relatively modest increase in demand can be accommodated within the currently available building area.

- **Setback Distances** – The interior boundary of the airport building area is determined in large part by the necessary setback distances from the runways and major taxiways. As discussed in the preceding chapter, the following design criteria are recommended:

  - A minimum of 300 feet from the Runway 1-19 centerline to any future buildings on airport property (shown on the *Airport Layout Plan* as the Building Restriction Line [BRL]),

  - A minimum of 45 feet from taxiway centerlines to aircraft parking positions (shown as the Airplane Parking Limit [APL]).

- **Existing Facilities and Leases** – The Airport's entire building area is located to the east of Runway 1-19. Within the above noted setback distances, virtually all of the available land area is developed for aviation use. Only a 32,000-square-foot parcel of land (presently an unpaved grassy area under lease to the adjacent FBO) in the east-central portion of the Airport is undeveloped. In addition, a five-acre parcel of undeveloped land is located on the southeast side of Santa Anita Avenue. This parcel has no aircraft access to the Airport's aeronautical areas.

  The physical condition of the existing structures and other facilities range from fair to very good. Most of the existing facilities are expected to be usable for 20 or more years and are assumed to remain in place and fully functional. The present condition and use of the various building area facilities is described in Appendix A.

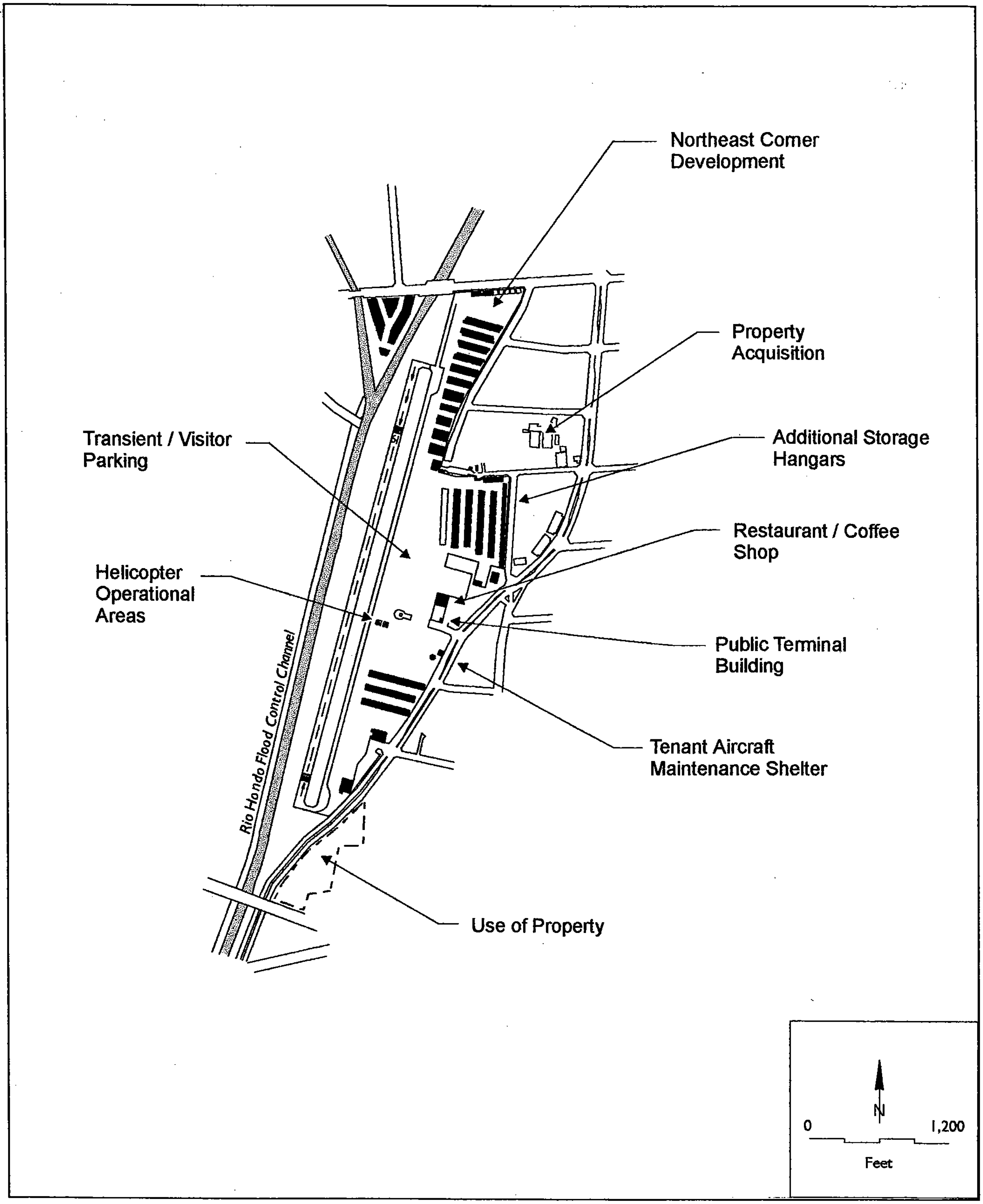


Figure 6A

Building Area Issues

El Monte Airport

At the present time, there are a number of significant leaseholds at El Monte Airport. Four fixed base operations (Lynn's Aircraft Engines, Bartlett Aviation, F.A.S.T., and Valley Flight Center) constitute the major aeronautical-related leaseholds on the Airport. Various smaller aeronautical leaseholds (e.g., aircraft storage hangars and office trailers) are also located on airport property.

- **Accessibility** – An important design consideration is the ease of access to individual portions of the building area from both the taxiway system and public roads. At El Monte Airport, the full-length parallel taxiway provides excellent access between the runway and building area. Three public vehicular access points off Santa Anita Avenue and one controlled vehicular access point off Emery Avenue provide good ground access to the building area facilities (both public and private). Vehicular access to the air traffic control tower is available via a manually-operated gate off Emery Avenue.

- **Land Acquisition Potential** – An important consideration is the desirability of providing sufficient land for unforeseen future building area development needs. The area around El Monte Airport is fully developed. Only a very few land areas adjacent to the Airport would readily lend themselves to airport-related expansion. Should there be unanticipated strong demand for new building area facilities, the Airport would be constrained in its ability to significantly expand the building area.

- **Development Staging** – Another important factor in the preparation of a building area plan is the timing of future development. The objective is to have a plan that is flexible enough to adapt to changes in type and pace of facility demands, is cost-effective, and also makes sense at each stage of development. Sometimes, the best location for facilities in the short-term may conflict with the optimum long-range plan.

BUILDING AREA FACILITY REQUIREMENTS

Aircraft Storage and Parking

The forecasts and demand/capacity analyses prepared for the *Master Plan* indicate that if adequate storage facilities are constructed approximately 515 aircraft could be based at El Monte Airport by the year 2013. Peak transient aircraft parking demand is expected to increase from 20 spaces to 30 spaces over this same period.

Hangars

There are 25 hangar structures at El Monte Airport housing approximately 275 aircraft. Roughly one-half of these hangars are currently owned by the County. The ownership of all privately owned hangars on the Airport will transfer to the County at the end of their respective hangar leases. As noted previously, it is anticipated that demand for additional aircraft storage hangars at the Airport will increase in the years ahead. The continued availability of reasonably priced storage hangars is one of the key factors encouraging growth of based aircraft at El Monte Airport. It is suggested that future hangar development reflect: (1) user demand; (2) physical siting and locational considerations and; (3) funding resources.

There is sufficient land available within the existing building area to accommodate development of the additional number of hangars required to meet projected demand over the 20-year planning period. It would be most efficient to construct the first 30 hangar units (25 portable T-type and 5 box-type or 8 portable T-type, a 17-unit T-hangar building, and 5 box-type) in the northeast corner of the Airport. This area is already paved, well-drained, offers utilities, and is committed to similar hangar use. A subsequent bank of T-hangars (1 building with 20 to 22 units) could be located as depicted in Figure 6B – Proposed General Layout of Building Area. Two possible locations for this T-hangar building are indicated on the *Building Area Plan*.

The type and size of the hangars can best be determined through a survey of potential hangar users. Aircraft type, airframe dimensions, the nature of hangar use (i.e., aircraft storage only versus workshop capability), facility siting considerations, availability of adequate utilities, (specifically water and electricity), and market price largely determine the range of hangar types and sizes required to satisfy demand. Experience at most general aviation airports suggest that mid- to large-sized individual *box-type* hangars are highly preferred by users. T-hangars, whether portable or fixed, are most efficient in terms of apron area utilization. The rectangular or box-type hangar units require more apron area for siting and thus are more expensive to rent.

In parts of the country where sun exposure is high (such as in the El Monte area), shade hangars are popular. Shade hangars are basically T-hangars without doors or interior partitions. Shade hangars offer aircraft protection from the deleterious weathering effects of the sun and rain at less cost than T-hangars or conventional hangars. In addition, shade hangars can be sited on existing asphalt apron areas without the need for expensive concrete floors and extensive site preparation and, in most cases, reimbursement of AIP-funded apron development costs. Shade hangars also present a somewhat less formidable visual appearance than do standard T-hangars. Shade hangar rental rates are typically less than T-hangar rental rates but more than tiedown rental rates. Shade hangars are a reasonable option for development at El Monte Airport in place of the proposed new T-hangar structures.

The timing and type of hangar development should be based upon user demand, funding resources, and overall airport development staging requirements. The hangar development plan must have sufficient flexibility to adjust to actual future requirements. Sites should be identified for more hangar units than are expected to be required. In the interim, these undeveloped hangar sites can continue to be utilized for aircraft tiedowns.

Appendix G provides additional information regarding the development and financing of aircraft storage hangars on publicly owned airports.

Based Tiedowns

There are 285 fixed aircraft tiedown positions designated at the Airport. These positions are well located throughout the building area. At the time of the *Master Plan* inventory (August 1993), approximately 175 (or 61%) of these tiedowns were in use.

As noted in Chapter 4, El Monte Airport is projected to see a very modest increase in the number of based aircraft over the next 20 years (i.e., an increase of 40 aircraft). It is anticipated that most of these based aircraft will be accommodated in new or existing aircraft storage hangars. Future demand for based aircraft tiedowns is expected to decrease somewhat as new storage hangars are constructed. Demand for based aircraft tiedowns at El Monte Airport is projected to decrease from 175 positions in 1993 to 160 positions in 2013.

Transient Parking Positions

In addition, 30 transient aircraft parking positions are located immediately to the north and south of the aviation fueling island. The 10 positions to the south are configured as taxi-in/taxi-out positions for large (i.e., twin-engine) airplanes. The 18 positions on the north side of the fueling island are configured for tail-to-tail parking of smaller airplanes. Five parking positions for transient helicopters are located immediately to the southwest of the fueling island.

The majority of short-term transient aircraft will continue to utilize the transient parking apron located adjacent to the aircraft fueling island. A small number of transient aircraft users will park, with permission, at the Airport's various fixed base operator facilities.

It is anticipated that these 30 transient aircraft parking positions will be sufficient to meet future demand. If additional capacity is required, the adjacent based tiedown areas can be readily converted to transient parking positions.

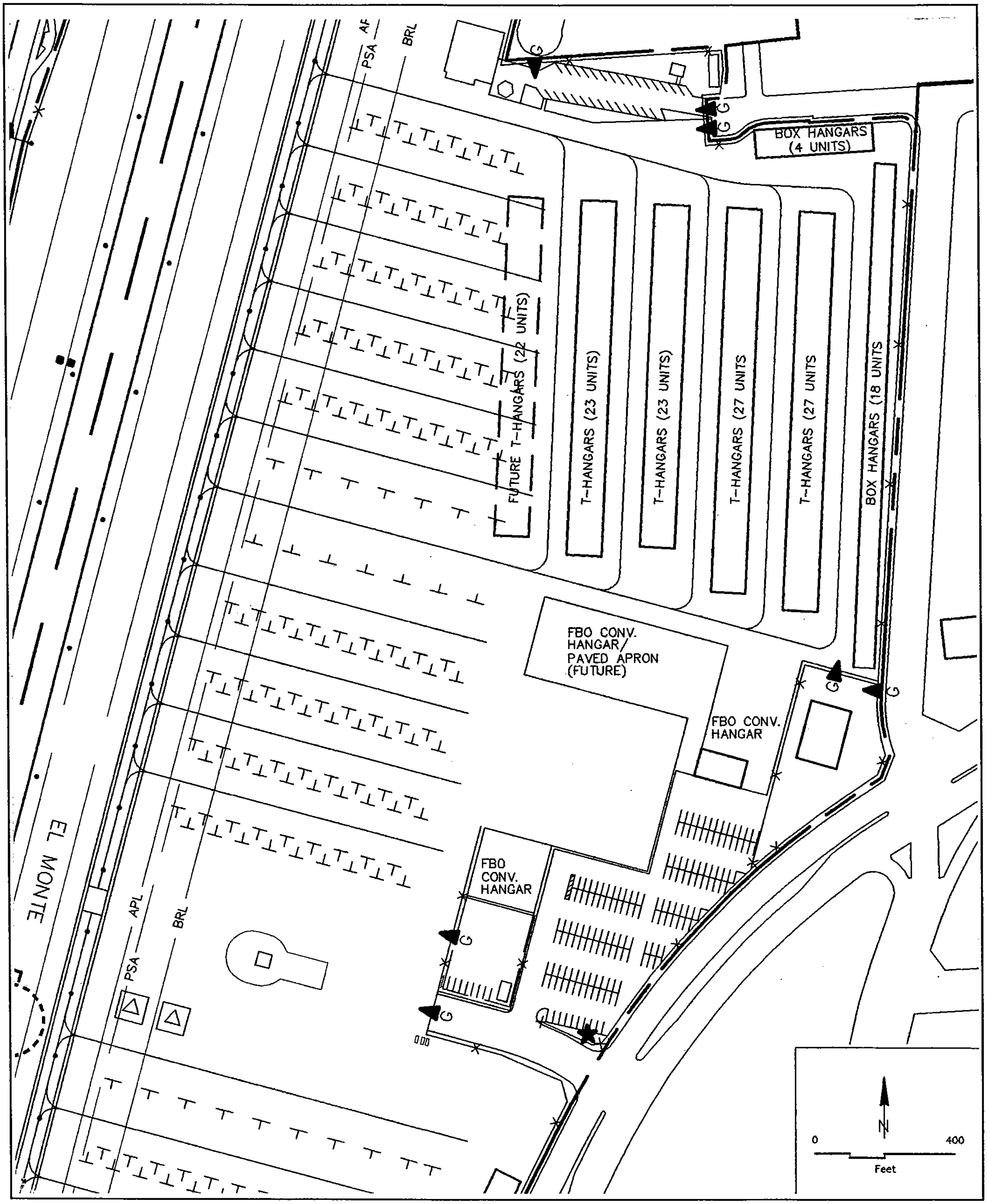


Figure 6B

Proposed General Layout of Building Area

El Monte Airport

Helicopter Parking

As noted previously, El Monte Airport sees occasional transient operations by light- to medium-size civil helicopters and large military helicopters. Since the need to accommodate such helicopters is so infrequent, a formal helipad has not as yet been established on the Airport. Five transient helicopter parking positions are identified on the current *Airport Layout Plan* some 150 feet southwest of the aviation fueling island. In addition, an Airport fixed base operator, Universal Air Academy, utilizes an area on the apron immediately south of the main Airport entrance road for the parking and operation of an R-22 light helicopter.

It is anticipated that helicopters will continue to utilize the Airport as they have in the past – avoiding the flow of fixed-wing aircraft and landing/departing from the mid-field area. If demand for transient helicopter parking positions increases substantially in the future, portions of the airplane transient parking area can be converted for helicopter parking use. The transient airplane parking positions displaced by this action can be relocated to unused based tiedown positions in the vicinity of the fueling island. Transient helicopters can be parked to the south of the aviation fueling island or on the periphery of the FBO areas. In these locations, the interaction of helicopter and fixed-wing operations is minimized.

Fixed Base Operations Areas

At present there are four fixed base operations (FBO) locations at El Monte Airport. The FBO facilities and services occupying these locations are briefly described in Appendix A.

The *Master Plan* anticipates that the four conventional hangars currently being used for fixed base operations will continue to be used for this same purpose throughout the 20-year planning period. Little or no significant expansion of FBO-related facilities is anticipated.

A fifth conventional hangar (approximately 5,250 square feet in size) is located on the Airport immediately west of the air traffic control tower. This hangar is currently being used for private storage of aircraft. Should demand warrant it, this hangar could be used for a small fixed base operation – possibly a helicopter-oriented enterprise. A significant deficiency of this site is its poor public access. At the present time, there is no direct public vehicular access to the site other than through a controlled-access security gate. However, it may be possible to overcome these limitations and utilize the hangar for a fixed base operation. Depicted in Figure 6C is one possible site layout for fixed base operations use of this hangar.

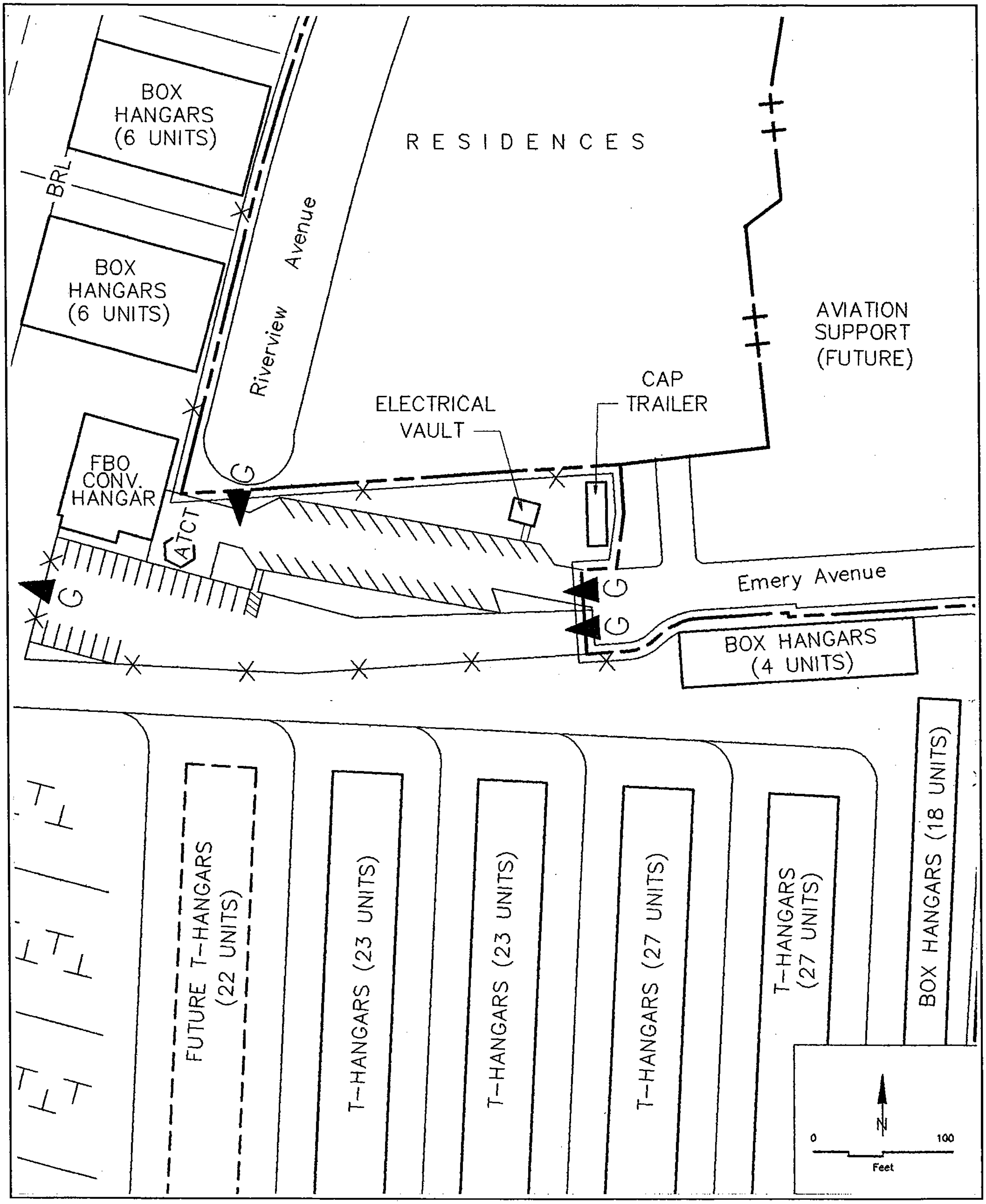


Figure 6C

Hangar Site Layout

El Monte Airport

In addition, the 32,000-square-foot undeveloped grassy area located in the east-central portion of the Airport building area readily lends itself for use in support of fixed base operations. This area could simply be paved and used to support fixed base operations, or a fixed base operations hangar and apron could be developed on the site. This area is presently under lease to the adjacent FBO. In any event, it is recommended that this area be reserved for future fixed base operations use.

Automobile Parking

Three paved automobile parking lots are located within the airport building area. These three lots should adequately serve the present and anticipated public parking needs of the present and future FBOs, the airport administration office, air traffic control tower, and transient aircraft users. To reduce demand upon this area, based aircraft operators are permitted to park their vehicles in their hangars or in the vicinity of their tiedown location. These three auto parking areas are adequately sized to accommodate anticipated future demand.

Fuel Storage/Dispensing Facilities

Bulk aviation fuel is currently stored in three underground tanks at one location on the Airport. These three fuel storage tanks are located below the aviation fueling island near the center of the Airport. The bulk aviation fuel storage and dispensing facilities are described in Appendix A.

Environmental Protection Agency (EPA) and California Environmental Quality Act (CEQA) regulations require that spill prevention and leak detection systems be installed on all underground tanks to guard against ground water contamination from possible fuel leaks. The existing fuel tanks have been modified to comply with these standards. The present condition of the Airport's active bulk aviation fuel storage tanks is such that one of the tanks, a 15,000-gallon 100LL gasoline tank, is in an environmentally acceptable condition and the other two tanks, one 20,000-gallon 100LL gasoline tank and one 20,000-gallon Jet A tank, may need to be renovated or replaced within the next five years.

As part of this *Master Plan,* a number of alternative sites for the Airport's aviation fueling facilities were analyzed. Both underground and aboveground tank configurations were considered. This analysis concluded that the existing site is optimum for both present and future operations.

For the future, it is suggested that the County consider installing credit card-operated, *self-service* aviation fuel dispensing equipment at the fueling island. Self-service fueling capability is becoming increasingly popular at airports, just as it is at automobile service stations. The concept has become more practical and widespread with the advent of new fuel pumps which allow users to insert a credit card, thus eliminating the need for an attendant. Self-service fueling capability also permits 24-hour fueling availability without the need for an on-site attendant. Some concerns remain about the safety of such unattended facilities, however. These concerns will undoubtedly be resolved as more experience is gained.

Terminal Building

Terminal Building

Essential Functions

- Pilot/passenger waiting area
- Flight planning/weather briefing facilities
- Public telephones (24-hour access)
- Public rest rooms (24-hour access)
- User directory (24-hour access)
- Water cooler/fountain
- Nearby automobile parking

Other Functions

- Airport offices — operations and management
- FBO offices
- Community meeting room
- Other office/commercial space
- Restaurant/coffee shop/snack dispensers
- Public airport viewing area

One of the building area facility improvements most frequently suggested by El Monte Airport based and transient users is the need for a public terminal building. There is no such facility on the Airport at the present time. Seventy-two percent of those Airport users responding to the *Master Plan* questionnaire indicated that pilot facilities (e.g., waiting area, flight planning facilities, rest room, etc.) at El Monte Airport should be improved or provided. Forty-four percent of the questionnaire respondees volunteered that a restaurant or coffee shop would encourage their increased use of El Monte Airport.

The previous (1988) Airport Layout Plan for El Monte Airport depicted a proposed site for a future terminal building located approximately 100 feet west of the rotating beacon — adjacent to an existing conventional hangar/office. This site has been reserved over the past several years for the development of a terminal building, and possibly, a restaurant/coffee shop. The site is currently being used, on an interim basis, as the location for a helicopter flight training temporary office and automobile parking.

As part of this *Master Plan*, this reserved site and a number of other potential terminal building sites were analyzed. This analysis indicates that the reserved site is the optimum location for future development of the public terminal area and related facilities and services. The factors considered in the selection of this location include:

- Terminal area is readily visible to general public and airport users.
- Terminal area is located adjacent to primary area access roads (e.g., adjacent to Santa Anita Avenue). This location permits easy ground access.
- Terminal area is centrally located adjacent to runway/taxiway system (i.e., adjacent to Runway 1-19 parallel taxiway and major interior taxilanes). This location permits easy aircraft access and transient aircraft parking.
- Terminal area offers a good view of airfield operations (particularly from a second-floor restaurant vantage point).

- There is a substantial existing commitment to terminal development in the area (e.g., ground access, parking, etc.).

- Clear developable space is available for expansion.

