

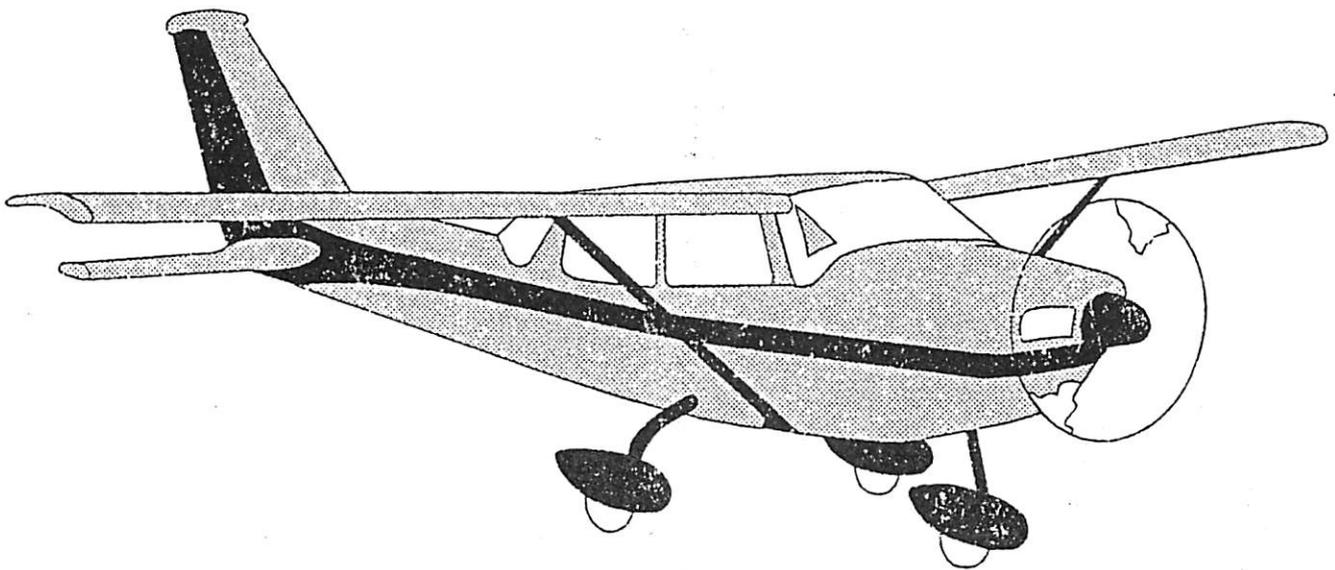
JUN 15 1994

ARCADIA MUNICIPAL AIRPORT  
FLORIDA

# *ARCADIA MUNICIPAL AIRPORT*

*ARCADIA, FLORIDA*

## *AIRPORT MASTER PLAN*



*Prepared by:*



*D&Z, INC.*  
*Sarasota, Florida*

**AIRPORT SETTING AND HISTORY**

The Arcadia Municipal Airport is owned and operated by the city of Arcadia, Florida. The Aviation Advisory Committee, composed of citizens who are interested in the airport, advises the city on aviation matters affecting the facility. Airport operating funds are currently generated from airport revenues and the city's general fund.

The Arcadia Municipal Airport is situated on 210 acres of land in the southeastern part of the city. Access to the airport is provided by Airport Road which connects with State Road 70 to the north. Figure 1-A depicts the airport's location in relation to surrounding cities, towns, and geographical features.

In 1934, the City of Arcadia completed the purchase of the land on which most of the present airport is situated. The initial airfield consisted of two turf runways. From 1968 through 1974 a number of hangar and support facilities were constructed at the airport.

Construction of a paved runway, parallel taxiway and apron were begun in 1982 and were completed in 1984. During the later 1980's an FBO hangar and terminal building were constructed near the paved apron. The newest additions to the Arcadia Municipal Airport are two 5-stall T-hangar structures that were completed in 1993.

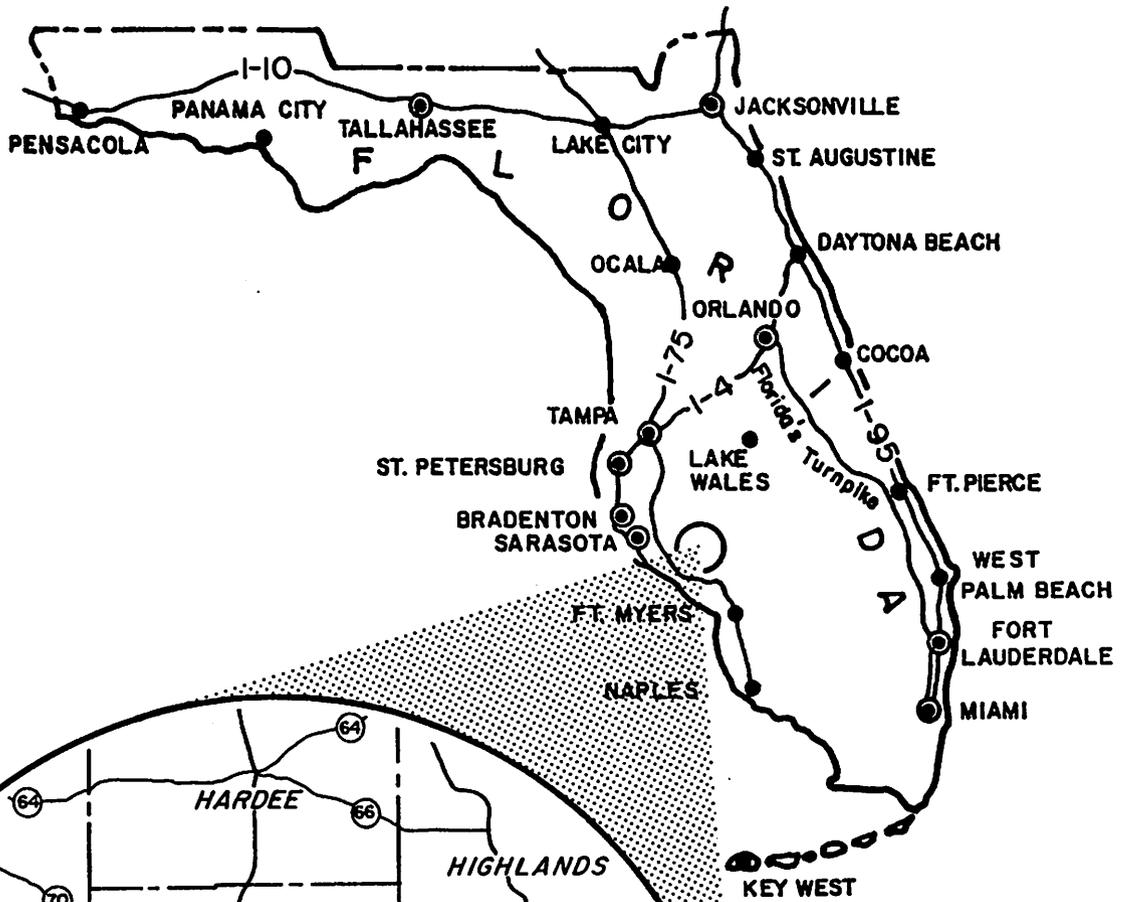
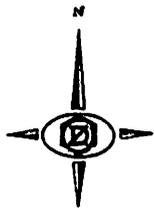


FIGURE 1-A

LOCATION & AREA MAP

Arcadia Municipal Airport



D&Z, Inc.  
Aviation Services

Outside funding for improvements at Arcadia Municipal has come principally from the Federal Aviation Administration (FAA) and the Florida Department of Transportation (FDOT) in the form of grants. The following is a summary of state and federal assisted projects to date.

TABLE I-1 GRANT ASSISTED PROJECTS

PROJECT	OFFER DATE	LOCAL FUNDS	FDOT FUNDS	FAA FUNDS
WPI #1820406 AIP #3-12-0093-01 Construct R/W 5-23, Apron & Conn. T/W	04-14-83 09-27-82	\$ 43,000	\$43,000	\$774,000
WPI #1820602 AIP #3-12-0093-02 Construct Parallel & Connecting T/W's	08-30-84 09-27-83	\$ 7,000	\$ 7,000	\$126,000
WPI #1820410 Construct T-hangars	11-30-89	\$ 50,000	\$ 50,000	\$ -0-
WPI #1820411 Site Prep. T-Hangar and T/W Access	11-20-89	\$ 50,000	\$ 50,000	\$ -0-
WPI #1820412 Construct T-Hangars and Install taxiway lighting	12-20-91	\$ 40,000	\$ 40,000	\$ -0-
WPI #1820404 AIP #3-12-0093-03 Master Plan Update	06-27-89	\$ 3,024	\$ 3,024	\$ 54,436

**EXISTING AIRFIELD FACILITIES**

**RUNWAYS**

The existing runway system at Arcadia Municipal consists of two alignments: Runway 5-23 and Runway 13-31. Data relative to each of the runways is presented in Table I-2. The pavement data contained in Table I-2 was taken from the Airport Master Record (FAA Form 5010). A visual evaluation of the pavements appear consistent with condition ratings listed in the Airport Master Record.