- Airport operations and fuel dispensing personnel based in a terminal office would have a good view of the Airport's central operational area and would be located close to the fuel dispensing island and the transient aircraft parking area.

- Utilities are readily available.

- Other sections of the Airport are either heavily committed to other uses (e.g., permanent hangar structures), or do not lend themselves to terminal development and use (e.g., poor vehicular access).

The terminal building could be built and operated either by the County or through a public/private business partnership. The structure could be either one floor or two floors. The second floor, with its high vantage point, would well lend itself as the location for a restaurant/coffee shop. The development of a restaurant/coffee shop is seen as a very high priority by many Airport users. There are advantages and disadvantages associated with the development of an airport-oriented restaurant/coffee shop. A generic discussion of airport restaurant issues and opportunities is presented in Appendix H. Local demand should dictate the scope and extent of on-Airport restaurant development.

It is anticipated that a terminal building of between 2,500 to 5,000 square feet should be adequate to meet El Monte Airport's basic aeronautical service needs. The terminal building should, at a minimum, provide the "Essential Functions" noted above. Additional space would be required if the building is to include a conference room, rental office space, or restaurant/coffee shop facilities. Space for these functions could double or triple the total basic building size. Commuter airline terminal facilities are not planned for El Monte Airport.

The El Monte Airport terminal building should be designed to be a focal point not only with regard to location, but also in appearance. An attractive building and landscaping that blend well with the community is important. The proposed location for the building will allow it to be easily visible from both the runway/taxiway system and Santa Anita Avenue, thus reinforcing its status as the air transportation gateway to the El Monte community.

Other Aircraft Servicing Facilities

Aircraft Wash Rack

The Airport's aircraft wash rack is located approximately 500 feet southeast of the aviation fueling island. This facility is provided to the airport tenants without charge. The wash rack, which is equipped with a three-compartment clarifier and a rain diversion system, meets CEQA/EPA environmental requirements. Centrally located on the Airport, this site appears to be satisfactory. No change in location is required or desired.

To better serve the Airport's based aircraft users, it may be desirable to provide a second aircraft wash rack in the northern portion of the Airport. Water and sewer lines are available in this area of the Airport to permit development of a second wash rack. A possible site for this facility is depicted on the *Airport Layout Plan*.

Tenant Aircraft Maintenance Shelter

In an effort to provide enhanced tenant amenities and control unauthorized aircraft maintenance in aircraft storage hangars and tiedown areas, some airports have constructed dedicated structures for tenant aircraft maintenance. The structures, commonly referred to as tenant aircraft maintenance shelters, typically consist of a one- or two-bay, all-metal, three-sided structure equipped with electrical power, work bench/vice, overhead lighting/skylights, fire protection, waste oil disposal tank, and, in some cases, compressed air. In addition, the structure should be connected to an appropriate waste water recovery system and should be readily visible to airport operations/security personnel.

The purpose of these shelters is to permit airport-based users and tenants to work on their own aircraft (in accordance with Federal Aviation Regulation Part 43) in a safe, convenient, and controlled facility. Typically, there is no charge to the based tenant for using the shelter to maintain the tenant's private aircraft.

At one time, the County provided a hangar unit in the "T" row of hangars for tenant aircraft maintenance. This hangar unit is now being used for the storage of Airport equipment and material. Therefore, there is no tenant aircraft maintenance shelter available on the Airport at the present time. In the event such a shelter is desired, it should be sited in an area convenient to the based tiedown aprons and aircraft storage hangars. A potential site for a 50′ x 50′ single-bay tenant aircraft maintenance shelter at El Monte Airport is identified on the *Building Area Plan* near the present aircraft wash rack. As an alternative, the maintenance shelter could be located in the northeast corner of the Airport. However, a disadvantage of this northeast location is that the hangar would not be readily visible to airport operations/security personnel.

Civil Air Patrol Trailer

Squadron 21 of the Civil Air Patrol (CAP) maintains an office trailer/storage facility at El Monte Airport. The trailer, which is in poor condition, is located 300 feet east of the air traffic control tower. While not considered an optimum location for this facility, it is anticipated that the CAP will continue to operate out of this facility into the foreseeable future.

Public Access Roads

The Airport's building area facilities are publicly accessed via two paved city streets – Santa Anita Avenue and Emery Avenue. Three vehicular entrances to the Airport feed off these two streets – a public entrance opposite Bryant Road, a public entrance next to the rotating beacon, and a controlled access entrance off Emery Avenue. Additional locked access gates are located along the Airport's perimeter fence.

Of the two public airport access points off Santa Anita Avenue, only Bryant Road is signalized – turn lanes are provided at both access points, however. Should ground traffic at the main airport entrance (i.e., near the rotating beacon) substantially increase in the future, it may be desirable to signalize or otherwise improve this important intersection.

Security Fencing and Gating

The entire Airport perimeter is enclosed with six-foot-high chain-link fence. The existing perimeter fencing appears to be serving the Airport and its users well and is judged to be satisfactory both in terms of condition and location.

With the exception of the main Airport entrance gate (i.e., near the rotating beacon), all gates are either manually locked or equipped with automatic controlled access equipment. The main Airport entrance road is equipped with a manually-operated rolling vehicle gate. This gate must be opened manually if access to the center of the Airport is desired. It is recommended that, with the development of the new terminal building, this gate be upgraded to an automatic controlled-access configuration. This type of gate will enhance the safety, security, and efficiency of Airport apron operations.

The vehicular access gate serving the air traffic control tower parking lot is manually operated. It is suggested that this gate be converted to a code/card-operated controlled-access configuration to enhance safety and security for parking lot users.

SUPPLEMENTAL AVIATION SUPPORT AREA

The property comprising El Monte Airport includes a five-acre parcel of undeveloped land located on the southeast side of Santa Anita Avenue, a major community thoroughfare. Being separated from the Airport by Santa Anita Avenue, this parcel does not now nor will it ever likely have direct aeronautical (i.e., taxiway) access to the Airport itself. However, being so close to the Airport, the parcel could be developed in an airport/aviation support role. In the absence of demand for such airport/aviation-related development, portions of the parcel could be developed in an appropriate manner that is compatible with Airport operations. The revenue generated through development of this parcel would be used to support the continued operation and improvement of the Airport.

Development Constraints

Potential use of this property is significantly constrained, however, by a combination of both aviation-related and other, nonaviation factors. These constraints, as depicted in Figure 6D, include:

- **Runway Protection Zone** – The existing RPZ for Runway 1 encompasses the western 1.4 acres of the property. The expanded RPZ which would result from future establishment of a straight-in instrument approach would affect a total of about 3.0 acres. FAA standards indicate that RPZs should be clear of all objects, especially when the RPZ is under the control of the airport. Certain agricultural, limited outdoor recreational, and automobile parking activities may be acceptable in the portion of the RPZ outside of the Runway Object Free Area (all of the property in question lies outside of this area). Any uses involving buildings or more than 10 to 15 people per acre would be unacceptable for the RPZ-portion of the property and only small concentrations – 50 to 60 people per acre, maximum – would be acceptable on the remainder of the parcel.

- **Noise Impacts** – Most of the property is impacted by noise levels of at least 65-CNEL from both the Airport and Santa Anita Avenue. Noise-sensitive uses should be avoided unless adequate sound insulation is built into the structure.

- **Road Access** – The primary point of access to the property is via Santa Anita Avenue, a major thoroughfare. The existing road median would preclude access to and from the south-bound lanes unless a traffic study indicates that left-turn lanes could be safely installed. Also, the number of access points probably will need to be limited.

A secondary point of access to the property is via St. Louis Drive. It is anticipated that the City will require restrictions on the use of this street for access to the property.

- **Parcel Shape and Topography** – The parcel is roughly in the shape of two triangles joined at a narrow point less than 70 feet wide. The flatter, southern portion encompasses about 3.6 acres, most of which lies within the ultimate RPZ boundaries. The northern portion rises away from Santa Anita Avenue, although the strip adjacent to the road is essentially level. The barely 1.4-acre size of this segment limits the choice of uses.

- **Adjacent Residential Uses** – The rear of a row of single-family residences borders the entire eastern edge of the parcel. Development of the parcel should be compatible with this adjacent land use.

Potential Types of Development

Taking these constraints into account, the following emerge as possible uses for this property. This list is not meant to be all-inclusive; it is only intended to indicate examples of types of uses which would be consistent with the constraints identified. Because of the different factors affecting the southern and northern segments of the property, the potential uses for each area are listed separately.

Southern Segment

Acceptable forms of land use for the southern segment of the property are quite limited because of the difficult road access and the need for the use to be a low-density, outdoor activity.

- **Automobile Parking** – Several types of automobile parking activities are conceivable for this area, including:
  - Overflow public parking for the nearby bus and light-rail transit stations.
  - Rental car parking, provided that any buildings are located outside the RPZ or, at most, only along the eastern edge of the future RPZ.
  - An automobile sales lot, again with the same limitations on buildings.

- **Nursery** – A horticultural nursery is an example of a potentially acceptable retail use for this area. Such a use would have very low concentrations of people and the minimal building area could be located outside or on the edge of the RPZ..

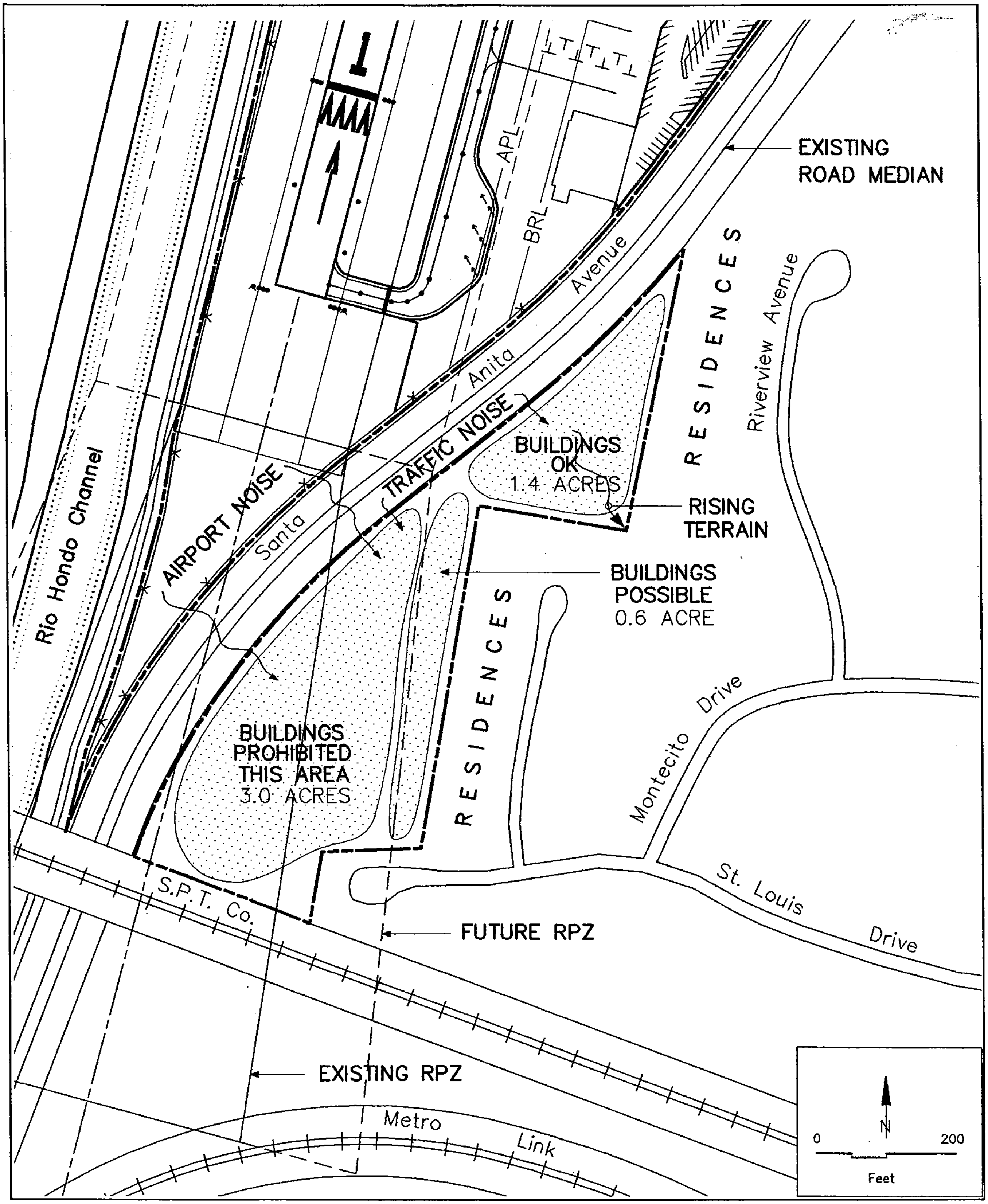


Figure 6D

Supplemental Aviation Support Area Development Factors

Northern Segment

Possible uses for the northern segment include the above uses plus the following:

- **Single-Story Offices** – A small office building is probably the most realistic use for this segment of the property. Such an activity would involve relatively few people and the limited need to accommodate the general public would make the difficult road access less significant than a more public use.

- **Light Industrial Use** – Another possible use, similar to an office activity, would be a small shop of some type. Examples of such a use include woodworking, jewelry manufacture, or electronic equipment repair. The small size of the parcel is probably the major limitation with regard to this type of activity.

- **Retail Sales** – Some type of low-intensity retail sales also might be possible for this area, although accessibility and the small parcel size would be constraints. An activity which could make outdoor use of the larger, southern segment would be the most practical.

- **Mini-Storage** – Another use which would be acceptable for the northern segment from an airport compatibility standpoint is a mini-storage facility. The 1.4-acre size of this area may not be large enough for such a facility, however. The site could be slightly expanded by also placing additional buildings in the southern segment's 0.6-acre sliver of land lying outside or on the edge of the future Runway Protection Zone.

BUILDING AREA LAND ACQUISITION

As mentioned previously, there is sufficient land available within the building area to accommodate development of terminal area facilities, hangars, tiedowns, fixed base operations, specialty shops, and related aviation uses to meet current needs and anticipated aeronautical demand throughout the 20-year planning period. Should the building area develop as recommended, the Airport will have utilized all of the land available for aeronautical uses. If possible, additional property should be acquired to facilitate future airport-related commercial/industrial growth.

The Airport is landlocked by existing private development and public facilities on all sides except the northeast corner where there is a small residential neighborhood with a school (Mulhall Elementary). Expansion into this area is not contemplated, but acquisition should be considered if any of the parties came to the County with a land-sale proposal.

From an economic development perspective, conversion of the large school parcel would offer the greatest opportunities. It has the advantages of one ownership, existing open space, and no dwelling units. This eight-acre parcel is located immediately northeast of the Emery Avenue airport entrance gate, and the parcel could be connected to the Airport with taxiway access. Should this parcel become available on the open market, serious consideration should be given to its acquisition for airport-support purposes. The acquisition of this parcel is discussed further in Chapter 7 — *Land Use and Environmental Issues.*

7

Land Use and Environmental Issues

7

Land Use and Environmental Issues

OVERVIEW

In some ways, land use compatibility issues are important factors at El Monte Airport and, in other respects, they are of minimal concern. The existing intensive urban, and especially residential, land uses around the Airport are not what would normally be considered compatible with airport activities. But, because the surrounding area is totally developed, there is little that can be done to significantly improve existing conditions short of major land use redevelopment or restrictions on airport activity. Also, despite the seemingly incompatible conditions, complaints from the local residents about airport operations have been few.

The fact that compatibility has not been an issue is undoubtedly attributable to the limited nature of airport operations (predominantly light, general aviation airplanes), the busy, relatively noisy character of the surrounding area, and the mutual understanding of each others concerns by pilots and area residents. Given this positive overall compatibility status, it is not the intent of the analysis in this chapter to create an issue where none now exists. Rather, the purpose is to further promote an awareness of compatibility concerns and to identify actions which should be taken — and ones which should be avoided — to prevent problems from arising.

The following discussion examines noise and safety concerns typical of general aviation airports. The El Monte Airport land use compatibility issues addressed in this chapter center around these concerns. The chapter's final section summarizes some of the other types of environmental impacts associated with the proposed development and use of El Monte Airport.

NOISE COMPATIBILITY

Noise is often described as unwanted or disruptive sound. Because of its routine, everyday occurrence, it is usually perceived as the most significant adverse impact of airport activity.

Measured Noise

As used here, measured noise is the type of noise impact primarily defined and measured by standardized, cumulative noise level metrics.

A pure sound is measured in terms of: its *magnitude* (often thought of as loudness) as indicated on the decibel (dB) scale; its *frequency* (or tonal quality) measured in cycles per second (hertz); and its *duration* or length of time over which it occurs. To measure the noise value of a sound or series of sounds, other factors also must be considered. Airport noise is particularly complex to measure because of the widely varying characteristics of the individual sound events and the intermittent nature of these events' occurrence.

CNEL Contour Calculations Inputs

- The number of operations by aircraft type or group.
- The distribution of operations by time of day for each aircraft type.
- The average takeoff profile and standard approach slope used by each aircraft type.
- The amount of noise transmitted by each aircraft type, measured at various distances from the aircraft.
- The runway system configuration and runway lengths.
- Runway utilization distribution by aircraft type and time of day.
- The geometry of common aircraft flight tracks.
- The distribution of operations for each flight track.

In an attempt to provide a single measure of airport noise impacts, various cumulative noise level noise metrics have been devised. The metric most commonly used in California is the *Community Noise Equivalent Level* (CNEL). Elsewhere in the United States, the similar *Day-Night Average Sound Level* (DNL) metric is used. The results of CNEL or DNL calculations are normally depicted by a series of contours representing points of equal noise exposure in 5 dB increments. Key factors involved in calculation of CNEL or DNL contours are noted to the left.

The primary function of the contours produced by CNEL and DNL calculations is to show areas affected by significant noise levels resulting from high concentrations of aircraft takeoffs and landings. For this purpose, these metrics are considered to be the best tools available. Two limitations of cumulative noise level metrics are important to recognize, however:

- **Accuracy** — Because of the number of assumptions usually involved in the calculation inputs, cumulative noise level contours for general aviation airports are regarded as having an accuracy of about ±3 dB (the accuracy is somewhat greater at airline airports because airline aircraft are more consistent in the flight paths and procedures they follow and better data is usually available). Cumulative noise level contours do not encompass the total area affected by aircraft noise around an airport. Use of noise contours to show marginally affected areas is, at best, imprecise because of the varied distribution of aircraft flight tracks and altitudes which occurs with increased distance from the ends of runways.

- **Averaging** — The values produced by CNEL and DNL calculations each represent decibel averages of the individual noise events and the quieter periods between them. Because decibels are measured on a logarithmic scale, the average is weighted in favor of the louder noise events. Nevertheless, cumulative noise level metrics do not directly measure either the peak sound levels of individual events or how frequently the events occur.

Single-event overflight noise can be of particular concern at general aviation airports, especially when a small number of operations by certain aircraft may be distinctly louder than the majority of aircraft using the airport. These occasional loud individual events are often the principal cause of noise complaints from people living nearby.

Overflight Impacts

As the term is applied here, an *overflight* means any distinctly audible and usually visible passage of an aircraft, not necessarily one which is directly overhead.

A general definition of *overflight* impacts is that they are noise-related impacts which occur in the portions of an airport environs lying beyond the typical contours measured by cumulative noise level metrics. Compared to the measured noise impacts, overflight impacts are more subtle and subjective. Also, they seem to include elements of both noise and safety concerns. Often the impacts are revealed in the form of *annoyance* expressed by some people living near an airport.

Although overflight noise is detectible and therefore measurable, the highly subjective individual reactions to overflights makes the value of measurement on a decibel scale questionable. A more representative measure of overflight impacts is the absolute number of events which occur, but little is known about what an acceptable number might be.

For the purposes of airport land use compatibility planning, a simpler form of assessment may be more practical. This approach presumes that aircraft overflight impacts are potentially a concern anywhere along the standard aircraft traffic pattern flight tracks. Concerns can also be expected, but to lesser degrees, elsewhere in the airport vicinity where aircraft fly at or below traffic pattern altitude while approaching or departing the runway.

Whether a significant degree of overflight annoyance will actually occur in the vicinity of an airport is influenced by a variety of factors, both environmental and human. Building type and design, ambient noise levels, the characteristics and predictability of the noise itself, and (as noted above) the frequency of occurrence are among the environmental factors involved. An individual's sense of annoyance at overflights depends upon such factors as personal sensitivity to noise, attitudes toward aviation, and experience and expectations regarding noise levels in the community.

Noise Compatibility Concepts

The basic approach to enhancing noise compatibility is to minimize the extent to which noise impacts *disrupt* human activities. Among the factors in this equation are:

- The absolute loudness of the noises people hear;
- The relative loudness compared to background noise levels;
- The frequency with which the noise events occur; and
- The types of activity affected.

Various studies have been done to ascertain the relationships among these factors. Typically, the results are formulated in terms of the cumulative noise levels acceptable or unacceptable for specific types of land uses. California State Aeronautics Law establishes a CNEL of 65 dB as the maximum acceptable noise exposure for residential land uses. Part 150 of the Federal Aviation Regulations has a similar residential limit of DNL-65. These criteria, however, are set primarily with regard to air carrier airports in urban locations. For general aviation airports located in comparatively quiet settings, a CNEL or DNL of 60 dB is commonly used. Neither the FAA nor the California Division of Aeronautics currently have criteria relating the acceptability of single-event noise levels to specific land uses.

As with measured noise impacts, the ideal strategy for limiting overflight impacts is to avoid residential or other noise-sensitive development in affected locations. To the extent that this strategy is not practical, the most useful approach is one which recognizes the subjective nature of annoyance. From a land use compatibility policy perspective, this characteristic of annoyance suggests the importance of educating the community about the airport. Most importantly, if people are made aware of an airport's proximity and the nature and location of aircraft overflights before moving into the airport area, the likelihood of them being annoyed by the airport activity can be reduced. This objective can best be accomplished through some form of *buyer awareness* program as discussed later in this chapter.

SAFETY COMPATIBILITY

In examining safety factors in the vicinity of an airport, the primary concern is usually for the safety of people and property on the ground. The safety of aircraft occupants is also an important consideration, however. In each case, the concept of *risk* is central to the assessment of safety compatibility.

Safety on the Ground

A fundamental objective of airport/land use compatibility planning is to provide for the safety of people and property on the ground in the event of an aircraft accident near an airport. However, because aircraft accidents are infrequent occurrences – particularly accidents occurring beyond airport boundaries – determining how much risk exists and how much is acceptable are often difficult questions.

Aircraft accident probabilities increase with closer proximity to the end of a runway. This increased risk to people and structures on the ground is largely due to the greater concentration of aircraft flying over these areas. Additionally, the low altitude of the aircraft during final approach or initial climb contributes to the risk. The most critical areas are the lands immediately beyond the runway ends – the Runway Protection Zones. Beyond these FAA-defined boundaries, the remainder of the runway approach zones plus other areas over which aircraft commonly fly at low altitudes also have significant levels of risk.

Low flight altitudes present greater risks because they offer pilots less opportunity to recover from unexpected occurrences or choice of where to make an emergency landing if one becomes unavoidable. At altitudes less than 500 feet above the ground, only moderate turns are advisable and the choice of emergency landing area is essentially limited to what lies ahead. Above this altitude, recovery or at least a fairly wide discretion in choice of emergency landing sites is possible. An emergency landing on the runway normally can be accomplished when the aircraft is flying in the traffic pattern at the typical traffic pattern altitude (800 to 1,000 feet).

Additional areas where the risks are above average are along the most common flight tracks for aircraft approaching and departing an airport. Accidents occur relatively infrequently in these areas, however, and the probability of occurrence in any given location is substantially less than within the approach/departure corridors.

Safety of Aircraft Occupants

There are two facets to this safety concern: avoiding land use conditions that can become hazards to flight; and increasing the chances of the aircraft occupants' survival if an aircraft accident takes place beyond airport boundaries.

- **Hazards to Flight** – Land use conditions that can constitute hazards to flight include airspace obstructions and visual or electronic interference to aircraft navigation or communication. Another type of hazard to flight – bird strikes – is usually not a significant concern in urban areas such as around El Monte Airport unless large water bodies or refuse disposal sites are situated nearby.

- *Airspace Obstructions* — The airspace needed for operation of aircraft around an airport is defined by Part 77 of the Federal Aviation Regulations (FAR) and by the U.S. Standards for Terminal Instrument Procedures (TERPS). In most circumstances, the latter is the less restrictive set of criteria. Limiting the heights of structures to the heights indicated by the Part 77 surfaces provides an ample margin of safety for normal aircraft operations. The most critical locations with regard to the height of objects are those within the runway approach zones.

- *Visual and Electronic Interference* — Most other land use characteristics that can affect flight safety fall into this category. Visual hazards include distracting lights (particularly lights which can be confused with airfield lights), glare, and sources of smoke. Electronic hazards include any uses which interfere with aircraft instruments or radio communication.

- **Limiting On-Board Injuries** — In some respects, a concern over limiting on-board injuries in the event of an aircraft accident seems irrelevant in that aircraft occupants (and particularly general aviation aircraft occupants) presumably accept the risk associated with flying when they board the aircraft. Nevertheless, the precedent for land use measures to enhance the survivability of an aircraft accident is set by FAA criteria for establishment of safety areas and object free areas adjacent to and at the ends of airport runways. Because a significant percentage of aircraft accidents occur in locations beyond these areas, as well as beyond the boundaries of runway protection zones, the availability of level, open land around an airport is an important measure of the safety compatibility between an airport and its environs.

Safety Compatibility Concepts

To a considerable extent, the concepts for providing safety for people on the ground near an airport overlap with the approaches to enhancing safety for occupants of aircraft. There are three basic land use approaches to safety compatibility:

- Limiting the density of development;
- Providing open areas for emergency aircraft landings; and
- Limiting hazards to flight.

Density of Development

A primary means of limiting the risks of injury to persons or damage to property on the ground due to near-airport aircraft accidents is to limit the density of land use development in these areas. The best measure of development density in this context is the number of persons per acre. The question of where to set these limits is dependent upon both the probability of an accident and the degree of risk that the community finds acceptable.

Typical light industrial uses, such as the ones common to the El Monte Airport vicinity, tend to average around 50 people per acre, as do two-story motels. Shopping centers are likely to average about 75 people per acre and restaurants are often over 100.

Some airports and local communities have set development density limitations ranging between 25 and 100 people per net acre for various parts of runway approach corridors. Many times these basic criteria are translated into a matrix indicating the acceptability or unacceptability of specific land use categories within various safety zones around an airport.

Open Areas for Emergency Aircraft Landing

A high percentage of off-airport aircraft accidents and incidents involve circumstances in which an engine malfunction forces an emergency landing. In most such instances, it is possible for the pilot to maintain control of the aircraft as it descends. When an emergency occurs while approaching or departing an airport, most pilots will attempt to reach or return to that airport. If landing at the airport is not possible, the preferred choice usually is to head for the best available open space located somewhere ahead – preferably landing into the wind. An open area does not have to be very large to enable a successful emergency landing – the objective is for the occupants to survive the accident with limited injury; damage to the aircraft is irrelevant in these circumstances. For example, a 75-foot by 300-foot area (the size of a football field) can be sufficient for a survivable emergency landing in a small plane if the area is relatively level and mostly free of overhead lines and large obstacles such as trees and poles. Because the pilot's discretion in selecting an emergency landing site is reduced as the aircraft's altitude decreases, open areas preferably should be spaced more closely in those locations overflown at low altitude.

Preserving suitable open areas in the vicinity of airports is seldom an easy proposition. Historically, little has been done in this regard around most urban area airports, El Monte Airport included. In more recent years, greater awareness of this issue – as well as recognition of the safety benefits of limiting land use density near airports – has led planners to try to locate parks, golf courses, or even parking lots in the most critical areas around airports situated in urbanizing communities. To be successful, such efforts usually must be made as part of a general plan or specific plan process. Once an area has been divided into small parcels, few opportunities to preserve open spaces remain.

Hazards to Flight

Hazards to flight – airspace obstructions, visual and electronic interference, and uses which attract birds – frequently occur near airports simply because a lack of awareness of the potential problems. Fortunately, the most significant of these hazards – tall structures which pose airspace obstructions – are the best recognized, thanks largely to California state airport regulations and the FAA's model height limit ordinance based on FAR Part 77 (Advisory Circular 150/5190-4A). Even so, potentially hazardous structures sometimes are built without proper notification to and review by the FAA. It is thus important for communities near airports not only to adopt local regulations regarding hazards to flight, but also to make certain that their planners are aware of and enforce those regulations.

EL MONTE AIRPORT LAND USE COMPATIBILITY STATUS

When viewed with respect to the general types of airport/land use compatibility concerns described in the preceding paragraphs, a high degree of incompatibility would seem to exist between El Monte Airport and its highly urbanized surroundings. The reality, though, is that the airport and its neighbors have coexisted rather well and problems have been relatively few. The focus of the following discussion, therefore, is primarily on measures which should be considered to help prevent more significant compatibility problems from arising in the future.

The discussion begins with reviews of existing land use conditions and plans and of the Airport's existing and projected impacts. Specific present and potential future concerns are identified next. Finally, suggested compatibility measures are outlined.

Existing Land Use Plans and Policies

As noted previously, all of the El Monte Airport property lies within the incorporated boundaries of the City of El Monte. The San Gabriel Valley, though, is comprised of numerous small cities, several of which are affected by airport traffic. Much of the traffic pattern on the northwest side of the Airport crosses over the City of Temple City and, beyond a distance of 0.4 miles, the Runway 19 approach zone encompasses an unincorporated portion of the County of Los Angeles. Within two miles of the runway ends – an area within which aircraft are entering and leaving the traffic pattern – lie a significant piece of the City of Arcadia (north of the Airport) and smaller sections of the cities of Monrovia (northeast), Irwindale (northeast), South El Monte (south), and Rosemead (west).

The principal guidance regarding the compatibility of land use development in the El Monte Airport vicinity comes from two sources: the *El Monte General Plan* and the *Los Angeles County Airport Land Use Plan*.

El Monte General Plan

The *El Monte General Plan* was adopted by the City of El Monte in July 1991. Because the city has virtually no remaining vacant land, the land use plan for the airport area predominantly reflects existing conditions. Industrial uses are emphasized within locations most affected by airport operations.

The Noise Element of the *General Plan* specifically addresses airport noise and includes several policies designed to minimize aircraft noise impacts on El Monte residents. Among other things, these policies encourage the use of "noise-reducing modifications to planes using El Monte Airport" and the enforcement of "noise-attenuating flight procedures."

Los Angeles County Airport Land Use Plan

The *Los Angeles County Airport Land Use Plan* is a county-wide document adopted in December 1991 by the County Regional Planning Commission in its role as the Airport Land Use Commission (ALUC) for Los Angeles County. This plan pertains to El Monte Airport as well as to 14 other public-use airports within the County.

The establishment of ALUCs and the preparation of airport land use plans are required by state law. ALUCs have responsibilities for the review of proposed land uses in the vicinity of airports. They have no authority over existing land uses or the operation of any airport.

One function of airport land use plans is to define the boundaries of the areas considered to be affected by airport operations. Within these boundaries, appropriate restrictions on land use development are set to assure compatibility with noise and safety criteria. Each ALUC establishes the policies for the airports within its jurisdiction. Among the compatibility policies in the Los Angeles County plan are the following:

- For general aviation airports (including El Monte Airport), the plan indicates that the 60-to-65-CNEL range best represents the annoyance factor associated with smaller, but lower flying aircraft. (Note that the compatibility plan currently shows only a 70-CNEL contour for El Monte Airport, but says that the plan will be amended when new contours are obtained. It is anticipated that the new contours prepared as part of this *El Monte Airport Master Plan* will be adopted by the ALUC for this purpose.)

- With regard to safety, the plan states that "no structure will be permitted nor the congregation of people allowed" within Runway Protection Zones. Safety policies also prohibit various hazards to flight (obstructions, distracting lights, electrical interference, etc.) within the RPZs. Other than basic height restrictions in accordance with Part 77 of the Federal Aviation Regulations, no safety criteria are established for locations beyond the RPZs.

- "... dedication of an avigation easement to the jurisdiction owning the airport as a condition of approval on any project within the designated planning boundaries" is to be considered.
- "... recycling of incompatible land uses to uses which are compatible with the airport" is encouraged.

El Monte Airport Impacts

Noise

New noise contours for El Monte Airport were calculated as part of this *Master Plan Report*. A summary of the data used in the calculations is presented in Appendix I.

The current (1993) and projected (2013) noise impacts generated by aircraft operations at El Monte Airport are illustrated in Figures 7A and 7B. The expansion of the noise contours over the 20-year time frame is attributable to the projected 13% increase in total operations plus a slight shift toward higher proportions of helicopters and twin-engine propeller airplanes in the fleet mix.

The only residences within the existing 65-CNEL contour are some of the mobile homes located in the Daleview Trailer Park just beyond the Rio Hondo channel north of the Airport (the relatively few noise complaints received by the Airport mostly come from this mobile home park). By 2013, the projected 65-CNEL contour will encompass a few more of the mobile homes and also will just touch the residential area at the end of St. Louis Drive south of the Airport (the latter area, it should be noted, also lies within the existing 65 and future 70-CNEL contours for Santa Anita Avenue, according to the *El Monte General Plan Noise Element*). The 60-CNEL contour, both existing and future, includes the first row of homes along Whitney Drive across the channel to the west. For the most part, though, the area most affected by aircraft noise at each end of the runway predominantly consists of commercial and industrial land uses.

The median location of El Monte Airport flight tracks is depicted in Figure 7C. The areas affected contain a mixture of urban land uses, although the majority are residential.

Safety

As indicated in the general discussion earlier in this chapter, the locations of greatest concern with regard to safety around airports are the Runway Protection Zones and immediately adjoining areas. Although the Airport owns less than half of the land within each of the two future RPZs, most of the remaining property consists of road and railroad rights-of-way and the Rio Hondo flood control channel. Only a portion

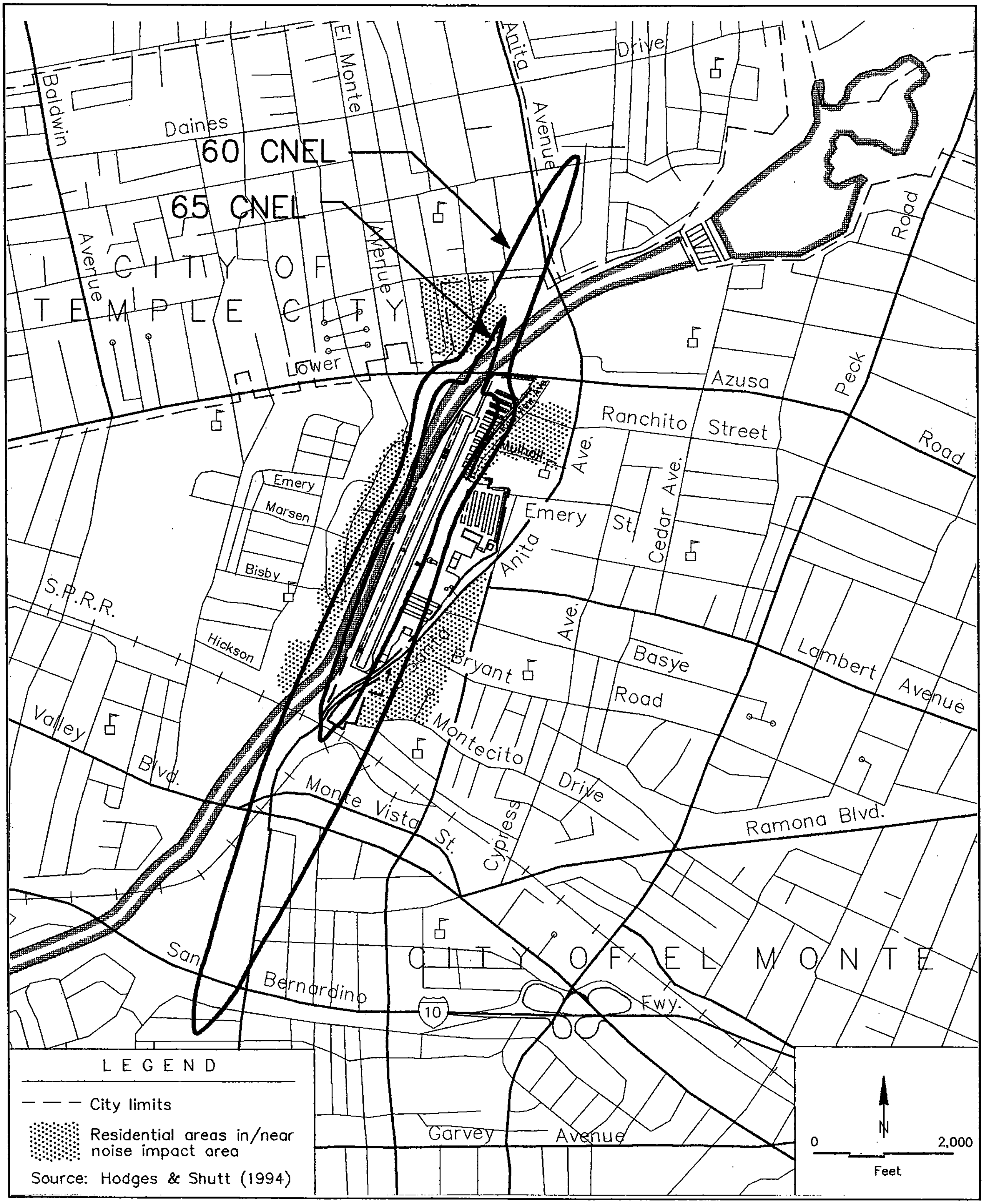


Figure 7A

Noise Contours - Year 1993

El Monte Airport

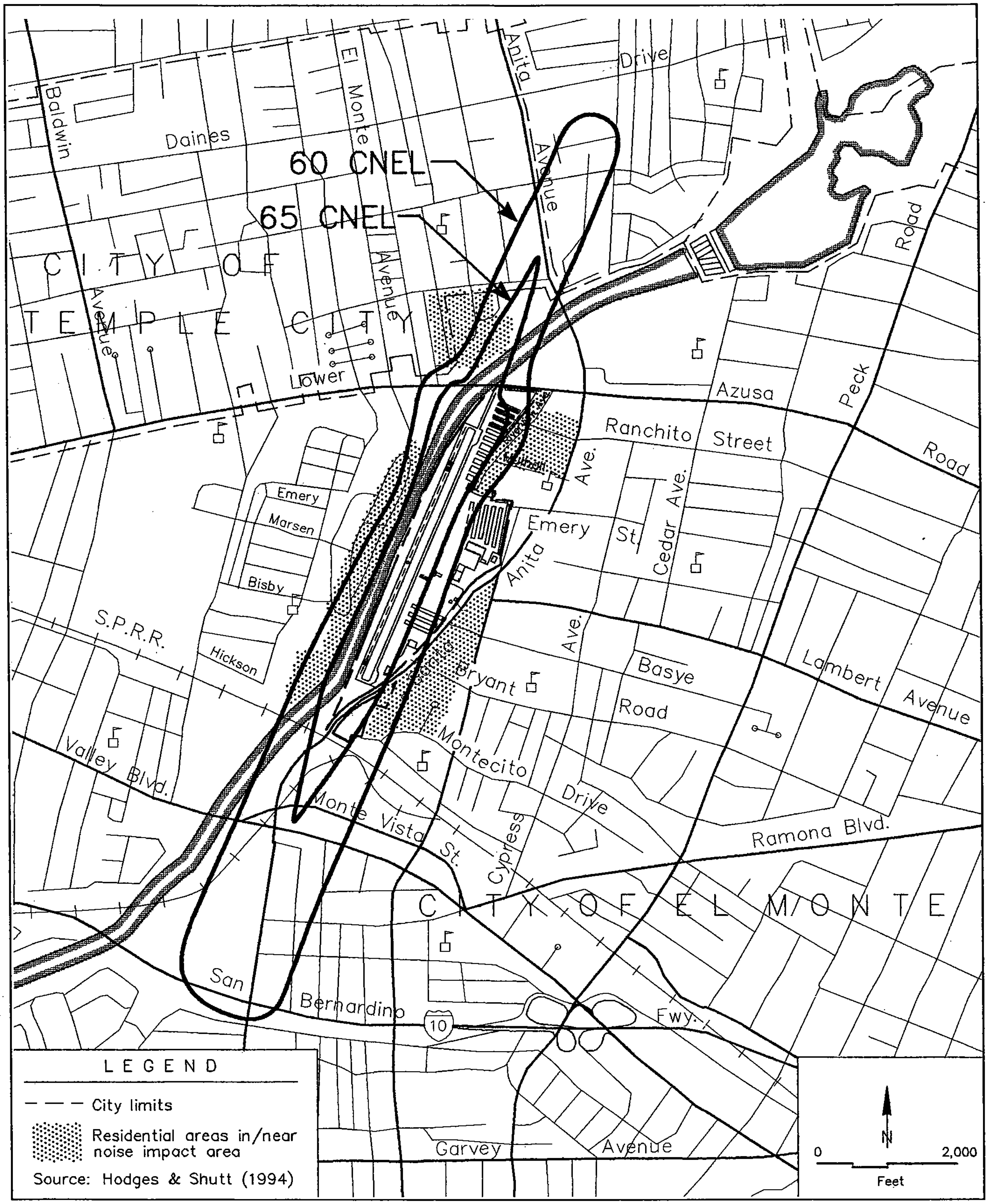
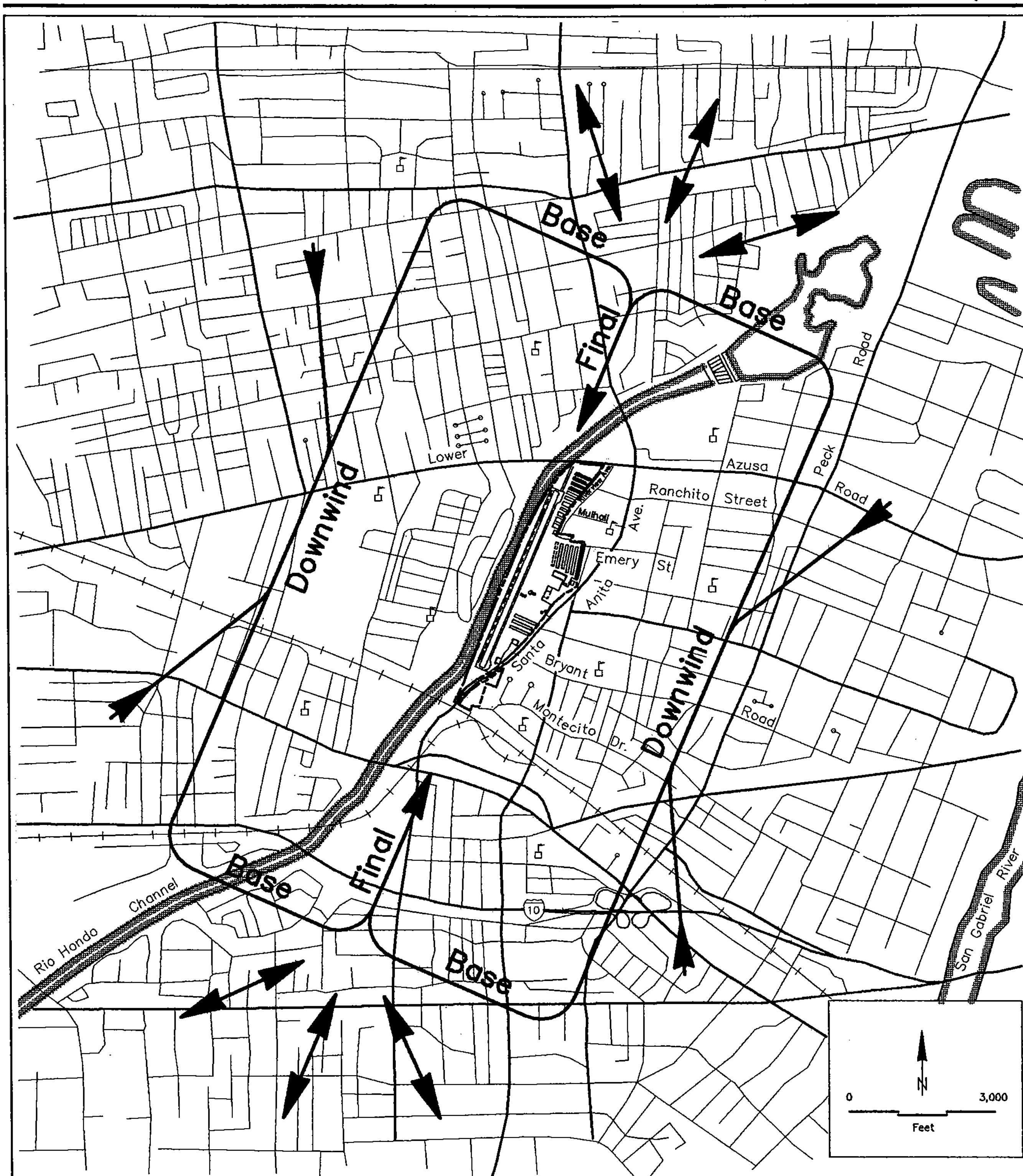


Figure 7B

Nosie Contours - Year 2013

El Monte Airport



Note: See Appendix I for percentage distribution of flight tracks.
Source: Hodges & Shutt (1994).

Traffic Pattern Altitude
1,296' MSL
(1,000' AGL)

Figure 7C

Airport Flight Tracks
El Monte Airport

of one building – adjacent to Lower Azusa Road north of the Airport – is situated within existing RPZ boundaries. An avigation easement has been obtained on this piece of property. This easement, however, does not extend to additional portions of the parcel which will be affected by the future increase in RPZ size resulting from establishment of a straight-in approach. Expansion of the easement coverage on this property is recommended.

Very few open spaces remain anywhere in the vicinity of El Monte Airport. If an aircraft were to have engine failure while flying near the Airport and not be close enough to reach the runway, the best choices for an emergency landing would probably be in the flood control channel or on the freeway or a major road.

Compatibility Concerns

Little change in the current compatibility status of El Monte Airport is expected to occur in future years. The character of both the Airport and the surrounding land uses is well established and, short of major redevelopment, the opportunities for significant changes for either are minimal. Nevertheless, the following specific concerns are important to identify here in order to ensure that they do not become major problems in the future.

- **Daleview Trailer Park** – As the residential area closest to either of the runway ends, this mobile home park is probably the land use most adversely affected by airport operations. This assumption is borne out by the fact that the majority of complaints about airport operations stem from this development.

- **Schools** – Some 10 schools lie within 1 mile of the El Monte Airport runway ends and a total of about 30 are situated within a 2-mile radius. Fortunately, none are located inside the runway approach zone as defined by FAR Part 77 or within the comparatively high risk areas adjacent to the Runway Protection Zones.

- **Tall Structures** – Presently, there are very few high-rise buildings in the El Monte Airport vicinity, although there are various tall tanks, antennas, and other such structures. However, immediately south of the Airport – almost in a direct line with the runway – are a Rapid Transit District bus terminal and a new station for the Metro-Link rail transit line. Transit facilities such as these are often considered to be highly desirable nodes for high-rise office development. Tall buildings in this location could constitute airspace obstructions which would be in conflict with the operation of El Monte Airport.

COMPATIBILITY MEASURES

Land Use Measures

Although the need for and potential benefits from aggressive application of land use control measures does not exist at El Monte Airport, each has some applicability. Indeed, several types of compatibility measures have already been implemented in a limited manner. Typical measures and their applicability at El Monte Airport can be summarized as follows:

- **Acquisition of Fee Simple Title** – Outright purchase of property by the airport owner is the most direct and certain, but the most costly, means of ensuring land use compatibility in the vicinity of an airport. Historically, though, Los Angeles County has not pursued property acquisition as a land use control measure around its urban area airports. Because the areas where fee simple acquisition might normally be considered are already developed, there would be little to gain from such an action except as a last resort for preventing some new or expanded land use which would impair airport operations. No conditions warranting outright acquisition are currently apparent or anticipated near El Monte Airport. Nonetheless, the County should continue to keep this option open if it should become necessary.

- **Approach Protection Easement Acquisition** – Approach protection easements combine the typical overflight, noise, and height-related conditions of avigation easements with acquisition of specified development rights to the property involved. Generally, approach protection easements are used to prevent new development on property which is currently compatible with airport activities. Most often the existing land uses are agricultural. No approach protection easements currently exist at El Monte Airport (although an avigation easement has been obtained on one property) and no imminent applicability is currently apparent. However, this type of compatibility measure possibly could be of value as an alternative to outright acquisition as a means of preventing new, more incompatible development on critical properties near the runway ends.

- **Land Use Designation** – The basic form of land use designation is that which is established by local general plans and zoning ordinances. In undeveloped or developing areas, designation of compatible land uses is essential to airport/land use compatibility planning. However, in built-up areas such as around El Monte Airport, land use designations most often merely reflect existing conditions. At most, designation of an area for a different use than one already existing may encourage change over the long run, but it would not directly eliminate any incompatible uses. In general, the critical locations around El Monte Airport are designated for industrial or limited commercial land uses. These designations are about the best possible for the area. The one location for which designation of a different land use category would be beneficial from an airport compatibility standpoint is the mobile home park north of the Airport. Some type of light industrial use would be more suitable for this site. It is recognized, though, that this change is not likely to occur unless it were to be supported by factors other than airport compatibility.