**TAXIWAYS**

The existing taxiway system at Arcadia Municipal consists of a paved taxiway parallel to Runway 5-23, a connector taxiway to the aircraft parking apron and a taxiway system serving the recently constructed T-hangar complex northeast of the apron. All taxiways are paved with asphaltic materials.

**NAVIGATION AND LANDING AIDS**

There are no existing enroute or terminal navigational facilities at Arcadia Municipal other than the airport's rotating beacon. A lighted wind indicator is available to assist pilots during landing and takeoff operations.

Figure 1-B depicts the location of existing facilities.

**TABLE I-2**

**RUNWAY DATA**

	<b>Runway 5-23</b>	<b>Runway 13-31</b>
Length (ft)	3,700	2,780
Width (ft)	75	140
Surface	Asphalt	Turf
Markings	Basic	Basic
Lighting	Medium Intensity (MIRL)	None
Visual Approach Aids	None	None
Principal Function	Primary VFR Runway	Crosswind Runway
Load Limits (lbs)	12,500 S.W.	N/A
Condition	Good	Fair

Source: FAA Form 5010-1, "Airport Master Record", 6 Aug 92

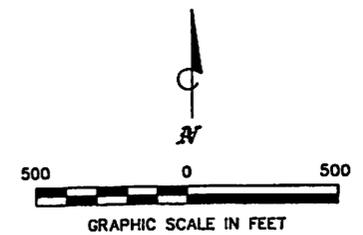
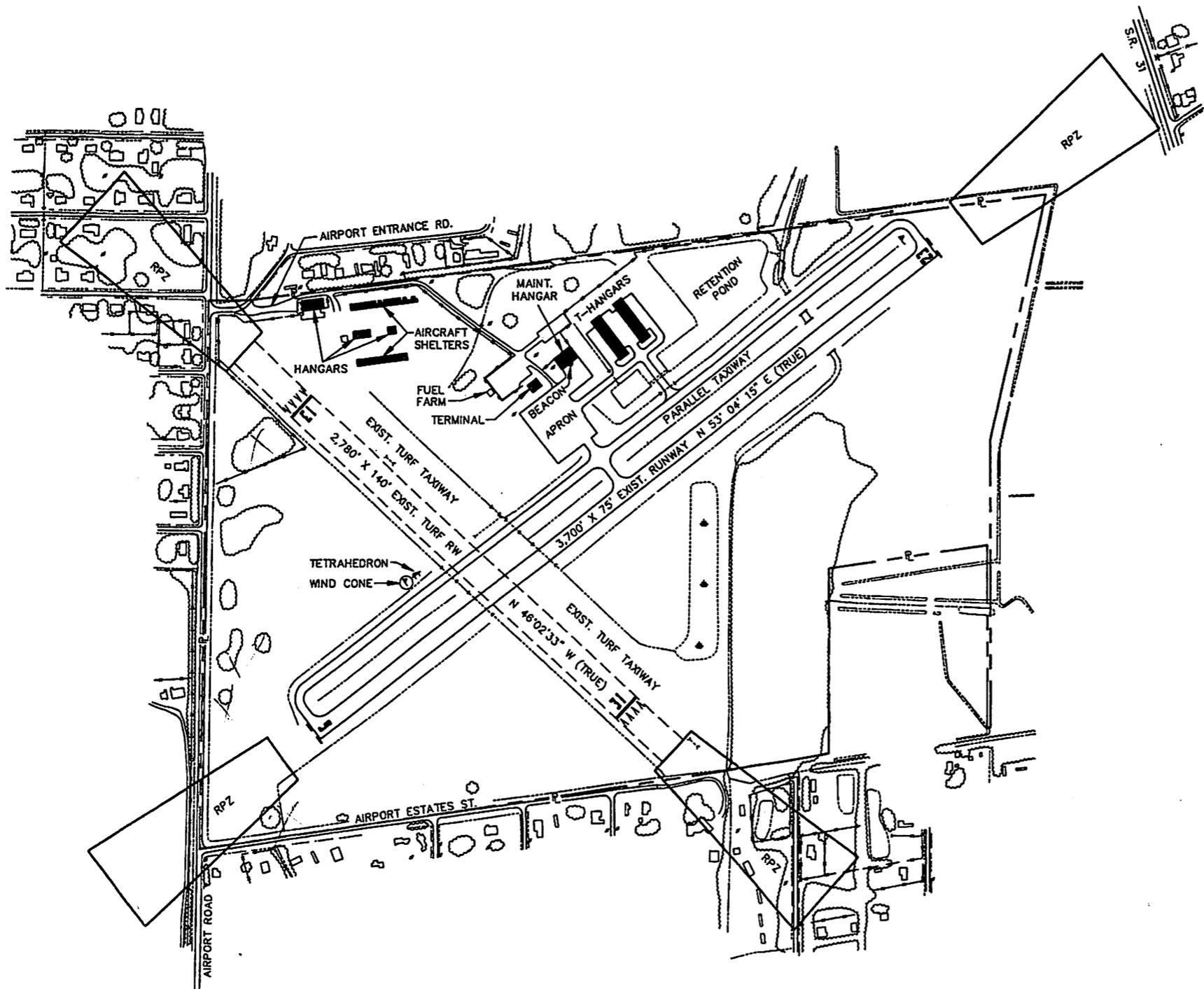


FIGURE 1-B  
 EXISTING AIRPORT LAYOUT  
 Arcadia Municipal Airport  
 D&Z, Inc.  
 Aviation Services

**EXISTING LANDSIDE FACILITIES****FIXED BASE OPERATORS (FBO) AND OTHER SERVICES**

There are a total of five tenants at Arcadia Municipal, all providing aviation services.

- Aircadia
- Air Connection
- Falcon Aviation
- Fixed Wing
- Leading Edge

*Aircadia* is a full-service FBO located in the terminal building. This FBO monitors unicom on frequency 123.0 Mhz and offers fuel (Jet-A and avgas), airframe and engine repair, aircraft storage, Part 135 air taxi and aircraft rental.

*Air Connection* offers air taxi service meeting FAR Part 135 standards.

*Falcon Aviation* provides Part 135 air taxi service and flight training.

*Fixed Wing* offers flight training as well as aircraft maintenance and repair.

*Leading Edge* is located in a hangar immediately north of the terminal building. This company specializes in aircraft painting and upholstery repair.

In addition to these commercial aviation services, a local flying organization, DeSoto Aero Club, operates from the airport.

**HANGARS**

There are currently two aircraft maintenance hangars on the airport. There are two enclosed T-hangar buildings and three shade hangar buildings which can provide storage for 37 light aircraft. The enclosed T-hangars are located northeast of the main apron and were constructed in 1992-1993 with FDOT and local funds.

**APRONS AND TIEDOWN AREAS**

A total of 20 paved tiedown positions are available for based and transient (out-of-town) aircraft. These are located on the general aviation apron in front of the terminal building. Also, there is space to park approximately 250 light aircraft in turfed areas around the field. These are used only for special events however, and tiedown anchors are not provided.

**AUTO PARKING**

Automobile parking at the Arcadia Municipal Airport is in the unpaved area in front of the terminal building. Approximately 40 automobile parking spaces are available for pilots, passengers and visitors.

**FUEL STORAGE**

Existing above ground fuel facilities, maintained by Aircadia, have a capacity of 6,000 gallons of Jet-A fuel plus 6,000 gallons of avgas. Based on FBO records, fuel sales total about 96,000 gallons of Jet-A and 96,000 gallons of avgas per year. According to Aircadia, the existing fuel farm facility meets current environmental regulations.

**AIRSPACE AND AIR TRAFFIC CONTROL**

Arcadia Municipal is a non-towered airport and has no controlled airspace associated with it. Neither are there any published instrument approach procedures to the airport. The nearest controlled airspace of consequence is the Class "C" Airspace associated with the Southwest Florida International Airport and Fort Myers-Page Field, located 29 nautical miles south and the Class "C" Airspace associated with the Sarasota Bradenton International Airport located 30 nautical miles northwest. The concept of a Class "C" Airspace is to control air traffic in low altitude airspace where high concentrations of aircraft and/or widely varying aircraft mixes occur. In Class "C" airspace, pilots flying under Visual Flight Rules (VFR) are required to maintain communication with air traffic control (Fort Myers or Sarasota Approach Control as applicable).

Airspace in the vicinity of Arcadia is depicted on Figure 1-C. Also shown are locations of air navigational aids including VORs and VORTACs, plus Victor Airways that traverse the area.



## HISTORIC AVIATION ACTIVITY

Historic aviation activity data is presented in Table I-3, and historic based aircraft counts are presented in Table I-4.