- **Airport Overlay Zone** — Airport overlay zoning is a method of incorporating specific airport compatibility criteria into local zoning ordinances. The most common use of an airport overlay zone is to implement the height restrictions defined by FAR Part 77 for airspace protection purposes. Measures such as noise insulation requirements in structures or the requirement for dedication of avigation easements are also sometimes implemented by means of an overlay zone. Also, Airport land use commission plans are, in effect, a form of airport overlay zone. At El Monte Airport, the airport overlay zoning already in effect includes the height limit zoning adopted by the City of El Monte (Airport Approach Height Zone - H) and the compatibility plan adopted by the County Airport Land Use Commission. Any future proposals for high-rise development or any tall structures in the airport vicinity — and especially in the runway approach corridors — should be carefully reviewed with respect to airspace protection criteria.

- **Buyer Awareness** — Buyer awareness is an umbrella category for three types of measures whose objective is to ensure that prospective buyers of property in the vicinity of an airport are informed about the airport's impacts on the property. These three individual measures are:

  - *Avigation Easement Dedication* — A requirement for avigation easement dedication is usually applied only to new development. Except for redevelopment, there is little opportunity for El Monte Airport to obtain new easements in this manner. However, if redevelopment occurs, especially within and near the Runway Protection Zones, the City of El Monte should require the dedication of an easement.

  - *Deed Notices* — Deed notices are similar to avigation easements in that they are recorded with a deed to a property and are usually implemented only in conjunction with some form of development approval process. Unlike easements, though, they do not convey any property rights. Deed notices serve only to formalize the fact that a property is subject to aircraft overflights and noise.

  - *Real Estate Disclosure* — Real estate disclosure is the least formal method of implementing a buyer awareness program. It relies upon standard real estate disclosure practices to ensure that prospective buyers of property in the airport vicinity are informed about the proximity of the airport and the impacts it creates. The likelihood of this information being disclosed can be increased if the airport or the local land use jurisdiction provide official notification to local real estate brokers and title companies regarding the location of airport traffic patterns and other areas routinely subject to overflights by aircraft arriving at and departing from an airport. The limits of this area can be defined by means of a locally adopted airport overlay zone. El Monte and other cities in the vicinity of El Monte Airport are encouraged to implement this form of buyer awareness program.

Airport Facility and Operational Measures

The other side of the compatibility coin is to assure that airport activity does not grow or change to the extent that it creates new conflicts with already existing land uses. Airports which have compatibility problems – especially noise compatibility problems – have adopted a wide variety of measures to limit the extent of the impacts created by aircraft operations. Such measures include limitations on airport capacity, modification of physical facilities, and controls on individual aircraft operations and procedures.

As described earlier in this chapter, the projected increase in El Monte Airport operations over the next 20 years will lead to a slight expansion of the Airport's noise contours. This change is anticipated to be so minor as to be imperceptible to the local populace. Nevertheless, avoiding future compatibility problems and perhaps even reducing existing impacts is a worthwhile objective. Several airport facility and operational measures are already in place at El Monte Airport and others may be worthy of consideration.

- **Airport Capacity Limitations** – For general aviation airports, one means of limiting noise and safety impacts is to restrict the number of based aircraft. This situation occurs by default at El Monte Airport simply because very little vacant land is available for expansion of aircraft parking.

- **Aircraft Types** – Except for helicopters, nearly all of the aircraft which use El Monte Airport are single-engine and light, twin-engine, propeller airplanes. Although the runway length effectively precludes most larger airplanes from readily operating at the Airport, it is important to the maintenance of airport/land use compatibility that no actions be taken which would encourage significant use of the facility by such aircraft.

- **Airport Traffic Pattern Location and Altitude** – At some airports, impacts can be reduced by eliminating the traffic pattern on one side of the runway or by increasing its altitude. At El Monte Airport, the principal traffic pattern is located on the west side of the field, but aircraft arriving from the east are often directed by air traffic controllers to enter an east-side pattern. Overflights therefore routinely occur on both sides of the field. One apparent option would be to limit all traffic to a west-side pattern. Historically, the principal pattern was established on the west because there were fewer residences in this area. Today, the difference in residential density between the two sides is slight. Consequently, it is concluded that there would be little compatibility benefit and significant adverse operational impacts to eliminating the easterly pattern. Similarly, the pattern altitude is already at the maximum functional altitude of 1,000 feet above the runway elevation.

- **Arrival and Departure Flight Tracks** – More significant than the pattern location or altitude in terms of minimizing El Monte Airport's impacts is the location of the so-called *straight-in* and *straight-out* flight tracks followed by arriving and departing aircraft which do not enter the traffic pattern. For both arrivals and departures, the published procedure is for aircraft to follow the flood control channel which is aligned within about 15° of the extended runway centerline north and south of the Airport. On departure, aircraft are to maintain this course until reaching traffic pattern altitude. Pilots should continue to be encouraged to follow this procedure, especially on departure. Some benefits could be gained by expansion of the present "Fly Quiet" signs at the entrance to each runway end reminding pilots to follow the channel on takeoff and approach.

- **Approach Slope Angle** – Reductions in arrival noise impacts can sometimes be attained by installing visual glide slope indicators where they do not exist and setting them for steep approach angles. Both of these steps have already been taken at El Monte Airport. The approach slope indicators are currently set at 4.95° and 4.5° for Runways 1 and 19, respectively. Steeper slopes are not feasible for safety reasons.

- **Touch-and-Go Restrictions** – The touch-and-go operations which pilots do in order to practice takeoffs and landings are often found by airport area residents to be particularly annoying. There is no indication that this is the case at El Monte Airport, probably because of the high ambient noise levels characteristic of the Airport's urban setting. However, as airport activity increases in the future, some form of restrictions on touch-and-go operations may be necessary not only for noise purposes, but also for reasons of safety and capacity. This limitation could be as simple as requiring aircraft to exit the runway after landing and then taxi back for takeoff when the number of aircraft in the pattern exceeds a certain number. The tendency for the pattern to become very elongated would thus be reduced. More substantial restrictions which could be considered if necessary include prohibition of touch-and-goes during specified busy periods or on weekends and at night (the times when area residents are more likely to be disturbed).

- **Aircraft Run-Up Noise** – Engine run-ups are an essential aviation function both immediately prior to takeoff and as part of engine maintenance work. This activity can produce significant noise impacts if conducted in locations near residential or other noise-sensitive land uses. At El Monte Airport, the hangar buildings adjacent to the holding bay for Runway 19 – the runway direction used 90% of the time – protect the adjoining residential area along Riverview Avenue from much of the preflight run-up noise. Further protection would require a sound wall along the street. This would be a costly undertaking and, because the residential area is at a higher elevation than the Airport, probably would not be very effective. The extent of the problem and the limited benefits to be obtained do not appear to warrant the expense which would be involved. For different reasons, a sound barrier at the Runway 1 run-up area is also not regarded as sufficiently beneficial to warrant the cost. This runway end is used only about 10% of the time and traffic on Santa Anita Avenue is the dominant noise source in the area. Maintenance-type run-ups are generally done during normal weekday business hours and have not been noted to be a problem.

- **Helicopter Flight Routes** – Helicopter noise is a significant impact around many general aviation airports. Not only do helicopters usually fly lower than airplanes, but they often approach and depart airports over areas not normally overflown by airplanes. The substantial increase in helicopter activity projected for El Monte Airport suggests that additional attention will need to be given to their flight routes. At present, the Airport has no formalized helicopter flight routes. The majority of helicopters approach and depart along the flood control channel or remain in a closed pattern similar to that used by airplanes. These are probably the optimum routes in terms of noise impact, but result in the mixing of helicopter and airplane traffic (federal regulations direct that helicopters should normally remain clear of airplane traffic patterns). If safety factors become a concern as a result of this mix of helicopters and airplanes along similar routes, alternative procedures for helicopters will need to be identified. Any such procedures should be developed as a joint effort of airport management, FAA air traffic control personnel, pilots, and helicopter and airplane fixed base operators.

- **Pilot Techniques** – Related to many of the above concerns is the fact that variations in pilot techniques can generate substantially different aircraft noise impacts. In addition to the routes and altitudes flown, differences in engine RPM, propeller blade controls, and wing flaps can affect noise levels on the ground. In most cases, the minimal impact techniques are not difficult – pilots only need to be aware of them and use them where appropriate. Continued efforts on the part of airport management and fixed base operators to educate pilots regarding noise abatement techniques is thus essential to airport/land use compatibility.

ENVIRONMENTAL IMPACTS OF AIRPORT DEVELOPMENT

An Initial Study of the environmental impacts associated with implementation of the *El Monte Airport Master Plan* was prepared in accordance with California Environmental Quality Act guidelines as part of the planning effort. It is included here as Appendix J.

Both the temporary and permanent impacts of the proposed construction and the long-term effects of the increased airport use are considered. Most of the impacts anticipated to result from projects identified in the *Master Plan* are associated with the proposed expansion of building area facilities acquisition and development of additional property in support of Airport improvement. Drainage, soil overcovering and public services demands are among the factors for which mitigation is incorporated into the plan proposals. With regard to the off-airport site acquisition and the development concepts outlined in the *Master Plan*, the Initial Study addresses only the impacts associated with preserving the option for acquiring and developing the property. If and when a decision is made to pursue the acquisition, further environmental analyses may be required to assess the actual physical impacts of the project.

Increased use of the Airport will produce some additional noise and safety impacts as addressed earlier in this chapter. These impacts are not projected to have significant effects on surrounding land uses.

8

Financial and Implementation Plan

8

Financial and Implementation Plan

OVERVIEW

This chapter of the *El Monte Airport Master Plan* reviews the resources available to the County for funding airport capital improvements, develops a five-year "pro forma" financial projection to determine capital funding requirements, and identifies a proposed capital improvement program that makes maximum effective use of available airport funding resources.

The historical revenue, expense, and funding data presented herein have been obtained from County airport records. The proposed airport development costs identified in the *Master Plan* and presented in Table 2A (Chapter 2) have been estimated on an order-of-magnitude basis consistent with their use for preliminary planning and programming purposes. Analysis and detailed engineering design of specific projects will be required at the time of project implementation to provide more refined and up-to-date estimates of development costs.

CAPITAL FUNDING RESOURCES

There are a variety of resources from which funding and financing for publicly owned airport facilities and improvements can be obtained. These resources include federal grants, state grants and loans, airport sponsor self-funding, passenger facility charges, and private investment.

Federal Grants

Currently, the most common source of federal aid for public-use airport facilities is the Airport Improvement Program (AIP) administered by the FAA. Reauthorized in 1994, the current AIP is the latest evolution of a funding program originally authorized by Congress in 1946 as the Federal Aid to Airports Program (FAAP).

The AIP is based upon a user trust fund concept, allocating aviation-generated tax revenues for specified airport facilities on a local matching share basis. The program currently provides for 90% federal participation and 10% local participation on eligible airport projects in the state of California. It is anticipated that this federal funding program for airports will continue to be available without significant change for at least the next 3-5 years.

Although the AIP is designed specifically for public airport improvement, there are other federal programs which can also be applied to airport needs. The federally-funded Economic Development Administration Program and the State and Local Fiscal Assistance Act of 1972, as amended, are examples of non-aviation funding programs that have been used on a limited basis to fund airport facilities not otherwise eligible for AIP grants. As it is relatively difficult for public airports to qualify for these special federal funding programs, these resources have not been considered in the formulation of project funding alternatives identified in the *Master Plan*.

State of California Airport Grants and Loans

The State of California provides funding assistance to most publicly owned airports in the state. The State's four funding programs and their potential application at El Monte Airport are discussed below.

Acquisition and Development Grant Program

The State's Acquisition and Development Grant Program (A&D), administered by the State Division of Aeronautics, is similar to the federal AIP grant program inasmuch as the state program provides airport development funds on a matching share basis. Currently, the match is 90% state and 10% local. The state grants are allocated through the California Transportation Commission (CTC) and are governed by the priorities set forth in the State Transportation Improvement Program (STIP) and the California Aviation System Plan (CASP).

In past years, the A&D grant program has concentrated on construction of airfield improvements that primarily benefit general aviation users. However, funding opportunities within this program are very limited at the present time due to statewide funding constraints. An airport improvement project submitted for an A&D grant faces substantial statewide competition for limited funds. Consequently, the State A&D grant program is not considered to be a significant resource for funding the County's airport improvement needs. However, state airport improvement grants are occasionally offered and can be useful in furthering airport improvement. The County should continue to monitor State A&D funding opportunities for possible application at El Monte Airport.

The County has not, as yet, utilized the State A&D grant program for funding improvements at El Monte Airport.

Annual Grant Program

The State Division of Aeronautics also administers an Annual Grant Program through which all qualifying publicly owned airports in the State receive $10,000 per year to be used for eligible projects. Funds received must be kept in a Special Aviation Account and, with the permission of the Division of Aeronautics, can be accumulated for up to five years toward large capital projects. The funds can also be used as part of a local match for a federal grant.

Airports that have been designated as "reliever" or "commercial service" by the FAA are not eligible for this annual grant. Since El Monte Airport is designated by the FAA as a "reliever" facility, the Airport does not receive this grant.

Airport Loan Program

Another funding source available from the California Division of Aeronautics is the State Airport Loan Program. This program was established to allow public airport owners the opportunity to borrow funds at lower than commercial interest rates for use on specified revenue-generating projects and as the local share of FAA grant-funded projects. In the past, the most common use of these loans was for revenue producing hangar construction. More recently, however, the primary use for such loans has been as the local share of an FAA grant. The County has utilized this loan program in the past to finance the aviation fueling facility (1983), various on-airport storm drain improvements (1986), and the Nunno hangars (1982) at El Monte Airport. The County may want to pursue a state loan to finance the construction of aircraft storage hangars and/or renovation of the aviation fueling facility.

AIP Match Program

Effective October 1, 1995, State funds can be allocated by the California Transportation Commission to partially match an AIP grant once an airport sponsor has accepted the AIP grant from the FAA. This match program only applies to *general aviation* and *reliever* airports whose projects were included in the State's Capital Improvement Program.

The State match will be an amount equal to 5% of an AIP grant. Thus, AIP would fund 90% of a project, the State would fund 4.5% (i.e., 5% of 90%), and the sponsor would fund the remaining 5.5% of a project. The Division of Aeronautics will continue to lend monies from the Local Airport Loan account to airport sponsors for their match to AIP grants.

These loans will be available whether or not an airport sponsor also receives a State allocation to match the AIP grant.

State matching can only be used for "airport and aviation purposes." These are defined in existing State law and regulations. Because federal regulations permit expenditure for some items that the State does not, situations will occur for which the State will not be able to match the full amount of an AIP grant. Projects for which this variance will occur include general aviation terminal buildings and access roads. As a reliever facility, El Monte Airport is eligible to participate in this new State AIP grant match program.

At the time of this *Master Plan's* preparation, the future funding level for all State of California airport funding programs was uncertain. Severe statewide fiscal constraints have resulted in significant reductions in virtually all State airport funding programs. It is hoped that these constraints will not be a factor beyond the 1994-1996 time frame. In any event, it is anticipated that the County will continue to aggressively pursue all State airport improvement funding opportunities.

Airport Sponsor Self-Funding

At large, publicly owned airports, this source of funding typically involves the issuance of general obligation bonds or revenue bonds. General obligation bonds are backed by the full faith and credit of the issuing governmental agency. General obligation bonds are usually limited by a restriction or cap placed on the issuing governmental agency's indebtedness. Revenue bonds are secured by the pledge of revenue from one or more airport facilities. A particular disadvantage of revenue bonds is the coverage requirement that net operating revenue exceed debt service by a stipulated ratio. Additionally, the fixed underwriting costs and complexities of a bond sale generally dictate their use only for large scale projects. For all but the largest airports, the cost and restrictions associated with the issuance of general obligation bonds or revenue bonds combine to make such sources impractical for use in funding capital improvement projects at small airports.

At publicly owned airports the size and character of El Monte Airport, airport sponsor self-funding is principally provided by a combination of airport-generated income and retained earnings, and the airport sponsor's internal financial resources (i.e., Los Angeles County Aviation Division funds). Funding of airport improvements and providing the local matching share for grants-in-aid from these sources is the simplest and often most economical method because direct interest costs are eliminated.

Passenger Facility Charge

Passenger Facility Charges (PFCs) are a new airport funding mechanism authorized by the U.S. Congress as part of the Aviation Safety and Capacity Expansion Act of 1990 and the Airport Noise and Capacity Act of 1990. The rules and regulations for collection and use of PFCs are set forth in Part 158 of the Federal Aviation Regulations. Upon approval of the Federal Aviation Administration, the regulations allow commercial service airports to impose a charge of $1.00, $2.00, or $3.00 on each enplaning passenger. Commercial service airports are defined as airports which have scheduled passenger service and enplane 2,500 or more passengers annually.

Revenues generated by PFCs are intended to be applied toward projects which:

- Preserve or enhance safety, security, or capacity;
- Reduce noise or mitigate noise impacts resulting from airport operations; or
- Furnish opportunities for enhanced competition between or among air carriers.

Because El Monte Airport does not have commercial airline service, PFCs are not currently a source of improvement funding for the Airport. However, if scheduled service is ever established at El Monte Airport, the County may wish to seek FAA approval for collection of these fees.

Private Investment

Private sector investment is an important source of funding for such airport facilities as fixed base operations and large corporate aircraft hangars. At El Monte Airport, roughly one-third of the aircraft storage hangars were developed using private funds.

The County can continue to enhance the Airport's attractiveness to private investors by promoting the Airport, improving its facilities, and expanding its service offerings. By maintaining a prudent lease policy and enforcing reasonable development standards, additional private investment can be attracted to the Airport. In this manner, the County can shift the burden of financing certain facility development to the tenant while increasing the asset value of the Airport, thereby adding to the Airport's attractiveness and revenue-producing capability.

The most common source of funding for private sector development are commercial lending institutions and insurance companies. In the case of private development on public lands, these types of financing may be difficult and expensive to obtain because the borrower can encumber only the improvements as loan collateral, not the underlying publicly owned land. These conditions necessitate close attention to leasing policies and tenant contract negotiations. It is essential that agreements be reached with the tenants which provide for adequate airport revenues and facility development while encouraging private investment and satisfying the tenant's borrowing requirements. Specifically, the lease term should be sufficient to allow reasonable investment amortization over the period of the agreement.

On occasion, private gifts and contributions are a source of funding for certain airport improvements. Often, the private contribution facilitates the development of public airfield improvements that jointly benefit both the private and public sectors.

Those capital expenditures which are most appropriately constructed with private funds (e.g., large corporate aircraft hangars and fixed base operations facilities) have been excluded from the list of proposed capital projects identified in the *Master Plan Report*. Public capital resources have not been considered for funding those projects identified as being private sector projects.

PRO FORMA FINANCIAL PROJECTION

In order to obtain a more complete picture of El Monte Airport's finances, a Pro Forma Financial Projection covering the first five years of the master planning period has been prepared (Table 8A). These values are intended as an initial guide for financial planning purposes. It is recommended that the County periodically update and revise this financial projection to correspond with future information.

All data is presented in 1994 dollar values; no attempt is made to adjust for future inflation. The projection values set forth in Table 8A are based upon the following assumptions:

- COMARCO's minimum payment by contract (adjusted by the CPI) will continue for the foreseeable future.
- Aviation activity at the Airport will increase as anticipated by the *Master Plan* forecasts. Airport operating expenses reflect this projected growth in airport operations.
- Airport management will continue to aggressively review and adjust all rates and charges on an annual basis consistent with demand and airport role. As a minimum, the rates and charges should track the Consumer Price Index rate to maintain constant value.
- Airport management will continue to develop and operate the Airport on a *break-even* self-supporting basis.

(All Values Are in 1994 Dollars x 1,000)

	Historical[1]					Projected[2]					
Fiscal Year[3]	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
OPERATING REVENUES											
Pre-Contract Revenues[4]	1,779.3	1,297.1									
Contract Minimum		118.8	480.0	498.5	510.4	525.7	526.0	526.0	526.0	526.0	526.0
Contract Fuel Flowage		61.4	245.5	245.4	245.4	252.8	253.0	253.0	253.0	253.0	253.0
Miscellaneous / Other		N/A	1.1	9.4	-0-						
Total Operating Revenues	1,779.3	1,477.2	726.6	753.3	755.8	778.5	779.0	779.0	779.0	779.0	779.0
OPERATING EXPENSES											
Pre-Contract Expenses[4]	1,124.0	758.8									
Fixed Assets Equipment				22.3		14.2	14.3	14.4	14.5	14.5	14.6
Services by Contract/ Other Divisions			2.2	8.5	21.4	10.0	10.1	10.1	10.2	10.2	10.3
Contract Administration				-0-	6.1	5.0	5.0	5.1	5.1	5.1	5.2
Credits to COMARCO				.2	5.2	5.0	5.0	5.1	5.1	5.1	5.2
Possessory Interest				21.5	21.9	22.0	22.1	22.3	22.4	22.5	22.7
Miscellaneous / Other				1.1	1.1	1.2	1.2	1.2	1.2	1.2	1.2
Total Operating Expenses	1,124.0	758.8	2.2	53.6	55.7	57.4	57.7	58.2	58.5	58.6	59.2
Total Operating Income (Loss)	655.3	718.4	724.4	699.7	700.1	721.1	721.3	720.8	720.5	720.4	719.8
Less: Operational Overhead/Support	241.2	185.6	49.2	-0-	6.0	5.0	5.0	5.1	5.1	5.1	5.2
Net Income (Loss)	414.1	532.8	675.2	699.7	694.1	716.1	716.1	715.7	715.4	715.3	714.6

Notes:

1. The historical revenue and expense figures shown above are from the Los Angeles County - Department of Public Works - Aviation Enterprise Fund/MO2 Fund for the Fiscal Years shown. Effective April 1, 1991, COMARCO assumed managerial, operational, and maintenance responsibility for the Airport and instituted a revised budgeting/accounting/reporting format that differs from the County format used therein.
2. The projections set forth herein where prepared by Hodges & Shutt as part of the *Master Plan*. The Pro Forma projections reflect the income (loss) associated with El Monte Airport anticipated to accrue to the County through its airport contract service agreement with COMARCO.
3. Los Angeles County's Fiscal Year is July 1 through June 30.
4. Revenues and expenses recorded by the County prior to COMARCO contract.

Table 8A

Pro Forma Finanical Projection

El Monte Airport

- Eligible capital improvements will be financed to the maximum extent possible with FAA Airport Improvement Program (AIP) and California Aid to Airport Program (CAAP) funds, with the County's share coming from the Airport Enterprise Account and the California Airport Grant/Loan Program.
- Other capital improvements will be constructed at the times indicated in the capital improvement program.
- All T-hangar development will be constructed as warranted by demand and will be funded by the County. FBO facilities will be financed by the private sector. Comparative advantages and disadvantages of other hangar financing options are discussed in Appendix G — Hangar Financing Options.

COST ESTIMATES

Table 2A in Chapter 2 sets forth cost estimates (based upon 1994 dollar values) for proposed airport development at El Monte Airport over the next twenty years. The estimates are tabulated in three stages (0-5 years, 6-10 years, and 11-20 years) consistent with the anticipated project implementation sequences. It must be emphasized that the development costs presented in Table 2A have been estimated on an order-of-magnitude basis for preliminary planning and programming purposes only. Specific project analysis and detailed engineering design will be required at the time of project implementation to provide more refined and up-to-date estimates of developmental costs. As presented in Table 2A, the *Master Plan* projects a total Capital Improvement Program cost of approximately $12.5 million over the 20-year planning period. Of this total amount, an estimated $9.6 million or 77% potentially could be funded through the FAA's Airport Improvement Program.

FINANCIAL SUMMARY

As can be seen in Table 2A, El Monte Airport's projected operating income will be sufficient to fully and independently fund the sponsor's share of the Capital Improvement Program costs over the initial five-year financial planning period. It appears that this self-funding capability will continue throughout the 20-year planning period.

It should be noted that significant County tax revenues are generated each year by Airport-related activity (e.g., possessory interest taxes and personal property taxes). These sources are not directly accounted for as airport revenues, nor are they directly expended on the Airport.

These Airport-generated tax revenues flow into the local communities where they are typically used for nonaviation purposes.

As noted above, over the course of the 20-year planning period, it is anticipated that El Monte Airport's operating income will be adequate to support the proposed Capital Improvement Program. The Airport's fiscal condition could be improved by further reducing expenses or increasing revenues. Operating expenses are already relatively modest, however, and a significant reduction in expenses may not be achievable. Airport revenues could be enhanced by developing new sources of airport-related revenue or by increasing rates charged to airport lessees, permittees, and users. Caution must be exercised, however, in establishing higher rates at the Airport. A reasonable balance must be sought between the need for a financially viable airport, the continuation of subsidies to the private sector, and general aviation market conditions. In this regard, El Monte Airport's rates and fees structure should be established in a manner which permits the County to safely operate and improve the Airport while attracting the Airport's target user groups — personal/recreational aircraft users and small corporate/business aircraft users desiring general aviation air transportation access to the north-central Los Angeles metropolitan area.

MASTER PLAN ADOPTION AND IMPLEMENTATION ACTIONS

In order for the County to proceed with adoption of the *El Monte Airport Master Plan* and implementation of the first-phase improvement projects, a variety of state and federal environmental and other review or permit actions must be completed. The major steps in this process are as follows:

Master Plan Adoption

- **Environmental Impact Documentation** — As part of this *Master Plan*, an Initial Study assessing the potential environmental impacts associated with the construction and long-term use of the proposed airport improvements has been prepared in accordance with California Environmental Quality Act (CEQA) guidelines (see Appendix J). It is anticipated that this Initial Study will be sufficient to enable preparation of a Negative Declaration allowing adoption of the *Master Plan*. More substantial environmental documentation may be necessary in accordance with CEQA guidelines before major projects proposed in the plan can be implemented. No FAA environmental review is required for adoption of the *Master Plan*.

- **Los Angeles County Aviation Commission** – The Los Angeles County Aviation Commission has participated in the preparation of the *El Monte Airport Master Plan* through discussions held at regular Commission meetings. The Commission should review the completed draft *Master Plan Report* and pass its recommendations along to the Los Angeles County Board of Supervisors.

- **Los Angeles County Regional Planning Commission** – The Los Angeles County Regional Planning Commission is currently the designated ALUC in Los Angeles County. It is suggested that the County Regional Planning Commission and the Southern California Association of Governments' Aviation Technical Advisory Committee be given the opportunity to review the *El Monte Airport Master Plan* as part of the adoption process.

- **Los Angeles County Board of Supervisors** – The Los Angeles County Board of Supervisors has the ultimate responsibility for adoption of the *Airport Master Plan*. The Board's action should follow established County procedures regarding public hearings, public notification, etc.

- **Federal Aviation Administration** – On-going coordination has been maintained with the FAA throughout the *Master Plan* study and the agency will receive the draft plan for informal review and comment. Following the County's adoption of the *Master Plan,* the FAA will conduct a formal internal coordination and review of the *Airport Layout Plan* drawings. After any necessary technical revisions are made, the FAA will then approve the *Airport Layout Plan* as the basis for the engineering design and grant eligibility of specific projects. The FAA approval of the *Airport Layout Plan* is not a commitment to the future funding of any given project.

Implementation

- **Proposed Projects** – As described elsewhere in this report, several of the proposed airport improvements are programmed for early implementation. These projects include the construction of the new terminal building and support facilities, replacement of aviation fuel storage tanks, and development of additional aircraft storage hangars.

- **Project Funding** – The County should assess the availability and timing of local funds that can be committed to the proposed airport improvements. Once a decision is made to proceed with specific projects, an Airport Improvement Program grant Preapplication should be submitted to the FAA. It is imperative that the Capital Improvement Program identified in the *Master Plan* be submitted to the FAA as soon as possible in accordance with its annual CIP submission procedures.

- **Engineering Design** – The *Airport Master Plan Report* and *Airport Layout Plan* drawings serve only as the starting point for the more detailed engineering design work necessary for actual construction of the proposed improvements. After the *Master Plan* has been adopted and a decision has been made to construct the proposed projects, the County should proceed in a timely manner to arrange a contractual agreement with a qualified airport engineer. To assure a continuity in design development, it is suggested that the agreement cover not just the immediate projects, but other major improvements proposed to be constructed over the next three to five years.

- **Environmental Impact Documentation** – There is no apparent requirement for preparation of a federal environmental document. The projects proposed in the *Master Plan* meet the FAA criteria for being Categorically Excluded from federal environmental review and, therefore, there is no federal requirement for an Environmental Assessment.

- **State Airport Permit** – There are no proposed modifications to the Airport that would require that the Airport Permit issued by the California Division of Aeronautics be amended.

- **Airspace Review** – Before work is conducted on or near the airport runway, a "Notice of Proposed Construction" must be submitted to the FAA in accordance with FAR Part 77.

Appendices

EL MONTE AIRPORT

Item	Description	Condition/Comments
RUNWAY/TAXIWAY SYSTEM		
Runway 1-19		
Pavement	3,995′ long; 75′ wide Effective gradient: 0.35% Section (estimated): 2.0" asphalt 6.0" base rock Strength: 12,500# (single-wheel)	Good – Resurfaced in late 1993 with a rubberized treatment
Shoulders	West Side: Dirt/grass; surface graded and level East Side: Asphalt; borders "paved continuous drift-off area"	Satisfactory Satisfactory
Runway Safety Areas	Length: Located at Runway 1 departure end and 240′ beyond Runway 19 departure Width: Minimum of 120′	Substandard size (inadequate length) – Requires use of Declared Distances
Markings	Basic/Visual Displaced threshold Runway 1: 290′ Displaced threshold Runway 19: 641′	Good – Repainted in late 1993
Lighting	Medium-intensity runway edge lights	Fair

Item	Description	Condition/Comments
Taxiways		
East Side Parallel	40′ wide; asphalt Full length of runway Runway-to-taxiway separation: 175′ Contiguous full length to east side parking apron Medium-intensity in-pavement flush-mounted centerline lighting system	Good — Resurfaced in late 1993 with a rubberized treatment
Runway Entrances/Exits	Two designated (one at each runway end); locations at approach end of Runways 1 and 19 — 40′ wide Paved continuous drift-off area extends the full length of the runway (120′ wide) Hold lines: 125′ from runway centerline	Good
Blast Pads	None	None required
Holding Bays	Located adjacent to each runway entrance taxiway	Runup orientation arrows marked
Marking	Standard centerline stripes Standard holdline stripes Standard runway designation numbers "El Monte" and segmented circle are painted on the east-central portion of the drift-off area	Good — Repainted in late 1993
Visual Approach Aids	Two-box VASI serving Runways 1 & 19 REIL serving Runway 19	Runway 1: AVASI-L @ 4.95° Runway 19: AVASI-R @ 4.50°

Item	Description	Condition/Comments
Other		
Wind Indicators	Lighted wind cone on west side of runway near Runway 19 touchdown zone	Good
	Unlighted wind cone on west side of runway near Runway 1 touchdown zone	Good
	Segmented circle with traffic pattern indicators painted on asphalt near east-central portion of drift-off area	Good – Repainted in late 1993
Radio Aids	On-Airport/IFR Non-Directional Radio Beacon (El Monte/MHW-359kHz): antenna located on roof of electrical power vault near ATCT	Good
Rotating Beacon	Located on dedicated pole in east-central portion of Airport	Fair
BUILDING AREA		
Aircraft Aprons		
North Apron (North of ATCT)	7± acres; asphalt No designated tiedown positions 49 T-type portable storage hangars 14 fixed T-hangar units 31 rectangular storage hangar units 1 conventional hangar (5,250± SF) Compass calibration rose Waste oil collection tank Marked taxilane	Good – Resurfaced in late 1993

Item	Description	Condition/Comments
Aircraft Aprons		
Central Apron (Aircraft wash rack area to ATCT)	33± acres; asphalt 56 ± based tiedown positions 30 ± transient parking positions 100 fixed T-hangar units 22 rectangular storage hangar units 2 conventional hangars (12,800 ± SF) Aviation fuel dispensing island/ underground fuel storage tanks (3) Aircraft wash rack	Good – Resurfaced in late 1993
South Apron (South of aircraft wash rack area)	8± acres; asphalt 74± tiedown positions 54± fixed T-hangar units 2 conventional hangars (20,350± SF)	Good – Resurfaced in late 1993
Other Facilities		
Air Traffic Control Tower	Abeam Runway 19 touchdown zone	Operated by FAA
Fuel Storage	3 underground tanks 1-20,000 gal. 100LL octane (fiberglass) 1-15,000 gal. 100ll octane (composite) 1-20,000 gal. Jet A (fiberglas)	Fair – No known leakage, but replacement of two of the tanks is anticipated
Fuel Dispensing Area	Fuel island/kiosk located in center of airport apron area	Fuel (100LL) dispensed at the island and by refueler trucks (100LL and Jet A)

Item	Description	Condition/Comments
Perimeter Walls/Fencing	Various types completely encircle Airport Two controlled access entrance gates off Santa Anita at Bryant Road and Emery Avenue Main entrance gate serving central apron area is manually operated FBO and terminal area auto parking publicly accessible from streets	
Roads and Parking		
Main Public Access Point	Off Santa Anita Avenue Serves various FBO areas	Good – Paved with asphalt
Controlled Access Points	Off Santa Anita Avenue at Byrant Road and Emery Avenue Serve tiedown hangar areas	Good – Card-controlled vehicle gates
Public Auto Parking	Adjacent to various FBO offices/hangars 3 designated areas totaling 310± spaces; paved	Good
Utilities		
Electricity	Supplier: Southern California Edison	
Telephone	Supplier: Pacific Bell Public phones located at FBO facilities and main airport entrance	
Water	Supplier: Upper San Gabriel Valley Municipal Water District	
Sewer	City of El Monte sewer system	
Natural Gas	Supplier: Southern California Gas	

Appendix B

Summary of Aircraft Accidents

Date Type of Aircraft	4/16/83 Homebuilt Starduster II	7/30/83 Cessna 150	10/25/83 Cessna 210E	10/2/84 Cessna 180	10/16/84 Cessna 172R6	1/12/85 Cessna 177B
Phase of Operation						
stationary/taxiing						
takeoff - run						
takeoff - initial climb						
landing - in traffic pattern						
landing - in final approach						
landing - touchdown/roll out	X	X	X	X	X	
other						X[a]
Nature of Impact						
hard landing/gear up/ground loop/etc.		X	X	X	X	
undershoot/overshoot						
collision with objects	X					
forced landing						X
uncontrolled descent/impact						
collision between aircraft in flight						
other						
Location of Impact						
on/adjacent to runway	X	X	X	X	X	
in clear zone						
in approach zone						
on airport property						
off airport						X
Causes/Factors						
pilot - improper operation of controls			X	X	X	
pilot - failure to see/avoid objects	X					
pilot - inadequate preflight procedures						X
fuel exhaustion						X
mechanical failure		X				
adverse wind/weather						X
other						
Miscellaneous Conditions						
time						
visibility (S.M.)						
student pilot						
injuries (yes/no)	NO	NO	NO	NO	NO	YES
fatalities (yes/no)	NO	NO	NO	NO	NO	NO
other						

[a] In-flight, two miles from airport.

Date Type of Aircraft	10/15/85 Rotorway Executive	4/18/86 Piper PA28-180	9/14/86 Piper PA22-108	9/15/86 Cessna 152	9/17/86 Aero Commander	2/10/87 Cessna 152
Phase of Operation						
stationary/taxiing			X	X	X	
takeoff - run						
takeoff - initial climb		X				
landing - in traffic pattern						
landing - in final approach						
landing - touchdown/roll out	X					X
other						
Nature of Impact						
hard landing/gear up/ground loop/etc.	X					X
undershoot/overshoot						
collision with objects		X	X	X	X	
forced landing						
uncontrolled descent/impact						
collision between aircraft in flight						
other						
Location of Impact						
on/adjacent to runway	X	X	X	X	X	X
in clear zone						
in approach zone						
on airport property						
off airport						
Causes/Factors						
pilot - improper operation of controls	X					X
pilot - failure to see/avoid objects			X	X		
pilot - inadequate preflight procedures		X			X	
fuel exhaustion						
mechanical failure		X				
adverse wind/weather						
other						
Miscellaneous Conditions						
time						
visibility (S.M.)						
student pilot	X		X	X		X
injuries (yes/no)	NO	NO	YES	NO	NO	NO
fatalities (yes/no)	NO	NO	NO	NO	NO	NO
other						

Date **Type of Aircraft**	**8/4/87** **Piper** **PA34**	**5/11/90** **Piper** **PA30**	**3/22/91** **Cessna** **421**	**6/--/92** **Piper** **PA28-161***	**7/31/93** **Robinson** **R44**	
Phase of Operation						
stationary/taxiing						
takeoff - run						
takeoff - initial climb					X	
landing - in traffic pattern						
landing - in final approach	X					
landing - touchdown/roll out		X	X			
other						
Nature of Impact						
hard landing/gear up/ground loop/etc.		X	X			
undershoot/overshoot						
collision with objects			X			
forced landing	X					
uncontrolled descent/impact					X	
collision between aircraft in flight						
other						
Location of Impact						
on/adjacent to runway		X	X		X	
in clear zone						
in approach zone	X					
on airport property						
off airport						
Causes/Factors						
pilot - improper operation of controls		X	X			
pilot - failure to see/avoid objects						
pilot - inadequate preflight procedures	X					
fuel exhaustion						
mechanical failure					X	
adverse wind/weather						
other						
Miscellaneous Conditions						
time					day	
visibility (S.M.)					7	
student pilot	X					
injuries (yes/no)	NO	YES	NO			
fatalities (yes/no)	NO	NO	NO		YES	
other						

* Findings/conclusions not yet published by NTSB.

Source: NTSB Reported Data (January 1, 1983-December 31, 1993)

Appendix C
Summary of Responses to Airport User Questionnaire

El Monte Airport **Distributed in May 1993**

SURVEY BACKGROUND:

- Questionnaire distributed to El Monte Airport based aircraft owners/operators
- Over 500 questionnaires distributed in May 1993
- 154 responses received for a 30% response rate

SURVEY QUESTIONS/RESPONSES

(Preliminary results based on 150 responses. Results may not equal 100% because of multiple or non-responses to each question).

1. What type of aircraft do you presently base at El Monte Airport?

90%	Single-engine airplane
10%	Twin-engine airplane

2. Is your aircraft equipped/certified for IFR flight?

41%	IFR equipped
27%	IFR certified
32%	VFR only

3. Are you IFR rated and current?

36%	VFR only
33%	IFR rated
31%	IFR current

4. What is your ownership interest in this aircraft?

74%	I own it alone
15%	I own it jointly with others
10%	It is owned by my company/employer
0%	It is an FBO rental aircraft
1%	Other

5. At what airport is the above aircraft based?

96%	El Monte Airport
4%	Other - BKE, PRB, AX, LHC, RIA, OXR

6. Where do you normally park your aircraft at El Monte Airport?

29%	Based tiedown area
1%	Visitor parking
70%	Hangar

7. Approximately how many landings have you made at El Monte Airport during the past 12 months?

44%	0 - 50 landings	3%	200-350 landings
48%	51-200 landings	5%	over 350 landings

What percentage of these landings were touch-and-goes?

62%	0% T & G's	2%	50% T & G's
25%	10% T & G's	3%	75% T & G's
8%	25% T & G's	0%	nearly 100% T & G's

8. What are the purposes of your flights to and from El Monte Airport?

23%	Company business
15%	Personal business
59%	Pleasure/recreation
5%	Flight training

9. In what community do you usually begin/end your local ground trip to/from El Monte Airport?

	Driving Time (minutes) – as % for each community					
Community	**0 - 5**	**6 - 10**	**11 - 15**	**16 - 20**	**21 - 25**	**over 25**
Los Angeles County	2%	13%	12%	25%	20%	10%
San Bernardino County					2%	3%
Orange County						4%
Other Southern California Counties						3%
Other Locations						3%
No Response - 3%						

10. How do the following factors affect your selection of El Monte Airport as a base or destination airport?

	Positive Influence	Neutral Influence	Negative Influence
Close to home/friend/relative	88%	9%	3%
Close to business	55%	36%	9%
Rental/flying club aircraft based there	8%	76%	16%
Good availability of hangars	51%	39%	10%
Low hangar rental rates	33%	40%	27%
Good aircraft security	62%	32%	6%
Good FBO services	32%	52%	16%
Good pilots' facilities	16%	46%	38%
Low fuel prices	23%	37%	40%
Friendly atmosphere	62%	33%	5%
Easy to fly to/from airport	89%	11%	0%
Good runway/taxiway system	89%	11%	0%

11. In your opinion, what do you believe is the appropriate future role of El Monte Airport? The Airport should ...

27% Remain essentially as is.
50% Continue serving same types of aircraft, but expand facilities and services.
22% Expand to attract greater use by corporate aircraft.
2% Other (encourage homebuilt aircraft, flight training, and good business/services, etc.).

12. What airfield facilities and services would encourage you to increase your use of the El Monte Airport?

18% Additional hangars/tiedowns.
4% Longer runway.
78% Enhanced instrument approach capability.
0% Air traffic control tower.
68% Other (restaurant, better FBOs, radar/ILS, better rotating beacon, etc.).

13. For the purposes of your use of El Monte Airport, how do you rate the following airport facilities and services?

	Adequate As Is or Do Not Need to Provide	Should Be Improved or Provided
Runway Taxiway System		
Runway Length	96%	4%
Instrument Approach Procedures	56%	44%
Run-up Areas	91%	9%
Based Aircraft Facilities		
Number of hangars	75%	25%
Size/condition of hangars	76%	24%
Apron pavement condition	81%	19%
Apron lighting	85%	15%
Security fencing	76%	24%
Number of transient tiedowns	94%	6%
Transient apron condition	94%	6%
Transient tiedown location signs/marking	59%	41%
Other Facilities/Services		
Fuel service	66%	34%
UNICOM	75%	25%
Weather reporting	72%	28%
Aircraft maintenance/repair	73%	27%
Other FBO services	48%	52%
Pilots' facilities (lounge, rest rooms, telephone)	46%	54%
Security presence		
Automobile rental	63%	37%
Taxi service or public transportation		
Other: fix fuel truck, better security, 80 octane fuel, etc.		
Airport Contract Management		
Range of service	64%	36%
Quality of service	50%	50%
Fulfilled your expectations	55%	45%

14. What specific suggestions can you offer to improve or enhance the operation, procedures, facilities, and services at El Monte Airport?

(Responses listed in a decreasing order of frequency; includes multiple responses only – number of responses shown in paragraph)

1. Lower fuel prices (29)
2. Improve maintenance of buildings (rest rooms) and hangar facilities (22)
3. Terminal building/pilot lounge (15)
4. Quality has fallen since COMARCO took over (11)
5. Lower hangar rents (10)
6. Improve appearance of airport grounds (9)
7. Provide facilities for based aircraft owners to do their own maintenance (5)
8. Aircraft parts/avionics/instrument shop (5)
9. Meeting facility (5)

Airport Reference Codes of Selected Aircraft

Aircraft Type	Airport Reference Code	Wingspan (Feet)	Approach Speed (Knots)	Maximum Takeoff Weight (Pounds)
Cessna 150	A-I/Small	32.7	55	1,600
Beechcraft V35B Bonanza	A-I/Small	33.5	70	3,400
Piper PA-31-310 Navajo	B-I/Small	40.7	100	6,200
Cessna 441 Conquest	B-II/Small	49.3	100	9,925
Cessna Citation I	B-I/Small	47.1	108	11,850
Swearingen Metro	B-I/Small	46.2	112	12,500
Embraer 110 Bandeirante	B-II	50.3	92	13,007
Cessna Citation II	B-II	51.7	108	13,300
Lear Jet 35A/36A	D-I	39.5	143	18,300
Cessna Citation III	B-II	53.5	114	22,000
Embraer 120 Brazilia	B-II	64.9	<121	23,353
HS 125-700A	C-I	47.0	125	24,200
Shorts 360	B-II	74.8	104	26,453
Falcon 20	B-II	53.5	107	28,660
Gulfstream II	D-II	68.8	141	65,300
Gulfstream III	C-II	77.8	136	68,700
Gulfstream IV	D-11	77.8	145	71,780

Source: FAA Advisory Circular 150/5300-13/Appendix 13

Navigational Facility and Related Airport Data Requirements

NAVIGATIONAL FACILITY AND RELATED AIRPORT DATA REQUIREMENTS data.doc

(DRAFT)

IFR Procedure Data. The sponsor/owner who requests an IFR procedure shall provide the FAA with all of the below listed data needs including required coordinates, distances, and elevations. Please note that this data must be CERTIFIED by a LICENSED surveyor. All NAVAID and airport positioning coordinates must be determined in accordance with the North American Datum 1983 for the contiguous United States and Alaskan areas. The sponsor needs to provide four copies of a FAA approved airport layout plan or scaled engineering drawing, Please fill in the appropriate data fields listed below that are not included in the ALP and leave blank those which are not applicable to the procedure development request and return the completed form to AWP-220.

A. Airport Information.

1. Type of approach requested (NDB, VOR, ILS, MLS, GPS, etc.)

   a. Approach Straight-in Nonprecision GPS

   b. Runway 1

2. Airport identifier EMT

3. Official airport name El Monte Airport

4. City and state El Monte, California

5. Local airport owner County of Los Angeles

6. Airport manager's telephone number, including area code

   James Abing (818) 458-7389

7. Airport Reference Point (ARP). This is the official airport location and should be depicted on the airport layout plan. Advisory Circular 150/5300-13, Airport Design, explains the correct method for determining the ARP. However, when only one runway is involved, the exact halfway point and middle of the runway should be used as the ARP. The format for the ARP should be in degrees, minutes, and seconds (to the nearest one-tenth of a second) latitude/longitude, with a horizontal geodetic accuracy of plus or minus 10 feet.

   340509.598/-1180205.427*

8. Airport elevation (highest point of any airport usable landing surface) in mean sea level (MSL)

   295.9'

9. Airport hours of operation; indicate in local time:

   Monday-Friday 24 hrs.

   Weekends-Holidays 24 hrs.

*Note: Lat/Lon data from El Monte Airport Obstruction Chart 5639 (surveyed March 1992) Hor. Dat. = NAD83 and Vert. Dat. = NGVD29.

B. Runway Information. Provide the following information for all runways at the airport. Data is required for both ends of the runway.

1. Runway (R06, R24, R19L, etc.): R01

2. Runway threshold coordinates at the runway centerline on the approach side of the runway threshold stripes, to the nearest one-hundredth of a second + horizontal geodetic accuracy.
340454.346/-1180214.141 (Disp. Thrhd.)
340451.752/-1180215.623 (Appch. End of Pvmt.)

3. Runway threshold mean sea level referenced elevation to the nearest one-tenth of a foot:
282.9' (Disp. Thrhd.)
281.8' (Appch. End of Pvmt.)

Displaced threshold (if any) distance 290' Displaced threshold elevation 282.9'

4. Runway stop end coordinates as in item subparagraph (2) above:
340527.443/-11801 55.230 (End of Pvmt.)

5. Runway stop end elevation as in subparagraph (3) above:
295.9'

6. Runway width and effective landing length in feet:
75' Wide x 3,995' Long (Pvmt. Length)*

7. Runway true bearing or geodetic azimuth in degrees, minutes and seconds or nearest 1/100 of a degree
2052529 (From North)

8. Runway profiles, including elevation of runway ends and displaced thresholds, high and low points, grade changes, and gradients. (see ALP set)

9. Highest elevation within first 3,000 feet of each runway landing surface (MSL) with vertical accuracy computed and submitted to the nearest one-tenth of a foot:
293.5'

10. Runway surface type and condition: Asphalt - Good

11. Runway markings (non-precision, precision, or basic) and condition of the markings:
Basic - Good (Remarked in Late 1993)

12. Runway approach slope must be clear to 20:1/34:1 for at least the approach area criteria as contained in AC 150/5300-13.

13. Runway Safety Area size 120' Wide* must be clear in accordance with AC 150/5300-13. Confirmed clear (Y / N) Y*.

14. Runway Obstacle Free Zone size 250' Wide* must be clear in accordance with AC 150/5300-13. Confirmed clear (Y / N) N*.

*Note: Declared Distances used to compensate for nonstandard RSA (see Airport Master Plan and Airport Layout Plan set).

B. Runway Information. Provide the following information for all runways at the airport. Data is required for both ends of the runway.

1. Runway (R06, R24, R19L, etc.): R19

2. Runway threshold coordinates at the runway centerline on the approach side of the runway threshold stripes, to the nearest one-hundredth of a second + horizontal geodetic accuracy.

340521.720/-1180158.500 (Disp. Thrhd.)
340527.443/-1180155.230 (Appch. End of Pvmt.)

3. Runway threshold mean sea level referenced elevation to the nearest one-tenth of a foot:

293.7' (Disp. Thrhd.)/295.9' (Appch. End of Pvmt.)

Displaced threshold (if any) distance 641' Displaced threshold elevation 293.7'

4. Runway stop end coordinates as in item subparagraph (2) above:

340451.752/-1180215.623 (End of Pvmt.)

5. Runway stop end elevation as in subparagraph (3) above:

281.8'

6. Runway width and effective landing length in feet:

75' Wide x 3,995' Long (Pvmt. Length)*

7. Runway true bearing or geodetic azimuth in degrees, minutes and seconds or nearest 1/100 of a degree

252541 (From North)

8. Runway profiles, including elevation of runway ends and displaced thresholds, high and low points, grade changes, and gradients. (see ALP set)

9. Highest elevation within first 3,000 feet of each runway landing surface (MSL) with vertical accuracy computed and submitted to the nearest one-tenth of a foot:

293.7'

10. Runway surface type and condition: Asphalt - Good

11. Runway markings (non-precision, precision, or basic) and condition of the markings:

Basic - Good (Remarked in Late 1993)

12. Runway approach slope must be clear to 20:1/34:1 for at least the approach area criteria as contained in AC 150/5300-13.