TABLE I-3

## HISTORIC AVIATION ACTIVITY

Year	Local Operations	Itinerant Operations	Total Operations
1982 <sup>1/</sup>	10,000	8,000	18,000
1983	14,500	8,000	22,500
1984	12,500	6,800	19,300
1985	11,485	6,150	17,635
1988	12,500	6,800	19,300
1989	12,500	6,800	19,300
1990	12,500	6,800	19,300
1991	12,500	6,800	19,300
1992	12,500	6,800	19,300
1993 <sup>2/</sup>	16,300	21,700	38,000

<sup>1/</sup> 1982-1992 statistics obtained from FAA Form 5010-1, Airport Master Record.

<sup>2/</sup> 1993 data was derived from a two-week traffic count extrapolated for the year.

The apparent three-fold increase in "itinerant" aviation activity estimated for 1993 is principally attributable to the following:

- The local FBO attracts a significant amount of itinerant traffic by selling fuel at lower prices than competing airports in the area;
- Since Fort Myers and Sarasota have Class "C" airspace above their local airports, many training flights originating at these facilities and other nearby airports, such as Venice and Punta Gorda, use Arcadia Municipal Airport for touch-and-go's and other VFR training maneuvers;
- The recently completed T-hangar project has attracted additional based aircraft, and subsequent operations;
- With five consecutive entry years with identical levels of operations, it is possible that the FAA Form 5010-1 annual operations total may not have been updated with revised traffic counts and other supporting information during that period.

TABLE I-4

BASED AIRCRAFT

Year	Single Engine	Multi Engine	Turbo Prop	Glider	Ultralight	Other	Total
1982 <sup>1/</sup>	26	1		7			34
1983	34	1		7	2		44
1984	34						34
1985	34						34
1988	30						30
1989	35	2					37
1990	30						30
1991	30						30
1992	30						30
1993 <sup>2/</sup>	38						38

<sup>1/</sup> 1982-1992 from FAA Form 5010-1, Airport Master Record.

<sup>2/</sup> 1993 from FBO count.

Further discussion of aviation demand characteristics and projections of future aviation activity at the airport are found in Chapter Two, Forecasts.

SOCIOECONOMIC STATISTICS

Socioeconomic statistics are evaluated since, typically, a correlation exists between an area's population and economic characteristics, and its level of aviation activity. Statistics for DeSoto County are presented in the following table. While Table I-5 contains the most current socioeconomic data available from federal and state agencies as well as statistical periodicals, selected data from past years is also presented for purposes of comparison.

TABLE I-5 DESOTO COUNTY SOCIOECONOMIC STATISTICS <sup>1/</sup>

Year	Population (persons)	Employment (persons)	Income/Capita (dollars) <sup>2/</sup>
1982	20,100	6,733	\$9,210
1983	20,600	6,799	\$9,059
1984	21,000	7,184	\$9,333
1985	21,500	6,666	\$10,131
1986	22,000	7,082	\$10,444
1987	22,400	7,028	\$10,659
1988	22,900	7,455	\$11,387
1989	23,500	7,609	\$11,712
1990	23,900	8,316	N.A.
1991	24,534	N.A.	N.A.
1992	N.A.	N.A.	N.A.

<sup>1/</sup> Statistical source: Florida Statistical Abstract, 1992

<sup>2/</sup> Income data was CPI adjusted to 1989 values.

**INTRODUCTION**

Airport activity forecasts are often developed by examining past trends, evaluating inherent demand characteristics and projecting the activity using various mathematical, conceptual, and judgmental techniques. Once calculated, the results of individual forecasting techniques are compared to arrive at the forecast deemed most realistic.

The development of aviation activity forecasts for the Arcadia Municipal Airport was conducted using methodologies typically used at non-towered airports. Activity projections include:

- Based Aircraft
- Annual Operations
- Local and Itinerant Operations
- Instrument Approaches
- Aircraft Mix

While the aviation forecasts will be used as indicators of facility needs at Arcadia Municipal Airport, it is recognized that short-term fluctuations in aviation activity will most probably occur. These fluctuations may be attributable to a number of factors including the overall health of the economy, the current price of aviation fuel and the particular characteristics of the associated airport users. The forecast techniques used for this master plan, therefore, were developed to establish the point of equilibrium between extreme levels of aviation activity.

**IDENTIFICATION OF THE AIRPORT SERVICE AREA**

In arriving at a definition of the geographic area served by the Arcadia Municipal Airport, the following factors were evaluated:

- driving time to the airport
- proximity to competing airports
- geopolitical factors

**DRIVE TIME BOUNDARY**

Typically, the maximum desirable drive time for a user of a general aviation airport is 30 minutes. This time boundary is widely used in planning for individual airports, as well as aviation systems, because 30 minutes is considered the typical maximum commute time a general aviation student pilot or aircraft owner is willing to accept on a regular basis, regardless of whether he is using the airport for business or recreational purposes.

In order to identify the 30 minute drive time boundary, an isochrone was drawn on an area map depicting highway access routes to the airport from outlying areas. The radius of the isochrone at any point along the drive time boundary depends on the following factors:

- Type of roads (i.e. interstate highways versus two lane secondary road),
- Extent of developed and/or urbanized area which would slow travel time,
- Geographical and man-made travel obstructions (i.e. rivers and railroads).

Table II-1 describes the area highway network which impacts the Arcadia Municipal Airport 30-minute driving time isochrone.

**TABLE II-1 DESCRIPTION OF HIGHWAY ROUTES**

<b>Designation</b>	<b>Number of Lanes</b>	<b>Limited Access</b>
U.S. Highway 17	2	No
State Route 70	2	No
State Route 72	2	No
State Route 31	2	No
County Route 661	2	No
County Route 761	2	No
County Route 763	2	No

**AREA AIRPORTS**

Another factor which impacts an airport's service area is its proximity to other public-use airports with competing facilities and services. Table II-2 lists those airports and facilities that are in the vicinity of Arcadia Municipal Airport.

**TABLE II-2**

**AREA AIRPORTS**

<b>Airport/City/Highway Distance from Arcadia Municipal</b>	<b>Number/Longest Paved Runway</b>	<b>Instrument Approach</b>	<b>FBO Services</b>
Arcadia Municipal Arcadia/0 mi.	1/3,700 ft.	No	Yes
Venice Municipal/Venice/56 mi.	1/5,000 ft.	Yes	Yes
Charlotte County/Punta Gorda/26 mi.	3/6,580 ft.	Yes	Yes
Sarasota-Bradenton/53 mi.	2/7,003 ft.	Yes	Yes
La Belle Municipal/La Belle/62 mi.	1/3,800 ft.	No	Yes
Sebring Ind/Sebring/56 mi.	2/5,225 ft.	Yes	Yes
Avon Park Municipal/Avon Pk/45 mi.	2/3,825 ft.	No	Yes
Wauchula Municipal/Wauchula/25 mi.	1/4,000 ft.	No	Yes

As can be seen in Table II-2, most public airports surrounding Arcadia have comparable facilities. The main difference, from a competition standpoint, is that many have a published instrument approach procedure. The typical aircraft owner will 1) use the closest facility, 2) use the airport with significantly better facilities (at least 1,000' longer runway) up to a distance of one third more than that to the local airport, and/or 3) use the airport which offers superior FBO services and facilities. The net effect of area airports on defining Arcadia Municipal Airport's airport service area is minimal due to the similarity of services and facilities and the fact that none are within the 30 minutes drive time parameter.

**GEOPOLITICAL FACTORS**

Another important consideration in identifying an airport's service area is the impact of geopolitical factors on the users. These factors include residency within a given political subdivision, as well as business ties to a particular geographic area. As an example, while people tend to support airports which are located within their city or county of residence, certain individuals might opt to use a competing facility in another area if they work there. In this case, nearly all pilots residing in DeSoto County use Arcadia Municipal. However, due to low fuel prices, a number of aircraft from outside Arcadia Municipal Airport's service area use the airport. Also, its location outside the Sarasota and Fort Myers ARSA's and the absence of high performance aircraft makes Arcadia Municipal Airport an attractive training site, as well as a desirable destination for recreational pilots.

**SERVICE AREA DEFINITION**

Based on the aforementioned factors, the boundaries of Arcadia Municipal's service area were determined to be coincidental with the DeSoto County line. Figure 2-A depicts this area along with Arcadia Municipal Airport's 30 minute drive time isochrone. Theoretically, all residents within the service area are dependent on Arcadia Municipal to fulfill their general aviation needs.

**BASED AIRCRAFT FORECASTS**

Based aircraft projections were developed for the Arcadia Municipal Airport using generally accepted aviation forecast modeling techniques and previous forecasts published in the state and national system plans. The 1976 Master Plan forecasts were also reviewed for purposes of comparison. Descriptions of these techniques and the results yielded follow.

**SOCIOECONOMIC MODEL**

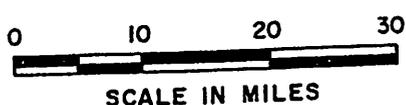
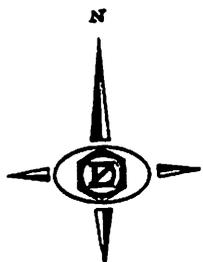
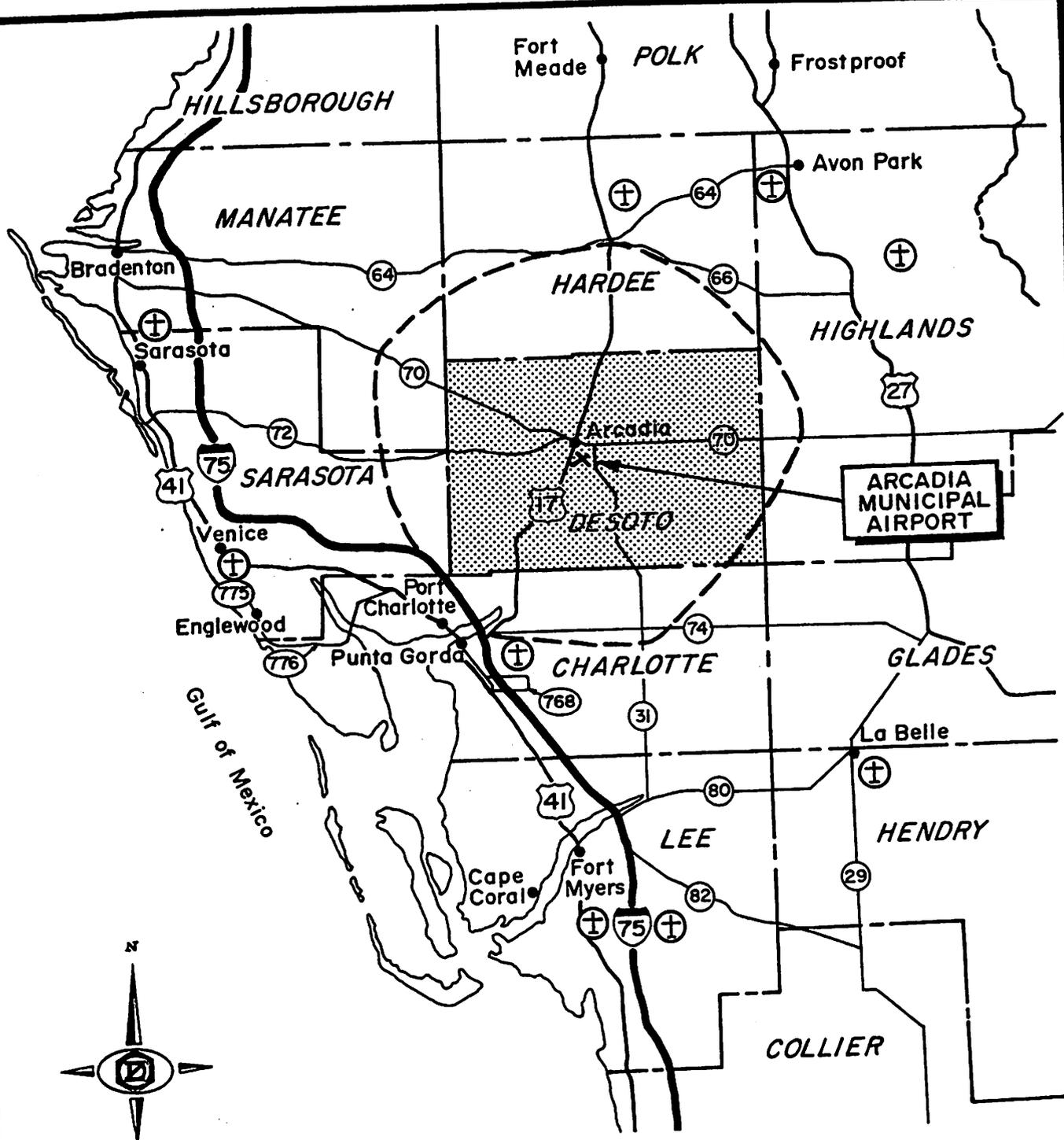
This model correlates future based aircraft to projected socioeconomic trends for DeSoto County. Following is a projection of the county's population, number of employed persons and average per capita income through the year 2010.

**TABLE II-3**

**SOCIOECONOMIC FORECASTS**

Year	Population (persons) <sup>1/</sup>	Employment (persons) <sup>2/</sup>	Income/Capita (dollars) <sup>2/</sup>
1995	26,265	8,658	14,024
2000	28,290	9,463	16,014
2005	30,201	10,269	18,004
2010	31,986	11,074	19,995

<sup>1/</sup> From Florida Statistical Abstract, 1992  
<sup>2/</sup> From Historical Trend Data extrapolated by D&Z, Inc.



- LEGEND**
-  SERVICE AREA
  -  30 MINUTE DRIVING TIME
  -  COUNTY LINE
  -  PUBLIC AIRPORT WITH PAVED RUNWAY

**FIGURE 2-A**  
**AIRPORT SERVICE AREA**  
 Arcadia Municipal Airport

 **D&Z, Inc.**  
 Aviation Services 

**POPULATION CORRELATION**

In some instances, there is a characteristic mathematical correlation between service area population and the number of based aircraft. The theory is that more people translate into more aviation activity. The following based aircraft forecast was developed by applying the current service area population versus based aircraft ratio to the projected service area population for selected years. Table II-4 depicts the results.

**BASED AIRCRAFT FORECASTS  
(Population Correlation Model)**

**TABLE II-4**

<b>Year</b>	<b>ASA Population</b>	<b>Based Aircraft</b>
1993	25,319	38
1998	27,480	41
2003	29,437	44
2008	31,272	47
2013	33,120	50

Note: Population Forecasts were interpolated from 1995, 2000, 2005, 2010 and 2015 projections published in the Florida Statistical Abstract.

**EMPLOYMENT CORRELATION**

The correlation between aviation activity and employment in some areas exists because of the transportation needs of local businesses. The following based aircraft projection was derived by applying the current relationship with the number of persons employed in the service area to projected increases in employment.

**TABLE II-5**

**BASED AIRCRAFT FORECASTS  
(Employment Correlation Model)**

<b>Year</b>	<b>Employed Persons</b>	<b>Based Aircraft</b>
1993	8,521	38
1998	9,141	41
2003	9,947	44
2008	10,752	48
2013	11,558	52

Note: Employment Forecasts were generated from historical trend data by D&Z, Inc.

**INCOME CORRELATION**

Often, there is a repetitive correlation between the average income of an area and the amount of aviation activity found there. Table II-6 presents based aircraft projections utilizing the current correlation ratio with per capita income.

**TABLE II-6**

**BASED AIRCRAFT FORECASTS  
(Income Correlation Model)**

<b>Year</b>	<b>ASA Per Capita Income</b>	<b>Based Aircraft</b>
1993	\$13,253	38
1998	\$15,218	44
2003	\$17,208	49
2008	\$19,199	55
2013	\$21,189	61

\* Income forecasts were developed from historic trend data by D&Z, Inc.

A summary of the socioeconomic models' forecast of based aircraft is presented in Table II-7.

**BASED AIRCRAFT FORECASTS  
(Summary Of Socioeconomic Models)**

**TABLE II-7**

<b>Year</b>	<b>No. Aircraft (Pop. Model)</b>	<b>No. Aircraft (Empl. Model)</b>	<b>No. Aircraft (Inc. Model)</b>	<b>No. Aircraft (Average)</b>
1993	38	38	38	38
1998	41	41	44	42
2003	44	44	49	46
2008	47	48	55	50
2013	50	52	61	54

**HISTORIC TREND MODEL**

Another method to forecast based aircraft is call the Historic Trend Model which utilizes a linear regression (trend) formula developed from historic based aircraft totals (1982-1993). Analysis of the model yields a negative "x coefficient", and therefore, the model projects a decline in based aircraft.

**BASED AIRCRAFT FORECASTS  
(Historic Trend Model)**

**TABLE II-8**

<b>Year</b>	<b>Based Aircraft</b>
1993	38
1998	31
2003	30
2008	30
2013	30

**MARKET SHARE MODEL**

The basis for this forecasting model is the assumption that Arcadia will continue to retain its current share of all active aircraft based within the FAA's Southern Region. To obtain the forecast, FAA projections for the Southern Region were applied to the 1993 number of aircraft based at Arcadia Municipal Airport to yield the results depicted in Table II-9.

**BASED AIRCRAFT FORECASTS  
(Regional Market Share Model)**

**TABLE II-9**

Year	FAA So. Reg.	Arcadia Municipal	Based
1993	32,800	0.1159%	38
1998	34,300	0.1159%	40
2003	35,700	0.1159%	41
2008	37,100	0.1159%	43
2013	38,500	0.1159%	45

Source: FAA Forecasts, FY 1993-2004, Feb. 1993. Years 2008 and 2013 extrapolated.

**PUBLISHED FORECASTS**

The results of three published forecasts for based aircraft at Arcadia Municipal are provided in Table II-10. These are the FAA's "National Plan Of Integrated Airport Systems, 1990", better known as the NPIAS; the State's "Continuing Florida Aviation System Plan Program, Base Year Data 1988", also known as the CFASPP; and the previous master plan forecast referred to herein as AMP-1976.