13. Runway Safety Area size 120' Wide* must be clear in accordance with AC 150/5300-13. Confirmed clear (Y/N) Y*.

14. Runway Obstacle Free Zone size 250' Wide* must be clear in accordance with AC 150/5300-13. Confirmed clear (Y/N) N*.

*Note: Declared Distances used to compensate for nonstandard RSA (see Airport Master Plan and Airport Layout Plan set).

C. Runway Lighting. Information about runways and Approach Lighting Systems is essential in order to provide visibility reduction credits. Show lighting systems on airport layout plans or engineering drawings.

1. Lights radio controlled (Y/N) No

List: MIRLS on during hours of darkness

2. Frequency for radio activation: N/A

3. Runway identifier: R/W 1-19

4. Runway light type: MIRL

(Low Intensity Runway Lights (LIRL), Medium Intensity Runway Lights (MIRL), etc.)

Standard/Non-Standard Standard

5. Runway approach light type: (None, MALSR, MALS, etc.) None

(Standard/Non-Standard) N/A

Length of approach light system in feet N/A

6. VASI/PAPI/pulsating light approach slope indicator (PLASI)

R/W 1 = AVASI-L (Angle 4.95°) - R/W 19 = AVASI-R (Angle 4.50°)

(Standard/Non-Standard)

7. Touchdown Zone Lights (Y/N) No

(Standard/Non-Standard) N/A

8. Lead-in Lights (Y/N) No

9. RVR (Y/N) No

10. Taxiway Lights (Y/N) Yes

(Standard/Non-Standard) In-pvmt. centerline

11. Runway Centerline Lights (Y/N) No

12. Displaced or relocated threshold marked and lighted (Y/N) Yes

13. REILS (Y/N) Yes-R/W 19

D. Airport Weather Information. Instrument Approach Procedures can be developed for locations without weather reporting and terminal forecasts; however, a local altimeter source must be available, otherwise some restrictions on the procedure may apply. Without weather reporting air taxi and air carrier operators are not authorized to utilize the instrument procedures and the airport will not be authorized as an alternate airport for any operator. National Weather Service (NWS) report, other than from points within 2 nautical miles of the airport are not usable for instrument procedures.

1. Will Terminal Weather Reporting be Available? (Y / N) Yes

If yes, the service will be provided by:

a. Automated Flight Service Station (AFSS) at :

b. National Weather Service Office (NWS) at:

c. Shared Weather Observation Program (SWOP) operated by :

d. Supplementary Aviation Weather Reporting Station (SAWRS) operated by:

e. Limited Aviation Weather Reporting Stations (LAWRS) operated by:

f. Contract Weather provided by:

g. Other facility (specify): Currently being provided by EMT ATCT (1430Z-0500Z) and contract observer (0500Z-1430Z)

h. Automated Surface Observation Station (ASOS)

Programed for installation (1995)

i. Automated Weather Observation Station (AWOS) (State category):

j. Specify the days of the week and hours of the day the weather is taken:

Sunday ____
Monday ____
Tuesday ____
Wednesday ____
Thursday ____
Friday ____
Saturday ____

24 hrs./day
7 days/week

2. When terminal weather reporting is not available, a local altimeter setting source should be provided in accordance with Advisory Circular (AC) 91-14D (attached). Without a local altimeter source, a penalty may be applied to the authorized minimums or the procedure may not be authorized.

a. Will a local altimeter setting be installed and available to pilots on request?
If so, what frequency? (Y / N) Frequency Yes (CTAF/ASOS)

b. Specify the days of the week and hours of the day the altimeter setting will be available.

Sunday ____
Monday ____
Tuesday ____
Wednesday ____
Thursday ____
Friday ____
Saturday ____

24 hrs./day
7 days/week

c. How will the altimeter setting be given to the pilot?

Unicom (frequency) ____
Company radio (frequency) ____
Telephone (number) To be determined
AWOS/ASOS (frequency) To be determined
Through Air Traffic CTAF

E. Air Traffic Control Data

1. A public telephone or direct line must be available to an air traffic control (ATC) facility 24 hours a day in order to open and close IFR flight plans. Telephone number To be determined

2. Will Unicom or an RCO be used to provide pilots with ATC clearances or traffic information? (Normally no). If yes, specify the frequency and days of the week and hours of the day ATC information will be available to the pilot .

Frequency CTAF Day and hours ATCT = 1430Z-0500Z

F. NAVAID Facility Information, if applicable.

1. Facility type (ILS, MLS, NDB, etc.) N/A Re: GPS

2. Frequency ______

3. Equipment type ______

4. Type of stand-by power ______

5. Number of transmitters ______

6. Facility coordinates to the nearest one-hundredth of a second horizontal geodetic accuracy of +/- 10 feet, vertical geodetic accuracy of +/- 1 foot. For multiple component systems such as ILS, MLS, etc., list coordinates for each component.

______

7. Facility elevation, MSL, accurate to the nearest one-tenth of a foot. Elevation values should be entered on the airport layout plan at all NAVAID component sites.

______

8. Monitor category, circle one: (1, 3, 4).

9. Monitor location (FBO, control tower, fire station, etc.)

______

10. Location of helicopter area if applicable:

______

G. Additional Information for ILS, SDF, MLS, Localizer-Type Directional Aid (LDA), or LOC Approaches.

Note: All distances should be accurate to the nearest one-tenth of a foot.

1. Localizer Data:

ILS Category: Cat I, Cat II, Cat III

True proposed or actual localizer course

LOC antenna distance from STOP END of runway ______

LOC distance/direction from runway centerline ______

LOC offset ______

LOC width at threshold ______________________________

LOC course width ______________________________

LOC back course, circle one (Y / N)

LOC antenna type: (Traveling-Wave, etc.)

____

LOC Lat ____________ Long ______________________________

Dual Frequency (Y / N)

2. Marker Data

OM distance out centerline from runway threshold: ____________ ft ____________

Outer marker distance perpendicular from centerline ____________ ft ____________

Note: If outer marker is a LOM, give name, if established ______________________________

Lat ____________ Long ____________

MM distance out centerline from runway threshold: ______ ft

MM distance perpendicular from centerline ft.

MM Lat ____________ Long ____________

IM distance out centerline from runway threshold: ______ ft

IM distance perpendicular from centerline

Lat ____________ Long ____________

3. GS Data:

ILS category, circle one: Cat I, Cat II, Cat III

GS angle: (normally 3.00 degrees)

GS distance perpendicular to runway centerline:

(a) Distance: ____________

(b) Direction: ____________

GS distance from runway threshold: (centerline abeam)

GS threshold crossing height:

Runway elevation abeam GS MSL:

GS antenna height: AGL ______ MSL ______

GS type (capture effect, etc.):

GS Lat ____________________ Long ____________________

EL MONTE AIRPORT

Introduction

The airfield pavements were evaluated as part of the *Airport Master Plan* study. This evaluation included a review of soils and pavement section information contained in the FAA Pavement Strength Survey (Form 5335-1), review of the 1993 Pavement Evaluation prepared by Penfield & Smith, a visual pavement condition survey and calculation of the pavement condition index (PCI) ratings. Random or representative areas of each airfield pavement area were surveyed for visual pavement distress in accordance with guidelines in FAA Advisory Circular 150/5380-6. Random sample units were used for larger pavement sections and representative sample areas for smaller sections. Figure F-1 depicts the pavement areas and associated field survey sampling method used.

The Micro PAVER pavement management computer program was used to calculate the PCI ratings from the pavement distresses measured during the field survey. PCI values can range from a high of 100 (excellent) to a low of 0 (failed).

Pavement Conditions

The airfield pavements at El Monte Airport are asphalt concrete, with PCI values ranging from a low of 66 (good) to a high of 100 (excellent). The distress observed is a result of aging and weathering of the surface and not aircraft loadings. The predominant types of distress observed include low- to medium-severity longitudinal and transverse cracks, low-severity weathering, and isolated low-severity patches. The PCI ratings for each pavement area are shown on Figure F-2.

The entire airport was treated with a slurry seal in January 1994. While not contributing directly to the strength of the pavement, this surface treatment improves surface traction, prolongs pavement life, and enhances the appearance of the Airport.

Maintenance/Repair Recommendations

Recommended pavement repair/maintenance projects for the Airport are summarized in Table F-1. The projects in this table are scheduled in 0- to 5-year, 5- to 10-year, and 10- to 20-year time periods according to their urgency in restoring the pavements and maintaining them in good condition.

The strategy of maintaining pavements in good condition is based on the relationship of pavement condition to rate of deterioration. As illustrated in Figure F-3, the rate of deterioration increases significantly as pavement condition drops. This increase becomes drastic when pavement conditions drop in the *fair* to *poor* range. Because of this drastic change, the additional cost to rehabilitate a pavement in *poor* condition, versus *good* to *fair* condition, are significantly higher.

Scheduling of the recommended pavement repair/maintenance projects was based upon minimizing long-term repair costs. In this analysis, funding of the projects was not considered a limiting factor. In cases where projects are considered to be equally important in terms of pavement maintenance, user safety and operating costs were also considered in the ranking process. Without a substantial amount of historical performance data and an accurate picture of future airport conditions, it is difficult to forecast beyond the 5- to 10-year period. Thus, the 10- to 20-year projects represent our best estimate of required maintenance projects for that period. The pavements should be evaluated in 7 to 8 years to reassess maintenance needs.

Since the environment seems to be the primary cause of deterioration at the Airport, routine sealing will help delay further deterioration. The entire airport was sealed using an asphalt slurry seal in 1993, and was partially completed prior to our pavement evaluation. It is assumed that much of the distress identified herein was corrected in this process. Thus, our recommendations for sealcoat in the 0- to 5-year timeframe would actually take place 3 to 5 years from the last sealcoat. On runways, taxiways, and hangar areas, we recommend a latex modified asphalt slurry seal. On aprons, a coal tar slurry is recommended to protect the pavement from the harmful effects of fuel spillage.

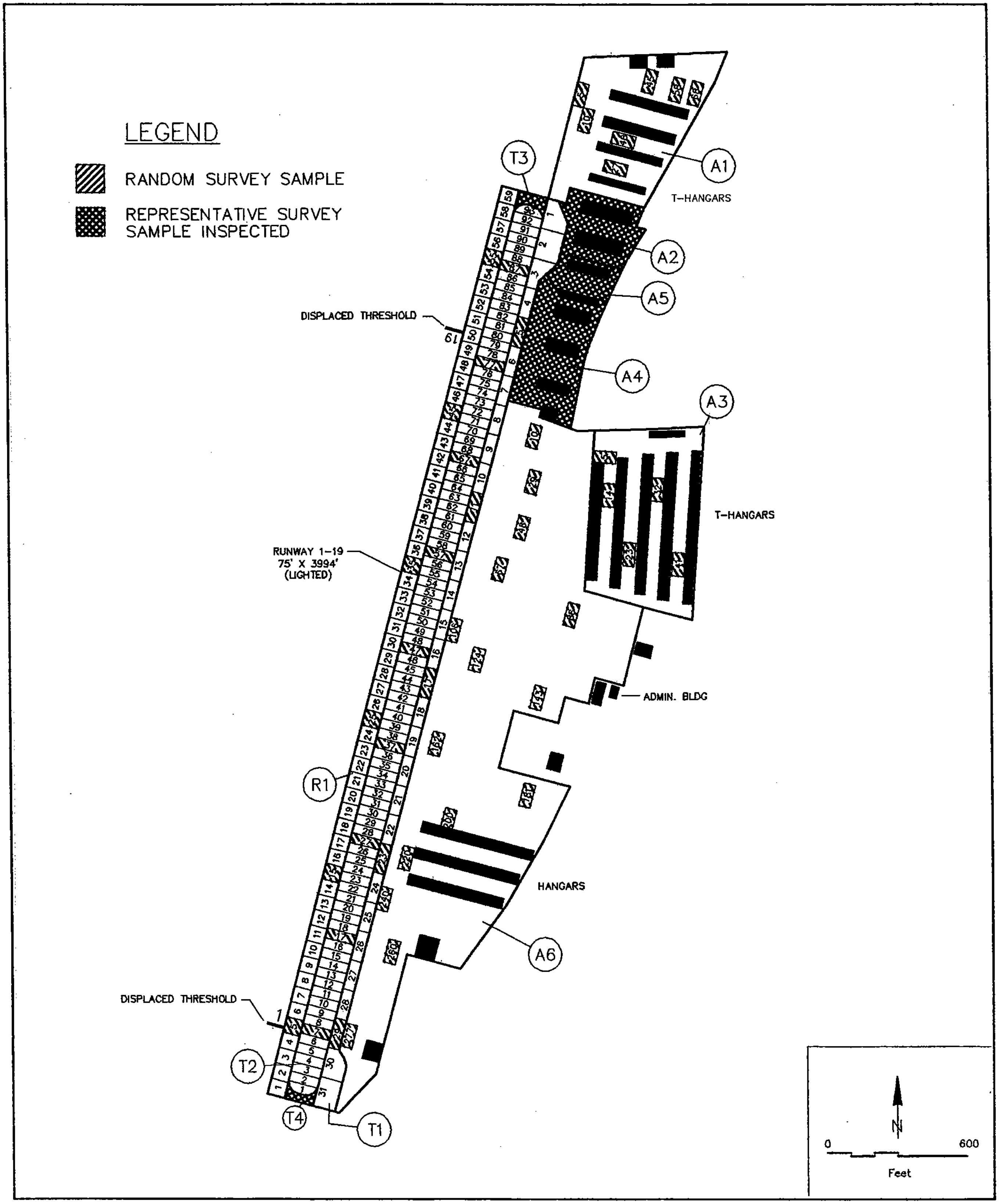


Figure F-1

Pavement Sampling Diagram

El Monte Airport

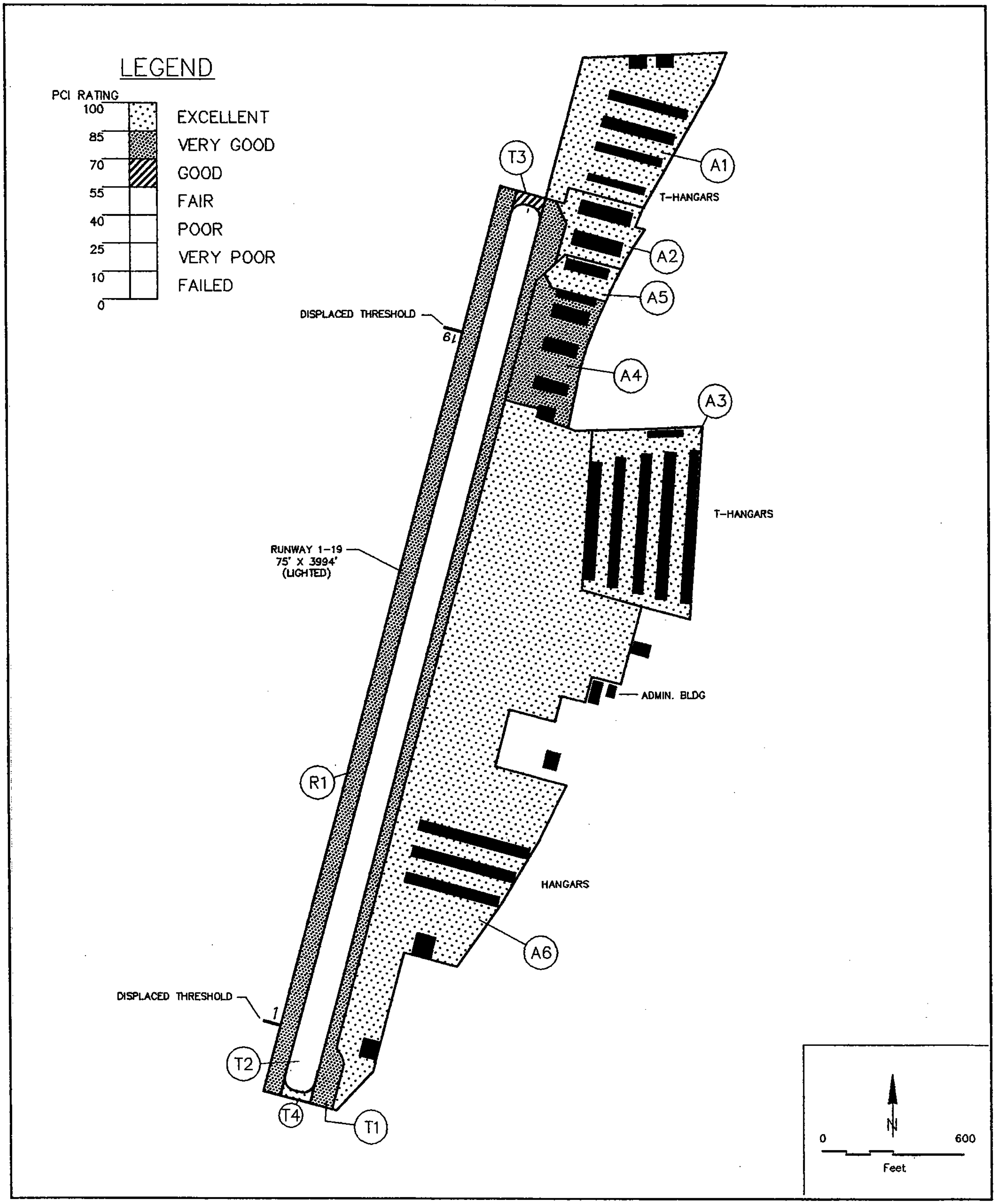


Figure F-2

PCI Rating

El Monte Airport

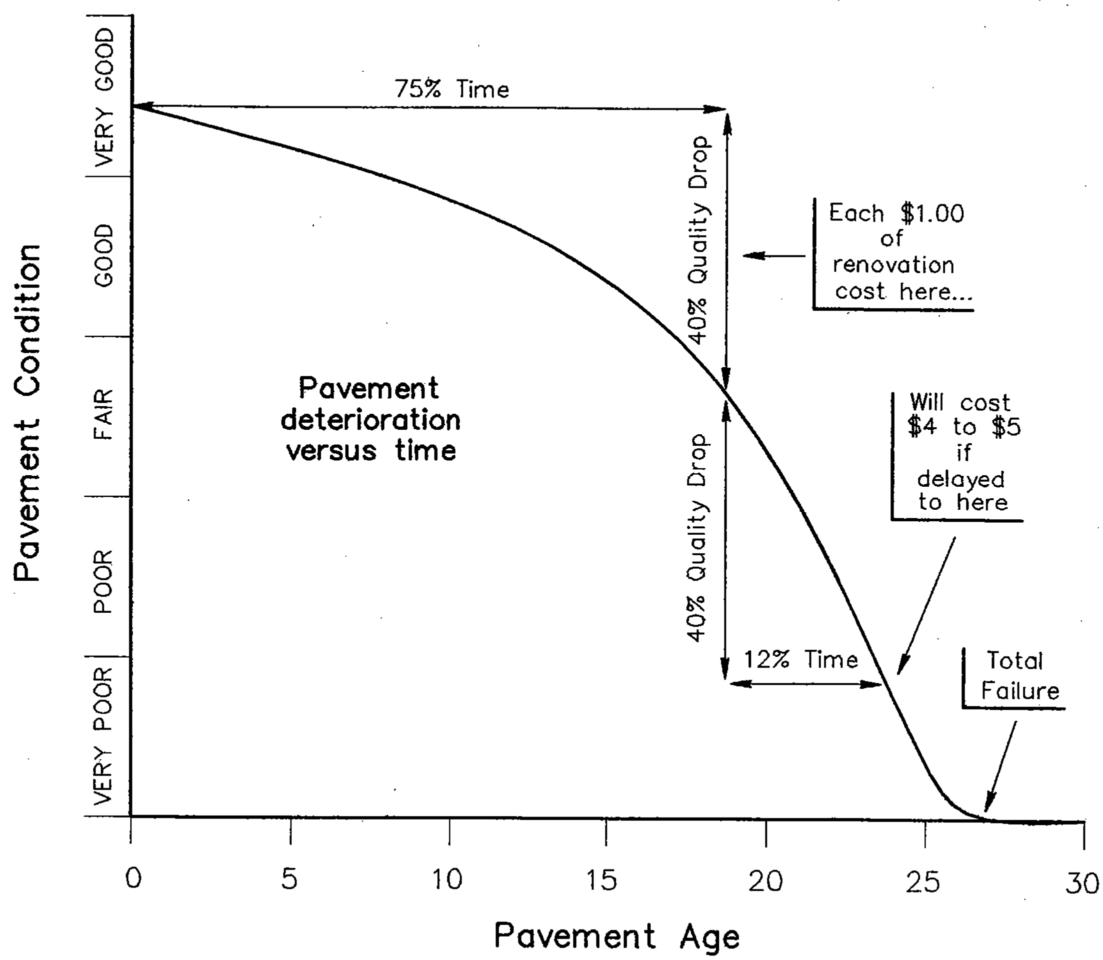
Timeframe	Project No.	Pavement Area	Project Description	Estimated Cost
0 - 5 Years		No significant pavement repair/maintenance required.		
		Subtotal		*$ 835,000*
5 - 10 Years	1	A1, A2, A3, A4, A5	Slurry Seal	200,000
	2	R1, T1, T2, T3, T4	Overlay	720,000
		Subtotal		*-0-*
10 - 20 Years	1	R1, T1, T2, T3, T4	Seal Coat	260,000
	2	A6	Overlay	1,311,000
	3	A1, A2, A3, A4, A5	Reconstruction	771,000
		Subtotal		*$2,342,000*
		TOTAL		**$3,262,000**

Source: Hodges & Shutt (October 1994)

Table F-1

Recommended Airport Pavement Repair/Maintenance Projects

El Monte Airport



Reference: American Public Works Association 'Paver Training Manual' (1986)

Figure F-3

Theoretical Pavement Deterioration Curve

El Monte Airport

Hangar Financing Options

EL MONTE AIRPORT

Hangars are unusual among airport facilities in terms of the ways in which they can be financed. Not all of the typical airport funding sources can be used for hangar development – hangars are not eligible, for example, to receive federal AIP grants. Portions of the hangars' access taxiways, however, are eligible for AIP grants. Considering the high priority assigned to construction of additional hangars at El Monte Airport, it is appropriate to take a closer look at hangar financing options.

The attached table compares the advantages of five different public and private hangar financing options. While intended primarily for financing the development of permanent T-hangars, the five financing options can also be applied to the development of portable hangars and corporate or executive style hangars.

At El Monte Airport, the existing aircraft storage hangars have been developed by both the County and the private sector. Due to the increasing cost of development, it is anticipated that the majority of all future hangar construction (fixed or portable types; "T" or "box" types) will be financed and owned by the County. This financing approach is consistent with past County practice and permits the County to allocate its financial resources as appropriate to revenue-producing airport improvements.

With respect to El Monte Airport, the Airport-owned/Airport-financed and Airport-owned/State Loan Program-financed approaches to financing hangar development appear to offer the greatest likelihood of success. It is anticipated that, at least for the near-term, any new hangars constructed at the Airport will be financed in this manner.

Privately Owned/Privately Financed

This approach is most often pursued at publicly owned airports that are unable to afford the initial development cost of hangar construction or prefer to use their limited financial resources for other higher priority projects. The hangars are designed, financed, and owned by private sector interests. Title to improvements may or may not revert to the airport upon expiration of the lease term.

Advantages

- No public financing or capital required.
- Private development can generally be accomplished at lower cost and in less time than public development.
- Pride of private ownership and ownership equity interest may encourage above-average structural maintenance and facility utilization.
- Airport gains immediate revenue from land area rental/use fees.

Disadvantages

- Airport either gains no equity interest in improvements or gains no equity interest until term expiration.
- Revenue accruing to airport is modest (i.e., generally land rent only).
- Potential for private default and resultant turmoil.
- Airport sacrifices a measure of control to private interests.
- Potential for low quality or inconsistent design unless airport owner sets precise design and construction standards.

Airport Owned/Privately Financed

With this approach, the airport owner obtains private sector financing to construct the hangars and subsequently owns and operates them.

Advantages

- No public financing or capital required.
- Airport "owns" improvements thus facilitating control. (Note that private financier may retain some element of control over the facility and its use).

Disadvantages

- Private financing costs may be high.
- Loan assurances may encumber or constrain airport.
- Private financial interests (banks, savings and loans institutions, developers, etc.) are generally not familiar with hangar development projects.

Airport Owned/Airport Financed

This approach assumes that the airport has sufficient surplus income and/or retained earnings to self-finance hangar construction.

Advantages

- Generally results in the lowest "financing" costs.
- Airport owns improvements thus facilitating control.
- Use of airport funds does not impact community's general funds or bonding capability.
- Over the long term, airport realizes a significant measure of revenue.

Disadvantages

- Only larger airports with adequate financial resources are capable of pursuing this approach.
- Utilizes frequently scarce airport capital resources that might better be applied toward other airport improvement projects for which alternative funding sources are not available.
- Positive cash flow frequently not realized by airport for several years.