**BASED AIRCRAFT FORECAST  
(Published Forecasts)**

**TABLE II-10**

Year	NPIAS	CFASPP	AMP-1976
1975			40
1980			62
1985			92
1988		34	
1990	34		
1993		35	
1995	34		154
1998		36	
2000	34		
2003		37	

**INDUCED ACTIVITY MODEL**

None of the forecast models or any of the published forecasts presented, with the possible exception of the 1976 Master Plan, consider independent actions the city of Arcadia and airport tenants might take to stimulate aviation activity. Such inducements may include:

- Continued facility development such as T-hangars.
- Continued service enhancement such as flight schools, air taxi, air ambulance, avionics repair, restaurant.
- Continued enticements such as low avgas prices, low T-hangar rental rates, no local property tax on aircraft.

At the initial on-site meeting for this master plan which was attended by representatives of the City, the Airport Advisory Committee, the DeSoto Aero Club and the FBO, the consensus expectation was that at least 10 additional aircraft would be attracted to Arcadia Municipal Airport because of the availability of T-hangars. Recently, 20 new T-hangar stalls were constructed. The rationale for this "induced" forecast, (Table II-11), assumes that the newly available T-hangars will attract 10 additional aircraft in the short term, and that the growth rate beyond that point will approximate that of the FAA forecast for the Southern Region.

**BASED AIRCRAFT FORECASTS  
(Induced Activity Model)**

**TABLE II-11**

Year	% Change From FAA So. Reg. Forecast	Based Aircraft
1993	-	38
1998	4.57%	50 <sup>1/</sup>
2003	4.08%	52
2008	3.92%	54
2013	3.77%	56

<sup>1/</sup> Includes 10 additional aircraft beyond normal growth patterns expected to relocate to Arcadia Municipal Airport in short-term because of available T-hangars.

**COMPARISON OF BASED AIRCRAFT FORECASTS**

The following table presents the results of each based aircraft forecast discussed.

TABLE II-12 COMPARISON OF BASED AIRCRAFT FORECASTS

Model/Forecast	1998	2003	2008	2013
Population Model	41	44	47	50
Employment Model	41	44	48	52
Income Model	44	49	55	61
Historic Trend Model	31	30	30	30
Market Share Model	40	41	43	45
NPIAS <sup>1/</sup>	34	34	--	--
CFASPP	36	37	--	--
AMP-1976 <sup>1/</sup>	172	--	--	--
Induced Activity Mod.	50	52	54	56

<sup>1/</sup> The published forecast "trend" was used to extrapolate data for selected study years.

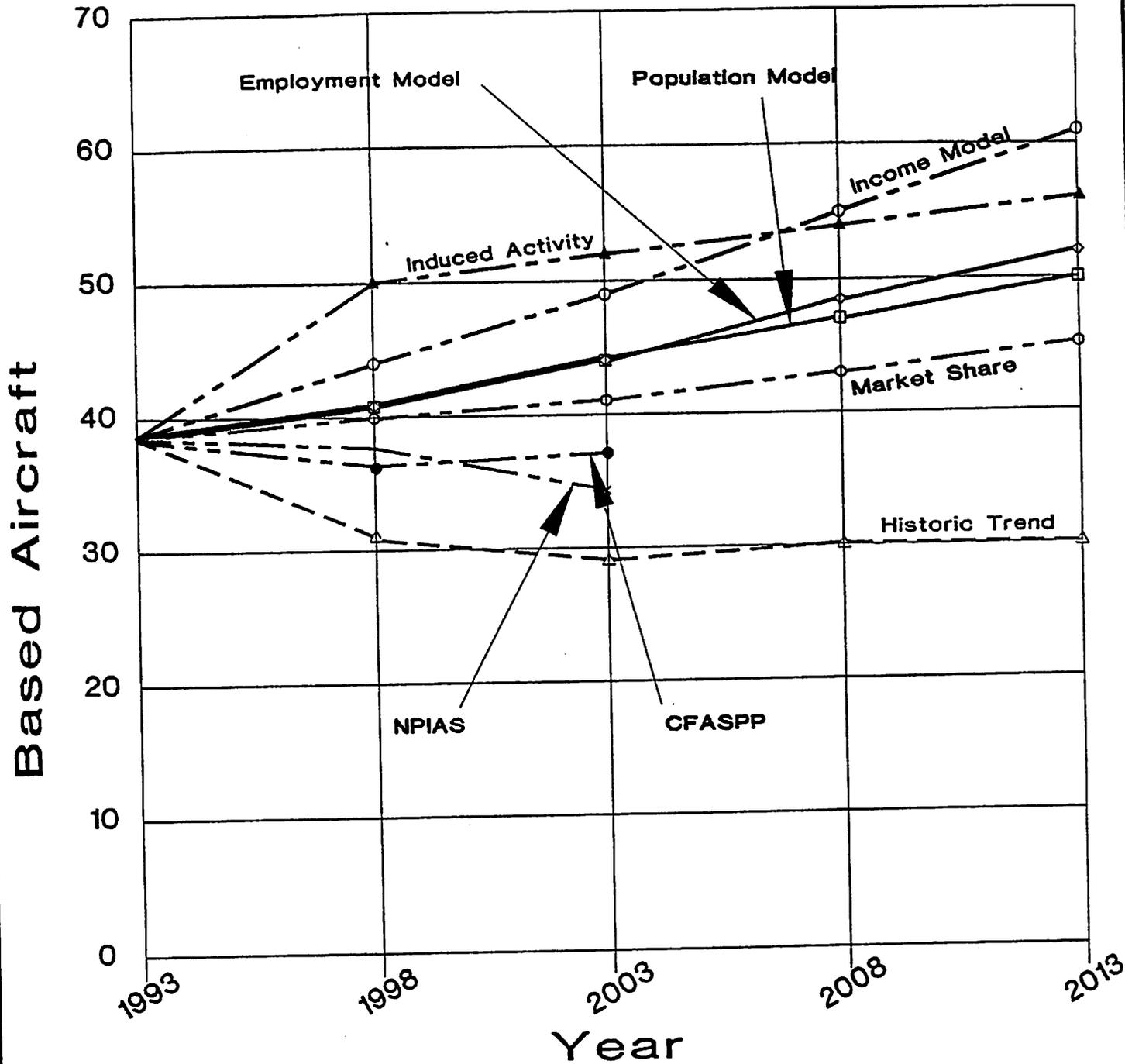
It is important to note that all nine forecasts project total based aircraft by 2013 to be in the same order of magnitude except for the "Historic Trend Model".

Considering that one of the prime objectives of this study is to develop a forecast that is reasonable and at the same time does not overly constrain "planning" for airport facility needs, the Induced Activity approach was felt to be the best projection for this study.

### AIRCRAFT OPERATIONS FORECAST

The process of either taking off in an airplane or landing the aircraft is termed an "operation". For example, an aircraft returning from a trip is said to have performed one operation when it lands. Accordingly, one "touch & go" by a training aircraft is counted as two operations. This section of the master plan presents projections for the following types of aircraft activity:

- Total Annual Operations (with comparison to TAF and CFASPP)
- Annual Operations By Operation Type (local, itinerant, instrument)
- Annual Operations By Aircraft Function (air taxi, military)
- Peak Operations (month, hour)
- Aircraft Mix (number of based aircraft by aircraft type)



**LEGEND**

- — Population Model
- ◇ — Employment Model
- — Income Model
- △ — Historic Trend
- — Market Share
- × — NPIAS
- — CFASPP
- ▲ — Induced Activity

**FIGURE 2-B**

**COMPARISON OF BASED AIRCRAFT FORECASTS**

Arcadia Municipal Airport



**D&Z**  
Transportation Services

**TOTAL ANNUAL OPERATIONS**

Annual operations represent the aggregate total of all take-offs and landings occurring at the airport during the course of one year. Using the annualized results of a two-week traffic count conducted February 11-25, 1993, the average number of aircraft operations occurring at Arcadia Municipal Airport is approximately 38,000. This level of activity translates to an equivalent of about 1,000 operations per based aircraft per year, a factor which was applied to the based aircraft forecast to arrive at the following projection. For comparative purposes, the FAA Terminal Area Forecast and the Florida System Plan forecast are also shown in Table II-13.

**TABLE II-13 TOTAL ANNUAL AIRCRAFT OPERATIONS**

Year	AMP Update	TAF	CFASPP
1993	38,000	20,000	18,702
1998	50,000	23,000	19,107
2003	52,000	25,000	19,377
2008	54,000	--	19,562
2013	56,000	--	--

The actual number of aircraft operations occurring at Arcadia was counted and tabulated during the two-week period from February 11th through February 25th 1993. This count is considered conservative since it did not commence each morning until 9:00 a.m.

According to local officials, flight activity is highest during the "season" which runs from October through May of each year. Activity during the "off-season" (June-September) is about half that amount. Therefore, the February traffic count was annualized by assuming the tabulated daily activity to be representative for eight months and using half that value for the remaining four month period. The end result translated to 38,000 annual operations which is higher than the TAF and CFASPP Forecast because of three concurrent factors:

- The local FBO attracts a significant amount of itinerant traffic by selling fuel at lower prices than competing airports in the area;
- Since both Sarasota and Fort Myers have ARSA's coupled with a significant amount of jet traffic, many training flights originating at those facilities and other nearby airports such as Venice and Punta Gorda use Arcadia Municipal Airport for touch-and-go's and other training maneuvers;

- Completion of the T-hangar project will attract more based aircraft that will subsequently increase aircraft activity in the short term period (1993-1998).

It should be noted that during the mid term period (1998-2003) the growth in aircraft activity projected in the Master Plan is 4% while the TAF and CFASPP Forecasts show 8% and 1% growth respectively for the same period.

**ANNUAL OPERATIONS BY OPERATION TYPE**

Types of operations discussed in this section are categorized as either "local" or "itinerant", as well as "instrument". Local operations are those in which the aircraft remains within the flight pattern of the airport (i.e. performing touch-and-go's), remains in practice areas within 20 NM of the airport, or executes simulated instrument approaches or low passes at the airport. All aircraft operations not classified as local are termed itinerant. Typically, itinerant operations occur when a based aircraft journeys to another airport or a transient aircraft visits the airport in question. Traffic counts indicate that about 43 percent of all activity at Arcadia Municipal Airport are local operations and 57 percent are itinerant. The reasons for the high itinerant activity relate to flights by transient aircraft that fly to Arcadia Municipal Airport for student flight training, lower fuel prices and other services provided there. The following forecast assumes this relationship will continue.

Since there is no established instrument approach procedure at Arcadia Municipal Airport, there are little or no current IFR activity. The following forecast presented in Table II-14 assumes that, if IFR approaches were established, the ratio of instrument operations to itinerant operations would approximate the percentage of time that IFR weather conditions are prevalent. According to local weather data, about 4 percent of all annual itinerant operations would be classified as instrument activity.

**TABLE II-14 ANNUAL AIRCRAFT OPERATIONS BY OPERATION TYPE**

<b>Year</b>	<b>Local Ops.</b>	<b>Itinerant Ops.</b>	<b>Inst. Ops.</b>
1993	16,300	21,700	870
1998	21,500	28,500	1,140
2003	22,400	29,600	1,200
2008	23,200	30,800	1,230
2013	24,100	31,900	1,280

**ANNUAL OPERATIONS BY AIRCRAFT FUNCTION**

Although the TAF does not project any air taxi or military operations for Arcadia Municipal Airport, currently about 0.6 percent of all itinerant operations fall into these two categories on an approximately equal basis. The air taxi operations include charters for both passengers and cargo and occur strictly on demand. The military operations are typically performed by rotor craft. Projections for key study years are presented in Table II-15.

**TABLE II-15 ANNUAL AIR TAXI AND MILITARY OPERATIONS**

<b>Year</b>	<b>Air Taxi</b>	<b>Military</b>
1993	65	65
1998	85	85
2003	90	90
2008	92	92
2013	96	96

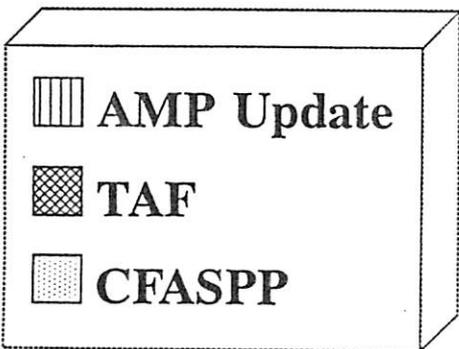
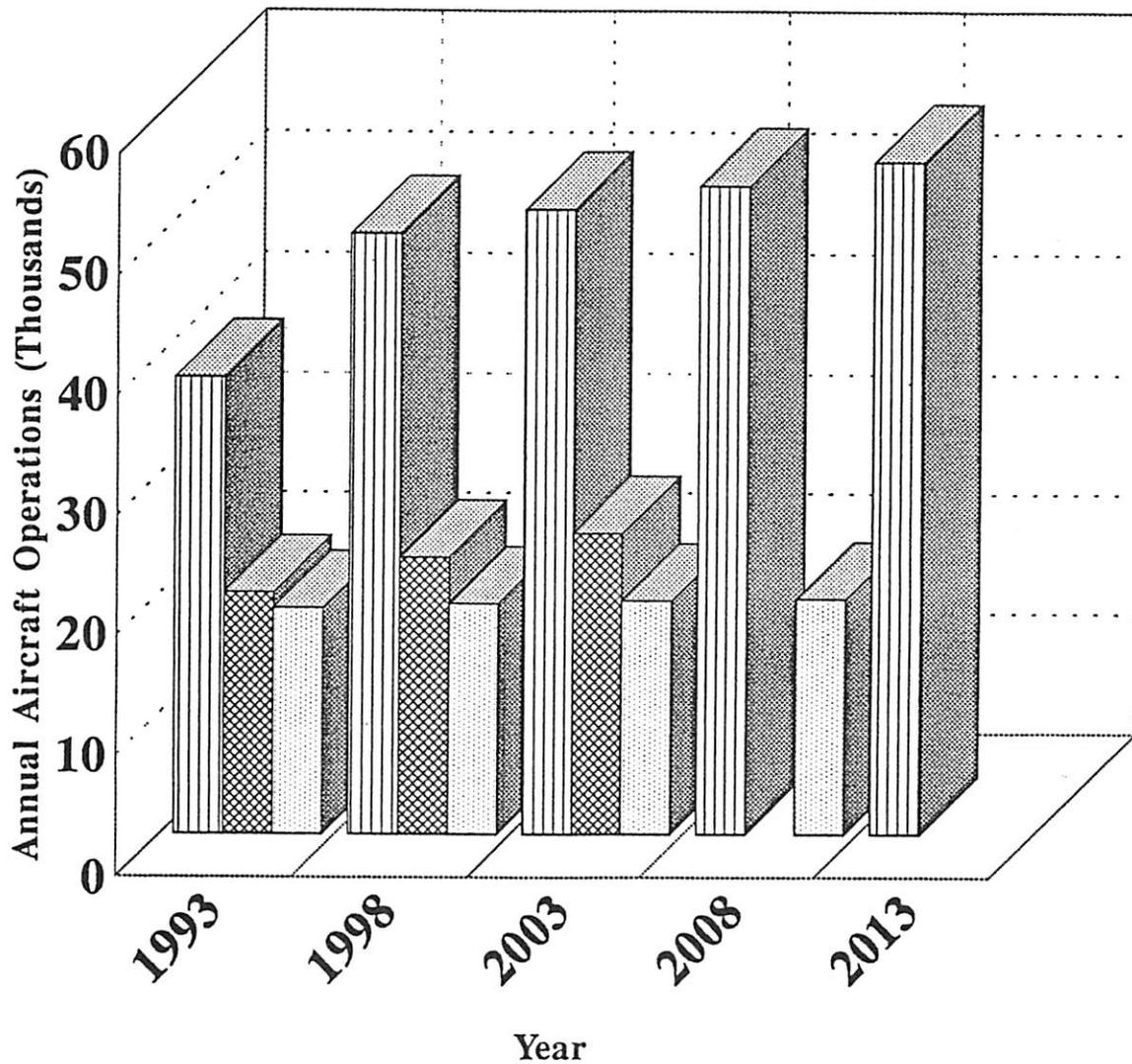


FIGURE 2-C  
 ANNUAL AIRCRAFT OPERATIONS  
 Arcadia Municipal Airport

D&Z, Inc. Aviation Services

## PEAKING CHARACTERISTICS

Most airports experience time periods when aircraft activity is typically high and others when it is typically low. Without including atypical shock loads which occur at annual events such as those held by the Sun State Rotor Club and the Florida Chapter of the Antique Aircraft Association, "peak month" activity usually approximates 10 percent of the total annual operations occurring at an airport. Daily aircraft activity logs kept during the referenced traffic count were used to establish typical "peak hour". According to these logs, the peak hour activity is 20 percent of the average daily activity during the peak month. Table II-16 presents the forecasted peaking characteristics of the Arcadia Municipal Airport.

TABLE II-16

## PEAKING CHARACTERISTICS

Year	Peak Month Operations	Avg. Day/Peak Mo. Operations	Peak Hour Operations
1993	3,800	127	25
1998	5,000	167	33
2003	5,200	173	35
2008	5,400	180	36
2013	5,600	186	37

## AIRCRAFT MIX

The current mix of aircraft using Arcadia Municipal was identified by analyzing the types of aircraft that are actually based at the airport coupled with the results of the actual two-week traffic count conducted February 11-25, 1993. Projections for future years were influenced by trends in the aviation industry as presented in the FAA Aviation Forecasts (1993-2004). As used in Table II-17, single-engine (SE), multi-engine (ME) and turboprop aircraft are all considered to be "small" aircraft weighing less than 12,500 lbs. The "other" category may include rotor craft, ultralights or any other type that can safely use the airport.