Table G-1

Hangar Financing Options

El Monte Airport

Airport Owned/State Loan Program Financed

This method of hangar financing has been successfully utilized by numerous airport owners in the state of California. The public airport owner borrows the funds necessary for hangar development from the California State Airport Loan Program. The loan is then retired from hangar rental revenues over a period of up to 15 years.

Advantages

- Airport owns improvements thus facilitating control.
- Scarce airport and community funds are not required.
- Interest rate charged (currently 5.9% per annum) is attractively below the rates available from private financing sources.
- Loan can be retroactively applied to eligible projects.
- Over the long term, airport realizes a signficant measure of revenue.

Disadvantages

- The State Loan Program usually has backlog of loan requests - sometimes as long as a year.
- Repayment schedule has constant principal payments thus expenses usually exceed revenues in initial years.

Airport Owned/Publicly Financed

Using this arrangement, the airport utilizes funds or financial resources (general fund, general obligation bonds, revenue bonds, etc.) to construct hangars.

Advantages

- Airport owns improvements thus facilitating control.
- Scarce airport funds are not required.

Disadvantages

- Public resources may be unavailable or required for higher priority community projects.
- Bonding process may require security pledge and/or vote of citizenry.

Source: Hodges & Shutt (November 1994)

Table G-1 continued

Airport-Oriented Restaurants/Coffee Shops

Observations Regarding the Operation of Restaurants and Coffee Shops on General Aviation Airports

There is a pervasive feeling throughout the general aviation community that every airport of any modest size needs and is capable of supporting an on-airport restaurant. On the surface, an on-airport restaurant appears to be a reasonable proposition. It offers the "exciting allure" of aviation activity and has ready access to a somewhat captive customer base – the based and transient pilots and passengers that frequent the airport.

However, the record of success for most general aviation airport restaurants has not been good. There are seemingly more failures than successes in this business. One needs only to visit a few local airports to learn of the numerous attempts to either start or sustain a viable on-airport restaurant – most end in failure.

Restaurants located on general aviation airports are typically one of two kinds – the small "Mom & Pop" style coffee shop/snackbar or the upper-scale, full-service public-access eatery featuring an aeronautical theme.

The "coffee shop/snackbar" typically caters to pilots and tenants based at the airport. In addition, transient pilots and passengers may fly into the airport and purchase food and drink – either as a primary destination or just passing through. There isn't much public street traffic or local community clientele. The basic on-airport coffee shop customer is somewhat informally attired (after all, he just drained 7 quarts of dirty oil from his Lycoming 0-320 engine), buys one cup of coffee (complains about the cost), and sits around most of the day talking about airplanes and complaining about the FAA. The small on-airport coffee shop is the local pilot and aviation enthusiast hang-out – dusty old model planes hang from the ceiling and yellowing aeronautical sectionals and dog-eared airplane photos line the walls. The place is busy on good-weather summer weekends at lunch time, but is slow most other times. There is not much volume and very little profit – if any.

Of course, there are successful on-airport coffee shops (airports like Petaluma, Auburn, Chino, Brackett Field, Big Bear, and Lampson Field in California come to mind). These restaurants are well-known throughout their respective pilot communities as good places to fly to on a nice summer weekend for the proverbial $75 airport hamburger. They are modestly sized and informally operated to minimize costs and remain attractive to their pilot/airport user customer base.

The second kind of on-airport restaurant is the full-service, public-access eatery. This restaurant typically endeavors to attract the upper-scale lunch and dinner crowd by featuring quality food and drink with the allure and excitement of an aeronautical setting. This type of restaurant relies heavily upon the local population base, area businesses and roadside traffic for its clientele. A very small percentage (less than 10%) of its business comes from pilots, passengers, and airport tenants. Based pilots and airport tenants typically don't patronize such establishments because these restaurants tend to be relatively expensive and not conducive to informal "hanging around." Frequently, these restaurants have a minimum table service charge, no counter service, and actively discourage "informal" customers.

Through advertising and word of mouth, such restaurants can attract the transient pilot and passengers for a meal. Flying to Acme Community Airport for a nice lunch or dinner was once a popular form of entertainment for many general aviation pilots. With the recent decline in general aviation activity, particularly recreational and discretionary flying, this customer base has eroded significantly.

To survive, the full-service on-airport restaurant must have a strong, non-airport-related customer base and offer quality food and service. The aeronautical theme will draw customers the first time but good food and service is required to keep them coming back.

The aeronautical theme that distinguishes such restaurants is, unfortunately, diminishing in its impact. Many customers come to on-airport restaurants to see the planes, lights, and activity associated with an active, vibrant airport. In these days of declining general aviation activity, however, there are precious few planes flying. Large acreage multi-runway airports frequently place the flight activity a considerable distance from the restaurant windows – closeup viewing is difficult at best. Electrical energy conservation programs mean that few runway and taxiway lights are visible at night. FAA security restrictions, particularly at air carrier and commuter airports, inhibit access to the airfield and project an inhospitable fortress mentality. At some airports, general aviation fly-in customers cannot taxi directly to the restaurant due to airport security requirements – the pilot and passengers are required to take a frequently inconvenient courtesy car or taxicab to the restaurant via public roads.

Successful examples of full-service public-access restaurants include the 94th Aero Squadron and 306th Bomb Group theme restaurants at San Jose International Airport (CA) and Sarasota-Bradenton Airport (FLA), respectively, and the Blue Max Restaurant at Boeing Field in Seattle (WA).

Generally speaking, it is not practical to successfully mix the two restaurant types at one location. The two restaurant types serve substantially different clienteles with differing service and facility requirements.

The following additional thoughts and observations regarding on-airport restaurants are offered:

- Airport/Pilot Guides are a useful tool in advertising both on-airport and near-airport restaurants. There are even special guides that describe nothing but on-airport restaurants.

- Business/corporate aircraft food catering offers some potential for added restaurant revenue – particularly at busier general aviation airports in metropolitan areas. However, on-airport restaurants could face stiff catering competition from off-airport restaurants and local delicatessens.

- A number of restaurants are located on airports with contiguous corporate/ industrial parks. Usually, these restaurants consider the nearby corporate/industrial parks as an important element of their customer base – particularly at lunch time.

- Occasionally, a local community restaurant operator will establish a "satellite" restaurant operation at the local airport. Hopefully, such an operator will know the local market and will be able to reduce costs through bulk purchasing and shared administration.

- Infrastructure and equipment costs for on-airport restaurants are relatively high. This is particularly true for start-up operations. This generally requires high initial capitalization and a relatively long lease term. Neither the airport operator nor the restaurateur is typically interested in these terms for such a speculative business endeavor.

Prepared in August 1993 by David B. Heal, Hodges & Shutt, Santa Rosa, California.

Noise Model Calculation Data

El Monte Airport

AIRCRAFT MIX
(Estimated 1993 Activity Level)

Aircraft Type	Total Operations			Touch & Go's
	Annual	Average Day	Percentage	% of Operations
Single-Engine, Propeller, Fixed Pitch	90,000	246.6	48.3	50.0
Single-Engine, Propeller, Variable Pitch	66,302	181.7	35.6	10.0
Twin-Engine, Propeller, Piston	9,000	24.7	4.8	5.0
Twin-Engine, Turboprop	800	2.2	0.4	0.0
Small Business Jet (e.g., Citation I)	200	0.6	0.1	0.0
Helicopters	20,000	54.8	10.8	50.0
Total	186,302	510.4	100.0	35.5

AIRCRAFT MIX
(Projected 2013 Activity Level)

Aircraft Type	Total Operations			Touch & Go's
	Annual	Average Day	Percentage	% of Operations
Single-Engine, Propeller, Fixed Pitch	90,000	246.6	42.9	40.0
Single-Engine, Propeller, Variable Pitch	73,000	200.0	34.8	10.0
Twin-Engine, Propeller, Piston	11,200	30.7	5.3	5.0
Twin-Engine, Turboprop	2,000	5.5	1.0	0.0
Small Business Jet (e,g., Citation I)	800	2.2	0.4	0.0
Helicopters	33,000	90.4	15.7	40.0
Total	210,000	575.3	100.0	27.2

TIME OF DAY (Estimated 1993 and Projected 2013)		Percentage of Operations by Aircraft Type		
Aircraft Type		Day 7:00 a.m. 7:00 p.m.	Evening 7:00 p.m. 10:00 p.m.	Night 10:00 p.m. 7:00 a.m.
Single-Engine, Fixed Prop	Ldg & T/O	94.0	5.0	1.0
	Touch&Go	95.0	5.0	0.0
Single-Engine, Variable Prop	Ldg & T/O	93.0	6.0	1.0
	Touch&Go	96.0	4.0	0.0
Twin-Engine, Piston Prop	Ldg & T/O	92.0	7.0	1.0
	Touch&Go	97.0	3.0	0.0
Twin-Engine, Turboprop	Ldg & T/O	92.0	7.0	1.0
Small Business Jet	Ldg & T/O	92.0	7.0	1.0
Helicopters	Ldg & T/O	85.0	10.0	5.0
	Touch&Go	96.0	4.0	0.0

RUNWAY UTILIZATION (Estimated 1993 and Projected 2013)		Percentage of Landings & Touch-and-Go		Percentage of Takeoffs	
Aircraft Type		Rwy 1	Rwy 19	Rwy 1	Rwy 19
All Aircraft	Day,	10.0	90.0	10.0	90.0
	Evening,	10.0	90.0	10.0	90.0
	Night	10.0	90.0	10.0	90.0

FLIGHT TRACKS - LANDINGS (other than touch & go's) (Estimated 1993 and Projected 2013)	Runway 1			Runway 19		
Aircraft Type	Straight In	Left Downwind	Right Downwind	Straight In	Left Downwind	Right Downwind
Single-Engine	1.0	4.0	4.0	21.0	50.0	20.0
Twin-Engine & Jet	1.0	4.0	4.0	21.0	50.0	20.0
Helicopters	1.0	4.0	4.0	21.0	50.0	20.0

FLIGHT TRACKS - TAKEOFFS (departing the pattern) (Estimated 1993 and Projected 2013)								
	Runway 1			Runway 19				
Aircraft Type	Straight In	45° Left	45° Right	Straight Out	45° Left	45° Right	Right Downwind	Left Downwind
Single-Engine	1.0	2.0	3.0	10.0	6.0	6.0	23.0	45.0
Twin-Engine & Jet	1.0	2.0	3.0	10.0	6.0	6.0	23.0	45.0
Helicopters	1.0	2.0	3.0	10.0	6.0	6.0	23.0	45.0

FLIGHT TRACKS - TOUCH & GO'S (Remaining in the pattern) (Projected 2013)				
	Runway 1		Runway 19	
Aircraft Type	Right Pattern	Left Pattern	Right Pattern	Left Pattern
Airplanes	2.0	2.0	90.0	6.0
Helicopters	2.0	2.0	90.0	6.0

Source: Hodges & Shutt (July 1994)

INITIAL STUDY
ENVIRONMENTAL CHECKLIST FORM

I. BACKGROUND

1. Name of Proponent: **County of Los Angeles**
2. Address and Phone Number of Proponent:
   Department of Public Works
   Aviation Division
   900 South Fremont Avenue, 2nd Floor
   Alhambra, California 91803-1331
   818-458-7389
3. Date of Checklist Submission:
4. Agency Requiring Checklist: **County of Los Angeles**
5. Name of Proposal, if applicable: **El Monte Airport Master Plan Report**

II. ENVIRONMENTAL IMPACTS

(Explanations of all "yes" and "maybe" as well as pertinent "no" answers are required on attached sheets.)

	YES	MAYBE	NO
1. Earth. Will the proposal result in:			
a. Unstable earth conditions or in changes in geologic structures?	__	__	X
b. Disruption, displacement, compaction or over-covering of the soil?	X	__	__
c. Change in topography or ground surface relief features?	__	__	X
d. The destruction, covering or modification of any unique geologic or physical features?	__	__	X
e. Any increase in wind or water erosion of soils, either on or off the site?	__	X	__

			YES	MAYBE	NO
	f.	Changes in deposition or erosion of beach sands, or changes in siltation, deposition or erosion which may modify the channel of a river or stream or the bed of the ocean or any bay, inlet, or lake?	_	_	X
	g.	Exposure of people or property to geologic hazards such as earthquakes, landslides, mudslides, ground failure, or similar hazards?	_	_	X
2.	**Air.** Will the proposal result in:				
	a.	Substantial air emissions or deterioration of ambient air quality over the long term?	_	X	_
	b.	The creation of objectionable odors or dust?	_	X	_
	c.	Alteration of air movement, moisture or temperature, or any change in climate, either locally or regionally?	_	_	X
3.	**Water.** Will the proposal result in:				
	a.	Changes in currents, or the course or direction of water movements, in either marine or fresh waters?	_	_	X
	b.	Changes in absorption rates, drainage patterns or the rate and amount of surface water runoff?	X	_	_
	c.	Alterations to the course or flow of flood waters?	_	_	X
	d.	Change in the amount of surface water in any water body? (e.g., perennial or intermittent streams; seasonal or year-round springs; ponds and marshes)	_	_	X
	e.	Alteration of water quality, including but not limited to temperature, dissolved oxygen or turbidity?	_	X	_
	f.	Alteration of the direction or rate of flow of groundwaters, including changes in infiltration or percolation rates?	_	_	X

		YES	MAYBE	NO
g.	Change in the quantity of groundwaters, either through direct additions or withdrawals, or through interception of any aquifer by cuts or excavations?	_	_	X
h.	Substantial reduction in the amount of water otherwise available for public water supplies?	_	_	X

4. Plant Life. Will the proposal result in:

		YES	MAYBE	NO
a.	Change in the diversity of species, or number of any species of plants (including trees, shrubs, grass, crops, and aquatic plants)?	_	_	X
b.	Reduction of the numbers of any unique, rare, or endangered species of plants?	_	_	X
c.	Introduction of new species of plants into an area, or in a barrier to the normal replenishment of existing species?	_	_	X
d.	Reduction in acreage of any agricultural crop?	_	_	X
e.	Any effect upon a Significant Ecological Area which is identified in the Los Angeles County General Plan?	_	_	X

5. Animal Life. Will the proposal result in:

		YES	MAYBE	NO
a.	Change in the diversity of species, or numbers of any species of animals (birds, land animals including reptiles, fish and shellfish, benthic organisms or insects)?	_	_	X
b.	Reduction of the numbers of any unique, rare or endangered species of animals?	_	_	X
c.	Introduction of new species of animals into an area, or result in a barrier to the migration or movement of animals?	_	_	X
d.	Deterioration to existing fish or wildlife habitat?	_	_	X

			YES	MAYBE	NO
6.	**Noise.** Will the proposal result in:		X		
	a.	Increases in existing noise or vibration levels?			
	b.	Exposure of people to severe noise levels?			X
7.	**Light and Glare.** Will the proposal produce new light or glare?			X	
8.	**Land Use.** Will the proposal result in:				
	a.	A substantial alteration of the present or planned land use of an area?		X	
	b.	A conflict with adopted environmental plans and goals of the community where it is located?			X
9.	**Natural Resources.** Will the proposal result in:				
	a.	Increase in the rate of use of any natural resources?		X	
	b.	Substantial depletion of any nonrenewable natural resource?			X
10.	**Risk of Upset.** Will the proposal involve:				
	a.	A risk of an explosion or the release of hazardous substances (including, but not limited to oil, pesticides, chemicals, or radiation) in the event of an accident or upset conditions?	X		
	b.	Possible interference with an emergency response plan or an emergency evacuation plan?			X
	c.	Exposure of people or property to a flooding hazard, such as a change in location or flooding in the event of an accident or upset condition?			X
11.	**Population.** Will the proposal alter the location, distribution, density, or growth rate of the human population of an area?				X

		YES	MAYBE	NO
12.	**Housing.** Will the proposal affect existing housing, or create a demand for additional housing?	_	X	_
13.	**Transportation/Circulation.** Will the proposal result in:			
	a. Generation of substantial additional vehicular movement?	_	X	_
	b. Effects on existing parking facilities, or demand for new parking?	X	_	_
	c. Substantial impact upon existing transportation systems?	_	_	X
	d. Alterations to present patterns of circulation or movement of people and/or goods?	_	X	_
	e. Alterations to waterborne, rail or air traffic?	X	_	_
	f. Increase in traffic hazards to motor vehicles, bicyclists, or pedestrians?	_	_	X
14.	**Public Services.** Will the proposal have an effect upon, or result in a need for, new or altered governmental services?	_	X	_
15.	**Energy.** Will the proposal result in:			
	a. Use of substantial amounts of fuel or energy?	_	_	X
	b. A substantial increase in demand upon existing sources of energy, or require the development of new sources of energy?	_	_	X
16.	**Utilities.** Will the proposal result in a need for new systems, or substantial alterations to utilities such as, but not limited to, gas, water, sewer, storm water drainage, or solid waste disposal?	_	X	_

		YES	MAYBE	NO
17.	**Human Health.** Will the proposal result in:			
a.	Creation of any health hazard or potential health hazard (excluding mental health)?	_	_	X
b.	Exposure of people to potential health hazards?	_	_	X
18.	**Aesthetics.** Will the proposal result in:			
a.	Obstruction of any scenic vista or view from existing residential areas, public lands, or roads?	_	X	_
b.	Creation of an aesthetically offensive site?	_	_	X
c.	Change in character of the general project area?	_	X	_
19.	**Recreation.** Will the proposal result in an impact upon the quality or quantity of existing recreational opportunities?	X	_	_
20.	**Cultural, Archaeological, Historical, and Paleontological Resources.** Will the proposal result in:			
a.	Alteration of or the destruction of a prehistoric or historic archeological site?	_	_	X
b.	Alteration or destruction of a paleontological resource?	_	_	X
c.	Adverse physical or aesthetic effects to a prehistoric or historic building, structure, or object?	_	_	X
d.	Physical changes which would affect unique ethnic cultural values?	_	_	X
e.	Restriction of existing religious or sacred uses within the potential impact area?	_	_	X

		YES	MAYBE	NO
21.	**Mandatory Findings of Significance.**			
a.	Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	__	__	X
b.	Does the project have the potential to achieve short-term, to the disadvantage of the long-term, environmental goals? (A short-term impact on the environment is one which occurs in a relatively brief, definitive period of time while long-term impacts will endure well into the future.)	__	__	X
c.	Does the project have impacts which are individually limited, but cumulatively considerable? (A project may impact on two or more separate resources where the impact on each resource is relatively small, but where the effect of the total of those impacts on the environment is significant.)	__	__	X
d.	Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	__	__	X

III. DISCUSSION OF ENVIRONMENTAL EVALUATION

General Note: The El Monte Airport Master Plan is a comprehensive assessment of the facility and service enhancements required to see the Airport fulfill its public service role through the year 2013. This Master Plan builds upon the Airport Layout Plan approved by the County of Los Angeles in 1986.

The following key findings and recommendations are identified in the Master Plan:

- The Airport's future operational/service role is not expected to differ significantly from the role the Airport has served since its first use in 1936.

- There are no proposed changes to the basic configuration of the runway/taxiway system.

- Within the initial 5-year period, the following key Airport improvements are recommended by the Master Plan:
  - Construct public-use terminal building (4,000 square feet)
  - Construct additional aircraft storage hangars (30 spaces)
  - Install Automated Surface Observation System (ASOS)
  - Install Runway End Identification Lights (REILs) to Runway 1
  - Renovate aviation fuel storage and dispensing facilities
  - Develop supplemental aviation support area (5 acres)

- Towards the latter part of the 20-year master planning period, it is anticipated that the following Airport improvements may be required:
  - Construct additional aircraft storage hangars (20 spaces)
  - Replace airfield lighting system
  - Acquire additional property to support Airport development (8 acres)
  - Rehabilitate airfield pavement

The sum of the airfield development proposed in the Master Plan represents a mitigable impact on the environment. The appropriate mitigation actions are identified herein and in the Master Plan.

The following is submitted in response to the preceding environmental impact checklist:

1 b It is proposed that a 3/4-acre area of level land located in the midst of fully-developed Fixed Base Operations (FBO) facilities be developed as a paved aircraft parking apron or site for additional FBO facilities. The subject area is currently neither irrigated nor developed, and is sparsely covered with native grasses. Pavement of this area would result in the overcovering of the site's soil. Use of this area for the above noted purposes is consistent with surrounding land uses.

1 e New development will result in creation of additional impervious surfaces (i.e., pavement and structures) and, therefore, additional storm water run-off. The engineering design of the new facilities should include provisions for handling run-off to prevent an increase in erosion.

2 a The forecasted increases in aircraft operations (approximately 0.6% per annum) will increase the amount of emissions attributable to the Airport (both directly by aircraft and indirectly by automobiles associated with airport users). However, the total amount of emissions will not have a significant effect on regional air quality. The amount of emissions is negligible compared to the much larger effect attributable to the existing and planned urbanized development in the area.

2 b Aircraft engines, especially turbine engines, produce exhaust odors which some people find objectionable. However, the volume of use by turbine aircraft, which are typically the most objectionable, is forecast to be insignificant and no significant change will occur with the other engine types. New state and federal air quality standards are expected to address the limited emissions and odors associated with the fueling and operation of aircraft. Site watering and other techniques should be used during construction to minimize dust and wind erosion.

3 b As described in 1e, the planned addition of pavement and structures will slightly increase the amount of storm runoff. This will result in a minor increase in flows of water into the existing storm water drainage system. The drainage from the Airport outlets directly into the Rio Hondo Channel. Any increase in runoff due to the additional impervious surface (i.e., pavement and structures) would be minimal and thus insignificant. Rio Hondo Channel has adequate capacity to handle this increase in runoff.

3 e In a manner similar to roads, the run-off from airfield pavement can be expected to contain materials associated with the vehicles which use it (aircraft, automobiles, and trucks). The amount of these materials is small and no specific mitigation measure is proposed. Accidental spillage associated with aircraft fueling operations has a greater potential to affect surface water quality. Current state and federal hazardous materials regulations (which require increasingly stringent controls over the

next decade) are adequate to protect the environment. There are no unusual conditions at El Monte Airport which require special mitigation measures.

6 a Forecasted increases in aircraft operations (approximately 0.6% per annum) will not significantly increase the cumulative level of noise experienced off of airport property, and single-event noise levels are not anticipated to change significantly. Continued use of the Airport's aircraft noise abatement procedures should prove effective in minimizing and mitigating aircraft noise impacting off-Airport land uses.

7 The principal change in lighting identified in the Airport Master Plan will be the addition of Runway End Identifier Lights (REILs), which will be added at the threshold of Runway 1. A special study is suggested to determine an appropriate way of mitigating REIL flash annoyance that could potentially impact off-airport land uses.

8 a An 8-acre site that is contiguous to the northeast boundary of the Airport is proposed for future acquisition in support of the Airport. This site is currently in use as an elementary school with associated structures and paved and grass playground areas. Should this site be developed in support of the Airport, it is likely these uses will be changed.

9 a Annual aircraft operations are forecasted to increase by 0.6%. It can be assumed, therefore, that if the same types of aircraft continue to use the Airport, the rate of use of petrochemicals (i.e., aviation fuel and oil) associated with El Monte Airport will increase at the same rate.

10 a Inherent in the operation of an airport is the potential for an explosion or release of hazardous materials (i.e., fuel) in the event of an accident. There are, however, no existing or planned operations at El Monte Airport that present an unusual level of risk. Current land use measures are in place to mitigate this risk. Additional measures are provided for in this Master Plan.

12 The future development of the supplemental aviation support areas to the northeast and south of the Airport has the potential to affect adjacent residential land uses. Prior to development of these areas, a compatibility plan should be formulated which minimizes the impact of development on adjacent residential land uses.

13 a Associated with the forecasted increase in aircraft operations is a minor increase to the amount of ground vehicular movement. The increased amount of traffic is minor compared to the larger volume attributable to the existing business and residential development in the Airport environs.

13 b The additional parking required to serve the projected increase in vehicular traffic will be accommodated by on-airport parking areas designated in the Airport Master Plan.

13 d Depending on the nature of on-Airport development, ground and pedestrian circulation near the sites may be slightly altered.

13 e Air traffic is forecast to increase from its current level of 186,302 annual operations to an estimated 210,000 annual operations in 2013. The Plan is designed to accommodate this projected demand for aviation services at the El Monte Airport.

14 Additional public services would be required to protect and maintain any expanded facilities proposed by the Master Plan. However, the effect would be minor. Revenues generated by increased airport usage would be expected to (at least partially) offset the added costs.

16 Depending on the nature of development, additional utility services may be required to support these potential new facilities. However, no new systems or substantial alterations to existing utilities will be required.

18 a The site to the south is currently undeveloped vacant land. The site to the northeast is currently an elementary school and playground. Should these sites be developed in support of the Airport, new structures may obstruct the view from existing residential areas, public lands or roads. As noted in Comment 12, a compatibility plan should be developed to minimize this impact.

18 c Development of the two sites from their current uses (vacant land and elementary school) to uses which support the Airport could have an impact on the character of the adjacent residential areas. Any changes in land use would be done after consultation with local City Officials and input from a community meeting.