**TABLE II-17**

**AIRCRAFT MIX**

<b>Year</b>	<b>Light SE</b>	<b>Light ME</b>	<b>Turboprop</b>	<b>Other</b>	<b>Total</b>
1993	38	0	0	0	38
1998	48	1	0	1	50
2003	50	1	0	1	52
2008	51	1	1	1	54
2013	52	1	1	2	56

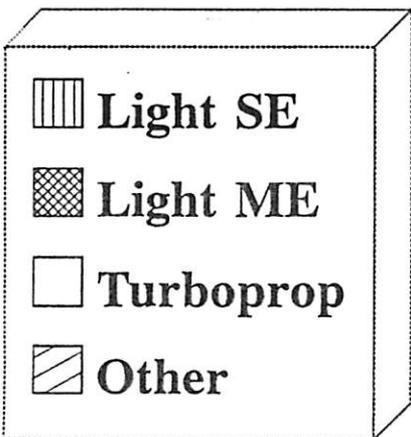
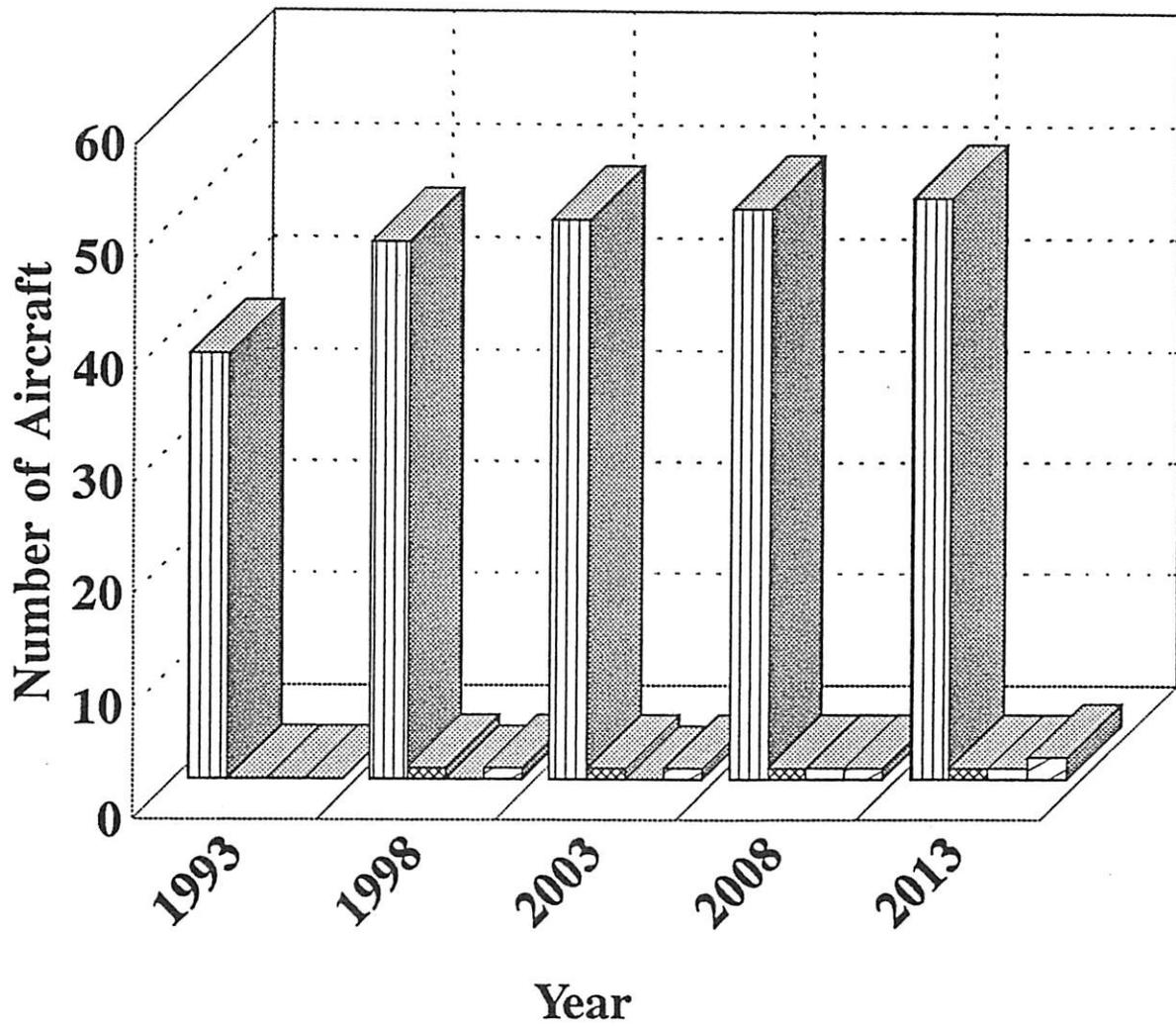


FIGURE 2-D  
 AIRCRAFT MIX  
 Arcadia Municipal Airport

D&Z, Inc. →  
 Aviation Services

FORECAST SUMMARY

Table II-18 summarizes the activity forecasts developed in this chapter.

TABLE II-18

FORECAST SUMMARY

Activity	1993	1998	2003	2008	2013
Based Aircraft	38	50	52	54	56
Annual Itinerant Ops.	21,700	28,500	29,600	30,800	31,900
Annual Local Ops.	16,300	21,500	22,400	23,200	24,100
Annual Total Ops.	38,000	50,000	52,000	54,000	56,000
Annual Air Taxi Ops.	65	85	90	92	96
Annual Military Ops.	65	85	90	92	96
Peak Month Ops.	3,800	5,000	4,200	5,400	5,600
Peak Day Ops.	127	167	173	180	186
Peak Hour Ops.	25	33	35	36	37
Aircraft Mix:					
Light SE	38	48	50	51	52
Light ME	0	1	1	1	1
Turboprop	0	0	0	1	1
Other	0	1	1	1	2
Total	38	50	52	54	56

**INTRODUCTION**

This chapter focuses on the need for new or improved airport facilities, as well as providing an evaluation of land use on the airport. Airport facilities are needed to satisfy three basic conditions:

- Capacity
- Standards
- Upgrade

"Capacity" related facilities are those needed to meet the imposed aviation demand and to maintain the operational efficiency of the airport. For purposes of this master plan, the need for capacity related facilities was determined by comparing the forecast demand to current airport capacity. Aircraft and user safety dictates the need for facilities such as remote wind cones and approach guidance systems, which are included along with basic facilities, such as aircraft parking aprons, in a list of "Standard" items recommended by the FAA for all airports. "Upgrades" refer to other miscellaneous facilities which improve the airport but are not included in either of the other two categories.

The physical and locational parameters for most facilities are obtained from published FAA Advisory Circulars, orders and regulations.

The existing profile and projected activity at Arcadia Municipal indicates that the airport should be planned and maintained as a general aviation facility serving Small Airplanes of the Aircraft Approach Category "B" type (approach speed between 91 knots and 121 knots). This statement is supported by the relatively low frequency of jet and large airplane activity now occurring at Arcadia. Small airplanes are defined as those with maximum gross takeoff weights of less than 12,500 lbs. For dimensional purposes, all typical aircraft using Arcadia Municipal will fall into either Airplane Design Group I (ADG-I) with wingspans of less than 49 feet, or Airplane Design Group II (ADG-II) with wingspans of 54.5 feet. Although ADG-II includes aircraft with wingspans of less than 79 feet, small airplanes in this group do not exceed a wingspan of 54.5 feet (Beech Super King Air B-200). Consequently, the resulting Airport Reference Code (ARC) for future planning purposes is B-II with wingspans  $\leq 54.5$  feet. Table III-1 summarizes the classifications applicable to Arcadia Municipal which were used to determine facility type, size and location.

**TABLE III-1 USER AND AIRPORT CLASSIFICATIONS**

Item	Current	Future
Airport Service Level	General Aviation	General Aviation
Airport Role	General Utility	General Utility
Aircraft Approach Category	"B"	"B"
Airplane Design Group	ADG-I	ADG-I
Airport Reference Code	B-I	B-II*
Typical Aircraft Weight	< 12,500 lbs. MGW	< 12,500 lbs. MGW
Design Aircraft	Piper Navajo	Beach Super King Air

\* wingspans ≤ 54.5 feet

**AIRFIELD FACILITIES**

The following narrative is restricted to those facilities needed to accommodate the typical types of aircraft expected to use Arcadia Municipal.

**PRIMARY RUNWAY**

The runway designated to be "primary" at any airport should ideally have the best wind coverage, be the longest and be geometrically compatible with the overall airport operation. Runway 5-23, the current "primary" runway at Arcadia Municipal, meets all three of these criteria and it is recommended that this designation be retained.