19 To many of the aircraft owners based at El Monte Airport, flying is principally a recreational activity. The projects identified in the Master Plan will support this recreational activity. No other effects on recreation on- or off-airport are anticipated.

On the basis of this initial evaluation:

__ I find the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

__ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because the mitigation measures described on an attached sheet have been added to the project. A NEGATIVE DECLARATION WILL BE PREPARED.

__ I find the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

Date ______________ ______________________________

(Name)

For County of Los Angeles

Glossary

ABOVE GROUND LEVEL (AGL): An elevation datum given in feet above ground level.

AIR CARRIER: A person who undertakes directly by lease, or other arrangement, to engage in air transportation. (FAR 1) (Also see Certificated Route Air Carrier)

AIR CARRIERS: The commercial system of air transportation, consisting of the certificated route air carriers, air taxis (including commuters), supplemental air carriers, commercial operators of large aircraft, and air travel clubs. (FAA Census)

AIR ROUTE TRAFFIC CONTROL CENTER (ARTCC): A facility established to provide air traffic control service to aircraft operating on IFR flight plans within controlled airspace, principally during the en route phase of flight. When equipment capabilities and controller workload permit, certain advisory/assistance services may be provided to VFR aircraft. (AIM)

AIR TAXI: A classification of air carriers which directly engage in the air transportation of persons, property, mail, or in any combination of such transportation and which do not directly or indirectly utilize large aircraft (over 30 seats or a maximum payload capacity of more than 7,500 pounds) and do not hold a Certificate of Public Convenience and Necessity or economic authority issued by the Department of Transportation. (Also see commuter air carrier and demand air taxi.) (FAA Census)

AIR TRAFFIC CONTROL (ATC): A service operated by appropriate authority to promote the safe, orderly, and expeditious flow of air traffic. (FAR 1)

AIRCRAFT ACCIDENT: An occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight and all such persons have disembarked, and in which any person suffers death or serious injury, or in which the aircraft receives substantial damage. (NTSB)

AIRCRAFT APPROACH CATEGORY: A grouping of aircraft (Categories A—E) based on 1.3 times their stall speed in their landing configuration at their maximum certificated landing weight. (Airport Design)

AIRCRAFT OPERATION: The airborne movement of aircraft in controlled or non-controlled airport terminal areas and about given en route fixes or at other points where counts can be made. There are two types of operations - local and itinerant. (FAA Stats)

AIRCRAFT PARKING LINE LIMIT (APL): A line established by the airport authorities beyond which no part of a parked aircraft should protrude. (Airport Design)

AIR/FIRE ATTACK BASE: An established on-airport base of operations for the purposes of aerial suppression of large-scale fires by specially-modified aircraft. Typically, such aircraft are operated by the California Department of Forestry and/or the U.S. Forest Service.

AIRPLANE DESIGN GROUP (ADG): A grouping of airplanes (Groups I - V) based on wingspan. (Airport Design)

AIRPORT: An area of land or water that is used or intended to be used for the landing and takeoff of aircraft, and includes its buildings and facilities, if any. (FAR 1)

AIRPORT ELEVATION: The highest point of an airport's usable runways, measured in feet above mean sea level. (AIM)

AIRPORT HAZARD: Any structure or natural object located on or in the vicinity of a public airport, or any use of land near such airport, that obstructs the airspace required for the flight of aircraft in landing or taking off at the airport or is otherwise hazardous to aircraft landing, taking off, or taxiing at the airport. (Airport Design)

AIRPORT LAYOUT PLAN: A scale drawing of existing and proposed airport facilities, their location on the airport, and the pertinent clearance and dimensional information required to demonstrate conformance with applicable standards.

AIRPORT REFERENCE CODE (ARC): A coding system used to relate airport design criteria to the operational and physical characteristics of the airplanes intended to operate at the airport. (Airport Design)

AIRPORT REFERENCE POINT: A point established on an airport, having equal relationship to all existing and proposed landing and takeoff areas, and used to geographically locate the airport and for other planning purposes. (Airport Design)

AIRPORT TRAFFIC CONTROL TOWER (ATCT): A terminal facility that uses air/ground communications, visual signaling, and other devices to provide ATC services to aircraft operating in the vicinity of an airport or on the movement area. (AIM)

AIRWAY/FEDERAL AIRWAY: A Class E airspace area established in the form of a corridor, the centerline of which is defined by radio navigational aids. (AIM)

ALERT AREA: A special use airspace which may contain a high volume of pilot training activities or an unusual type of aerial activity, neither of which is hazardous to aircraft. (AIM)

APPROACH LIGHT SYSTEM (ALS): An airport lighting system which provides visual guidance to landing aircraft by radiating light beams in a directional pattern by which the pilot aligns the aircraft with the extended runway centerline during a final approach to landing. Among the specific types of systems are:

- LDIN - Lead-in Light System.
- MALSR – Medium-intensity Approach Light System with Runway Alignment Indicator Lights.
- ODALS - Omnidirectional Approach Light System, a combination of LDIN and REILS.
- SSALR - Simplified Short Approach Light System with Runway Alignment Indicator Lights. (AIM)

APPROACH SPEED: The recommended speed contained in aircraft manuals used by pilots when making an approach to landing. This speed will vary for different segments of an approach as well as for aircraft weight and configuration. (AIM)

AUTOMATED WEATHER OBSERVING SYSTEM (AWOS): Airport electronic equipment which automatically measures meteorological parameters, reduces and analyzes the data via computer, and broadcasts weather information which can be received on aircraft radios in some applications, via telephone.

AUTOMATIC DIRECTION FINDER (ADF): An aircraft radio navigation system which senses and indicates the direction to a L/MF nondirectional radio beacon (NDB) ground transmitter. (AIM)

AUTOMATIC TERMINAL INFORMATION SERVICE (ATIS): The continuous broadcast of recorded non-control information in selected terminal areas. (AIM)

BACK COURSE APPROACH: A non-precision instrument approach utilizing the rearward projection of the ILS localizer beam.

BASED AIRCRAFT: Aircraft stationed at an airport on a long-term basis.

BUILDING RESTRICTION LINE (BRL): A line which identifies suitable building area locations on airports.

CEILING: Height above the earth's surface to the lowest layer of clouds or obscuring phenomena that is reported as "broken", "overcast", or "obscuration" and is not classified as "thin" or "partial". (AIM)

CERTIFICATED ROUTE AIR CARRIER: An air carrier holding a Certificate of Public Convenience and Necessity issued by the Department of Transportation authorizing the performance of scheduled service over specified routes, and a limited amount of nonscheduled service. (FAA Census)

CIRCLING APPROACH/CIRCLE-TO-LAND MANEUVER: A maneuver initiated by the pilot to align the aircraft with a runway for landing when a straight-in landing from an instrument approach is not possible or is not desirable. (AIM)

COMMERCIAL OPERATOR: A person who, for compensation or hire, engages in the carriage by aircraft in air commerce of persons or property, other than as an air carrier. (FAR 1)

COMPASS LOCATOR: A low power, low or medium frequency (L/MF) radio beacon installed at the site of the outer or middle marker of an instrument landing system (ILS). (AIM)

COMPASS ROSE: A circle, graduated in degrees, printed on some charts or marked on the ground at an airport. It is used as a reference to either true or magnetic direction. (AIM)

COMMUNITY NOISE EQUIVALENT LEVEL (CNEL): The noise rating adopted by the State of California for measurement of airport noise. It represents the average daytime noise level during a 24-hour day, measured in decibels and adjusted to an equivalent level to account for the lower tolerance of people to noise during evening and nighttime periods.

COMMUTER AIR CARRIER: An air taxi operator which performs at least five round trips per week between two or more points and publishes flight schedules which specify the times, days of the week and places between which such flights are performed. (FAA Census)

CONTROLLED AIRSPACE: A generic term that covers the different classifications of airspace (Class A, Class B, Class C, Class D and Class E airspace) and defines dimensions within which air traffic control service is provided to IFR flights and to VFR flights in accordance with the airspace classification. Controlled airspace in the United States is designated as follows:

Class A: Generally, that airspace from 18,000 feet MSL up to and including FL600, including the airspace overlying the waters within 12 nautical miles of the coast of the 48 contiguous States and Alaska. Unless otherwise authorized, all persons must operate their aircraft under IFR.

Class B: Generally, that airspace from the surface to 10,000 feet MSL surrounding the nation's busiest airports in terms of airport operations or passenger enplanements. The configuration of each Class B airspace area is individually tailored and consists of a surface area and two or more layers (some Class B airspaces areas resemble upside-down wedding cakes), and is designed to contain all published instrument procedures once an aircraft enters the airspace. An ATC clearance is required for all aircraft to operate in the area, and all aircraft that are so cleared receive separation services within the airspace. The cloud clearance requirement for VFR operations is "clear of clouds".

Class C: Generally, that airspace from the surface to 4,000 feet above the airport elevation (charted in MSL) surrounding those airports that have an operational control tower, are serviced by radar approach control, and that have a certain number of IFR operations or passenger enplanements. Although the configuration of each Class C airspace area is individually tailored, the airspace usually consists of a surface area with a 5 nm radius, and an outer area with a 10 nm radius that extends from 1,200 feet to 4,000 feet above the airport elevation. Each person must establish two-way radio communications with the ATC facility providing air traffic services prior to entering the airspace and thereafter maintain those communications while within the airspace. VFR aircraft are only separated from IFR aircraft within the airspace.

Class D: Generally, that airspace from the surface to 2,500 feet above the airport elevation (chartered in MSL) surrounding those airports that have an operational control tower. The configuration of each Class D airspace area is individually tailored and when instrument procedures are published, the airspace will normally be designed to contain the procedures. Arrival extensions for instrument approach procedures may be Class D or Class E airspace. Unless otherwise authorized, each person must establish two-way radio communications with the ATC facility providing air traffic services prior to entering the airspace and thereafter maintain those communications while in the airspace. No separation services are provided to VFR aircraft.

Class E: Generally, if the airspace is not Class A, Class B, Class C, or Class D, and it is controlled airspace, it is Class E airspace. Class E airspace extend upward from either the surface or a designated altitude to the overlying or adjacent controlled airspace. When designated as a surface area, the airspace will be configured to contain all instrument procedures. Also in this class are Federal airways, airspace beginning at either 700 or 1,200 feet AGL used to transition to/from the terminal or en route environment, en route domestic, and offshore airspace areas designated below 18,000 feet MSL. Unless designated at a lower altitude, Class E airspace begins at 14,500 MSL over the United States, including that airspace overlying the waters within 12 nautical miles of the coast of the 48 contiguous States and Alaska. Class E airspace does not include the airspace 18,000 feet MSL or above.

DECLARED DISTANCE: The distance the airport owner declared available for the airplane's takeoff run, takeoff distance, accelerate-stop distance, and landing distance requirements. the distances are:

Takeoff run available (TORA): the runway length declared available and suitable for the run of an airplane taking off;

Takeoff distance available (TODA): the TORA plus the length of any remaining runway or clearway (CWY) beyond the far end of the TORA;

Accelerate-stop distance available (ASDA): the runway plus stopway (SWY) length declared available and suitable for the acceleration and deceleration of an airplane aborting a takeoff; and

Landing distance available (LDA): the runway length declared available and suitable for al landing airplane.

Note: the full length of TODA may not be usable for all takeoffs because of obstacles in the departure area. The usable TODA length is aircraft performance dependent and, as such, must be determined by the aircraft operator before each takeoff and requires knowledge of the location of each controlling obstacle in the departure area. (Airport Design)

DEMAND AIR TAXI: Use of an aircraft operating under Federal Aviation Regulations, Part 135, passenger and cargo operations, including charter and excluding commuter air carrier. (FAA Census)

DISPLACED THRESHOLD: A threshold that is located at a point on the runway other than the designated beginning of the runway. (AIM)

DISTANCE MEASURING EQUIPMENT (DME): Equipment (airborne and ground) used to measure, in nautical miles, the slant range distance of an aircraft from the DME navigational aid. (AIM)

FAR PART 77: The part of the Federal Aviation Regulations which deals with objects affecting navigable airspace.

FAR PART 77 SURFACES: Imaginary surfaces established with relation to each runway of an airport. There are five types of surfaces: (1) primary; (2) approach; (3) transitional; (4) horizontal; and (5) conical.

FEDERAL AVIATION ADMINISTRATION (FAA): The United States government agency which is responsible for insuring the safe and efficient use of the nation's airspace.

FIXED BASE OPERATOR (FBO): A business operating at an airport that provides aircraft services to the general public, including but not limited to sale of fuel and oil; aircraft sales, rental, maintenance, and repair; parking and tiedown or storage of aircraft; flight training; air taxi/charter operations; and specialty services, such as instrument and avionics maintenance, painting, overhaul, aerial application, aerial photography, aerial hoists, or pipeline patrol.

FLIGHT SERVICE STATION (FSS): FAA facilities which provide pilot briefings on weather, airports, altitudes, routes, and other flight planning information.

GENERAL AVIATION: That portion of civil aviation which encompasses all facets of aviation except air carriers. (FAA Stats)

GLIDE SLOPE: An electronic signal radiated by a component of an ILS to provide descent path guidance to approaching aircraft.

GLOBAL POSITIONING SYSTEM (GPS): A space-based radio positioning, navigation, and time-transfer system being developed by the U.S. Department of Defense. This newly-emerging technology may eventually become the principal system for air navigation throughout the world.

HELIPAD: A small, designated area, usually with a prepared surface, on a heliport, airport, landing/takeoff area, apron/ramp, or movement area used for takeoff, landing, or parking of helicopters. (AIM)

INSTRUMENT APPROACH PROCEDURE: 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 landing or to a point from which a landing may be made visually. It is prescribed and approved for a specific airport by competent authority. (AIM)

INSTRUMENT FLIGHT RULES (IFR): Rules governing the procedures for conducting instrument flight. Also term used by pilots and controllers to indicate a type of flight plan. (AIM)

INSTRUMENT LANDING SYSTEM (ILS): A precision instrument approach system which normally consists of the following electronic components and visual aids: (1) Localizer; (2) Glide Slope; (3) Outer Marker; (4) Middle Marker; (5) Approach Lights. (AIM)

INSTRUMENT OPERATION: An aircraft operation in accordance with an IFR flight plan or an operation where IFR separation between aircraft is provided by a terminal control facility. (FAA ATA)

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 approved. (AIM)

ITINERANT OPERATION: An arrival or departure performed by an aircraft from or to a point beyond the local airport area.

LARGE AIRCRAFT: An aircraft of more than 12,500 pounds maximum certificated takeoff weight. (FAR 1)

LIMITED REMOTE COMMUNICATIONS OUTLET (LRCO): An unmanned, remote air/ground communications facility which may be associated with a VOR. It is capable only of receiving communications and relies on a VOR or a remote transmitter for full capability.

LOCALIZER (LOC): The component of an ILS which provides course guidance to the runway. (AIM)

LOCAL OPERATION: An arrival or departure performed by an aircraft: (1) operating in the traffic pattern, (2) known to be departing or arriving from flight in local practice areas, or (3) executing practice instrument approaches at the airport. (FAA ATA)

LORAN: An electronic ground-based navigational system established primarily for marine use but used extensively for VFR and limited IFR air navigation.

MARKER BEACON (MB): The component of an ILS which informs pilots, both aurally and visually, that they are at a significant point on the approach course.

MEAN SEA LEVEL (MSL): An elevation datum given in feet from mean sea level.

MEDIUM-INTENSITY APPROACH LIGHTING SYSTEM (MALS): The MALS is a configuration of steady-burning lights arranged symmetrically about and along the extended runway centerline. MALS may also be installed with sequenced flashers - in this case, the system is referred to as MALSF.

MICROWAVE LANDING SYSTEM (MLS): A precision instrument approach system providing a function similar to an ILS, but operating in the microwave spectrum. It normally consists of three components: azimuth station, elevation station, and precision distance measuring equipment.

MILITARY OPERATIONS AREA (MOA): A type of special use airspace of defined vertical and lateral dimensions established outside of Class A airspace to separate/segregate certain military activities from IFR traffic and to identify for VFR traffic where these activities are conducted. (AIM)

MINIMUM DESCENT ALTITUDE (MDA): The lowest altitude, expressed in feet above mean sea level, to which descent is authorized on final approach or during circle-to-land maneuvering in execution of a standard instrument approach procedure where no electronic glide slope is provided. (FAR 1)

MISSED APPROACH: A maneuver conducted by a pilot when an instrument approach cannot be completed to a landing. (AIM)

NAVIGATIONAL AID/NAVAID: Any visual or electronic device airborne or on the surface which provides point-to-point guidance information or position data to aircraft in flight. (AIM)

NONDIRECTIONAL BEACON (NDB): A 4 MF or UHF radio beacon transmitting nondirectional signals whereby the pilot of an aircraft equipped with direction finding equipment can determine his bearing to or from the radio beacon and "home" on or track to or from the station. (AIM)

NONPRECISION APPROACH PROCEDURE: A standard instrument approach procedure in which no electronic glide slope is provided. (FAR 1)

NONPRECISION INSTRUMENT RUNWAY: A runway with an instrument approach procedure utilizing air navigation facilities, with only horizontal guidance, or area-type navigation equipment for which a straight-in nonprecision instrument approach procedure has been approved or planned, and no precision approach facility or procedure is planned. (Airport Design)

OBJECT FREE AREA (OFA): A surface surrounding runways, taxiways, and taxilanes which should be clear of parked airplanes and objects, except for objects that need to be located in the OFA for air navigation or aircraft ground maneuvering purposes. (Airport Design)

OBSTACLE: An existing object, object of natural growth, or terrain at a fixed geographical location, or which may be expected at a fixed location within a prescribed area, with reference to which vertical clearance is or must be provided during flight operation. (AIM)

OBSTACLE FREE ZONE (OFZ): A defined volume of airspace above and adjacent to a runway and its approach lighting system if one exists, free of all fixed objects except FAA-approved frangible aeronautical equipment and clear of vehicles and aircraft in the proximity of an airplane conducting an approach, missed approach, landing, takeoff, or departure.

OBSTRUCTION: An object/obstacle, including a mobile object, exceeding the obstruction standards specified in FAR Part 77, Subpart C. (AIM)

OUTER MARKER: A marker beacon at or near the glide slope intercept position of an ILS approach. (AIM)

PRECISION APPROACH PATH INDICATOR (PAPI): An airport visual landing aid similar to a VASI, but which has light units installed in a single row rather than two rows.

PRECISION APPROACH PROCEDURE: A standard instrument approach procedure in which an electronic glide slope is provided, such as an ILS or PAR. (FAR 1)

RELOCATED THRESHOLD: The portion of pavement behind a relocated threshold that is not available for takeoff and landing. It may be available for taxiing and aircraft. (Airport Design)

PRECISION INSTRUMENT RUNWAY: A runway with an instrument approach procedure utilizing an instrument landing system (ILS), microwave landing system (MLS), or precision approach radar (PAR). (Airport Design)

REMOTE COMMUNICATIONS AIR/GROUND FACILITY (RCAG): An unmanned VHF/UHF transmitter/receiver facility which is used to expand ARTCC air/ground communications coverage and to facilitate direct contact between pilots and controllers. (AIM)

REMOTE COMMUNICATIONS OUTLET (RCO) AND REMOTE TRANSMITTER/RECEIVER (RTR): An unmanned communications facility remotely controlled by air traffic personnel. RCO's serve FSS's. RTR's serve terminal ATC facilities. (AIM)

RESTRICTED AREA: Designated airspace within which the flight of aircraft, while not wholly prohibited, is subject to restriction. (FAR 1)

RUNWAY CLEAR ZONE: A term previously used to describe the runway protection zone.

RUNWAY EDGE LIGHTS: Lights used to define the lateral limits of a runway. Specific types include:

- HIRL - High-Intensity Runway Lights.
- MIRL - Medium-Intensity Runway Lights.

RUNWAY END IDENTIFIER LIGHTS (REIL): Two synchronized flashing lights, one on each side of the runway threshold, which provide a pilot with a rapid and positive visual identification of the approach end of a particular runway. (AIM)

RUNWAY PROTECTION ZONE: A defined trapezoidal area at ground level, under the control of the airport authorities, for the purpose of protecting the safety of approaches and keeping the area clear of the congregation of people. The runway protection zone begins at the end of each primary surface and is centered upon the extended runway centerline. (Airport Design)

RUNWAY SAFETY AREA (RSA) : A defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway. (Airport Design)

SMALL AIRCRAFT: An aircraft of 12,500 pounds or less maximum certificated takeoff weight. (FAR 1)

SPECIAL USE AIRSPACE: Airspace of defined horizontal and vertical dimensions identified by an area on the surface of the earth wherein activities must be confined because of their nature and/or wherein limitations may be imposed upon aircraft operations that are not a part of those activities. (AIM)

STANDARD INSTRUMENT DEPARTURE (SID): A preplanned instrument flight rules (IFR) air traffic control departure procedure printed for pilot use in graphic and/or textual form. SID's provide transition from the terminal to the appropriate en route structure. (AIM)

STANDARD TERMINAL ARRIVAL ROUTE (STAR): A preplanned instrument flight rule (IFR) air traffic control arrival route published for pilot use in graphic and/or textual form. STARs provide transition from the en route structure to an outer fix or an instrument approach fix/arrival waypoint in the terminal area. (AIM)

STOPWAY: An area beyond the takeoff runway, no less wide than the runway and centered upon the extended centerline of the runway, able to support the airplane during an aborted takeoff, without causing structural damage to the airplane, and designated by the airport authorities for use in decelerating the airplane during an aborted takeoff. (FAR 1)

STRAIGHT-IN INSTRUMENT APPROACH – IFR: An instrument approach wherein final approach is begun without first having executed a procedure turn; it is not necessarily completed with a straight-in landing or made to straight-in landing weather minimums. (AIM)

TAXILANE: The portion of the aircraft parking area used for access between taxiways, aircraft parking positions, hangars, storage facilities, etc. (Airport Design)

TAXIWAY: A defined path, from one part of an airport to another, selected or prepared for the taxiing of aircraft. (Airport Design)

TERMINAL INSTRUMENT PROCEDURES (TERPS): Procedures for instrument approach and departure of aircraft to and from civil and military airports. There are four types of terminal instrument procedures: precision approach, nonprecision approach, circling, and departure.

TERMINAL RADAR SERVICE AREA (TRSA): Airspace surrounding designated airports wherein ATC provides radar vectoring, sequencing, and separation on a full-time basis for all IFR and participating VFR aircraft. (AIM)

THRESHOLD: The beginning of that portion of the runway usable for landing. (AIM)

TOUCH-AND-GO: An operation by an aircraft that lands and departs on a runway without stopping or exiting the runway A touch-and-go is defined as two operations. (AIM)

TRAFFIC PATTERN: The traffic flow that is prescribed for aircraft landing at, taxiing on, or taking off from an airport. The components of a typical traffic pattern are upwind leg, crosswind leg, downwind leg, base leg, and final approach. (AIM)

TRANSIENT AIRCRAFT: Aircraft not based at the airport.

TRANSMISSOMETER: An apparatus used to determine visibility by measuring the transmission of light through the atmosphere. (AIM)

UNCONTROLLED AIRSPACE: Now known as Class G airspace. Class G airspace is that portion of the airspace that has not been designated as Class A, Class B, Class C, Class D, and Class E airspace.

UNICOM (Aeronautical Advisory Station): A nongovernment air/ground radio communication facility which may provide airport information at certain airports. (AIM)

VERY-HIGH-FREQUENCY OMNIDIRECTIONAL RANGE (VOR): The standard navigational aid used throughout the airway system to provide bearing information to aircraft. When combined with Distance Measuring Equipment (DME) or Tactical Air Navigation (TACAN) the facility, called VORDME or VORTAC, provides distance as well as bearing information.

VISUAL APPROACH SLOPE INDICATOR (VASI): An airport landing aid which provides a pilot with visual descent (approach slope) guidance while on approach to landing. Also see PAPI.

VISUAL FLIGHT RULES (VFR): Rules that govern the procedures for conducting flight under visual conditions. The term "VFR" is also used by pilots and controllers to indicate type of flight plan. (AIM)

VISUAL GLIDE SLOPE INDICATOR (VGSI): A generic term for the group of airport visual landing aids which includes Visual Approach Slope Indicators (VASI), Precision Approach Path Indicators (PAPI), and Pulsed Light Approach Slope Indicators (PLASI). When FAA funding pays for this equipment, whichever type receives the lowest bid price will be installed unless the airport owner wishes to pay the difference for a more expensive unit.

VISUAL RUNWAY: A runway intended solely for the operation of aircraft using visual approach procedures, with no straight-in instrument approach procedure and no instrument designation indicated on an FAA-approved airport layout plan. (Airport Design)

WARNING AREA: A type of special use airspace which may contain hazards to nonparticipating aircraft in international airspace. (AIM)

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AIM: Airman's Information Manual, Pilot/Controller Glossary. (1993)

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FAA ATA: Federal Aviation Administration. *Air Traffic Activity*. (1986)

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Appendix L

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