The existing critical aircraft, from a runway length standpoint, at Arcadia is one with an approach speed of 50 knots or more, weighing less than 12,500 lbs., as referenced in FAA AC 150/5325-4A. According to that Advisory Circular, a runway length of 4,300 ft. is needed to accommodate 100 percent of the small plane fleet (including those with 10 passenger seats or more). Since the current length and width (3,700 ft. x 75 ft.) of the primary runway (5-23) does not satisfy these requirements, a future 600 foot extension will be planned for.

Runway 5-23 is composed of flexible pavement (asphalt) sufficient for small aircraft weighing less than 12,500 lbs., therefore strengthening is not justified. It is also equipped with medium intensity runway lights (MIRL) which can be operated remotely by pilots via radio signals. Current runway marking is "basic". To facilitate usage and enhance safety, both ends of Runway 5-23 should be equipped with runway end identifier lights (REIL), as well as generic visual glide slope indicators (GVGI).

**SECONDARY RUNWAYS**

Runway 13-31 is the only other runway at Arcadia Municipal. It is justified as a "crosswind" runway since Runway 5-23 provides less than 95.0 percent coverage from the 10.5 knot crosswind component. However, since the combined wind coverage of the two runways (99.2 percent) exceeds the minimum standard of 95.0 percent, development of additional runways is not justified.

Runway 13-31 is composed of turf with a width of 140 ft. Since its length of 2,780 ft. is only slightly less than the recommended 80 percent of the primary runway length, it is considered satisfactory from a user standpoint. Pilots based at the airport have expressed a strong desire to retain Runway 13-31 as a turf runway in the future. Also, extensions would be costly due to the location of existing roads and other obstructions. Both thresholds are displaced due to obstructions in the approaches. Since most nighttime activity occurs on Runway 5-23, edge lighting is not needed.

Since the annual service volume of a single runway (230,000 operations per year) greatly exceeds the forecast demand at Arcadia Municipal, planning for a parallel runway is not required.

**TAXIWAYS**

The existing taxiway system at Arcadia consists of Taxiway "A" (Alpha) which is a full-length, parallel taxiway for Runway 5-23, plus connector taxiways providing access to the apron and the new tee-hangar complex. Taxiway "A" and the apron connector are each 40 feet wide, while the tee-hangar connectors are 25 feet wide. The taxiway system meets current dimensional standards for such facilities and do not require widening.

**MISCELLANEOUS AIRFIELD FACILITIES**

Either a non-directional beacon (NDB) should be installed to serve as a navigational aid for a non-precision instrument approach and/or a global positioning system (GPS) approach (when approved nationwide) should be considered. Based on an evaluation of IFR weather data, prevailing winds are from the southwest about 60 percent of the time. According to this data the non-precision instrument approach should be to Runway 23. Although a site northeast of the airport may be the optimum location, the ultimate NDB location should be determined through a site selection study prior to installation. Also, if the Punta Gorda VOR is upgraded to a stronger VOR/DME facility, it may be suitable to serve as an approach aid for the non-precision instrument approach.

The entire airfield should be enclosed in a fence to deter people and prevent animals from entering the operational area. Existing fencing should be periodically evaluated to determine the

need for refurbishment. Also, all-weather access roads should be provided to remote areas of the airfield for purposes of security, maintenance, and emergency vehicle access.

An automated surface observation station (ASOS) providing up to the minute, on-site weather data should be installed to assist pilots and air traffic controllers. The existing lighted wind cone and rotating beacon should be sufficient for the planning period.

### **AIRFIELD GEOMETRY**

#### **FAR Part 77 Imaginary Surfaces**

Federal Aviation Regulation (FAR) Part 77 imaginary surfaces are described as follows:

- **Primary Surface:** A surface longitudinally centered on a runway with a width matching that of the inner edge of the Runway Approach Surface which it intersects 200 feet beyond each runway end.
- **Runway Approach Surface:** A trapezoidal surface longitudinally centered on the extended runway centerline extending outward and upward from each end of the primary surface. Its dimensions depend on the particular type of runway and designated approach.
- **Horizontal Surface:** A horizontal plane located 150 feet above the established airport elevation. The perimeter of this surface is constructed by swinging arcs of specified radii from the center of each runway's primary surface end and connecting the adjacent arcs with lines tangent to these arcs.
- **Transitional Surface:** These surfaces extend upward and outward on a slope of 7:1 from the edge of the primary surface and the sides of approach surfaces. Depending on the type of runway and/or aircraft using the airport, the transitional surface clearances may dictate runway/building separation rather than lateral clearance criteria established in FAA AC 150/5300-13.
- **Conical Surfaces:** A surface extending outward and upward from the periphery of the horizontal surface at a slope of 20:1 for a horizontal distance of 4,000 feet.
- **Runway Protection Zone:** The runway protection zone (RPZ) is the initial trapezoidal segment of the runway approach surface, beginning 200 feet from the runway end. It is desirable that all property within the RPZ be owned or controlled through easement by the airport operator to guard against obstruction infringement on the approach surface. Table III-2 lists the RPZ requirements pertinent to the Arcadia Municipal Airport.

TABLE III-2 RUNWAY PROTECTION ZONE REQUIREMENTS

Runway	Planned Approach	Inner Width	Outer Width	Length	Min. Req'd Slope	Actual Slope
5	Visual	500 ft.	650 ft.	1,000 ft.	20:1	20:1
23	NPI	500 ft.	800 ft.	1,000 ft.	20:1	20:1
13	Visual	250 ft.	450 ft.	1,000 ft.	20:1	20:1
31	Visual	250 ft.	450 ft.	1,000 ft.	20:1	20:1

- Runway and Taxiway Lateral Clearances: Runway and taxiway lateral clearances needed to accommodate the types of aircraft forecasted for Arcadia Municipal Airport are presented in Table III-3.

TABLE III-3 AIRPORT LATERAL CLEARANCES

Item	Airplane Design Group I*	Airplane Design Group II* (wingspans ≥ 54.5')
Runway Safety Area Width	120 ft.	150 ft.
Runway Safety Area Length	240 ft.	300 ft.
Runway Centerline to Taxiway Centerline	200 ft.	152.2 ft.
Runway Centerline to Aircraft Parking Area	300 ft.	250 ft.
Runway Centerline to Property/Building Restriction Line (BRL): Non-Precision/Visual Runway Visual Runway	300 ft.** 300 ft.**	300 ft.** 300 ft.**
Taxiway Centerline to Fixed or Moveable Object (FMO)	44.5 ft.	48.2 ft.
Taxilane Centerline to FMO	39.5 ft.	42.7 ft.

\* Source: AC 150/5300-13 and associated airport design computer program.

\*\* Based on Transitional Surface clearance of 25 feet over fixed object.

**LANDSIDE FACILITIES****TERMINAL BUILDING**

The terminal building at Arcadia currently contains approximately 2,500 square feet of space. A portion of the building serves as offices for the current FBO, while the remainder is used by pilots and passengers. Although existing terminal capacity should be adequate through the planning period, a future second FBO with a terminal will be a planning consideration.

**FIXED BASE OPERATOR (FBO) FACILITIES**

To help avoid the exercising of exclusive rights on a public airport which is in conflict with FAA regulations, it is recommended that the planning of the Arcadia Municipal Airport has the flexibility to accommodate a second fixed base operator (FBO). The facilities associated with an FBO typically include a service hangar for aircraft maintenance and/or aircraft storage, office area, fuel farm, auto parking and frontage on an aircraft parking apron with airside and landside access. The existing FBO facilities at the airport includes the above mentioned terminal building, service hangar, fuel farm and auto parking lot.

**AIRCRAFT PARKING APRON**

As stated in the Inventory chapter, there are currently 20 aircraft parking positions on the existing paved apron. However, if the existing apron was configured to accommodate two spaces and taxilane access for the critical aircraft (Beech Super King Air) the resulting design capacity would be reduced to 12 positions.

Future apron demand requirements were derived by taking into consideration the number of based aircraft whose owners prefer paved apron parking vs. sheltered storage as well as the amount of transient (out-of-town) activity at the airport.

Because of the extremely high daytime temperatures during the summer and other factors, only 10% of based aircraft owners would prefer paved apron over sheltered facilities. The existing apron demand for based aircraft is estimated at 4 spaces currently, increasing to 6 spaces by the year 2013.

It was assumed, that for planning purposes, the apron areas at the Arcadia Municipal Airport should provide space equal to 25% of the aircraft visiting the airport per day (24 estimated currently, increasing to 48 by the year 2013) for transient aircraft. This translates into demand for 8 transient spaces currently and 12 transient spaces by the year 2013.

Table III-4 summarizes the demand requirements and the number additional apron parking spaces for aircraft at the Arcadia Municipal Airport.

**TABLE III-4: AIRCRAFT APRON PARKING POSITION REQUIREMENTS**

Year	Based Aircraft Demand	Transient Aircraft Demand	Total Demand	Additional Need
1993	4 spaces	8 spaces	12 spaces	0 spaces
1998	5 spaces	10 spaces	15 spaces	3 spaces
2003	5 spaces	11 spaces	16 spaces	4 spaces
2008	5 spaces	11 spaces	16 spaces	4 spaces
2013	6 spaces	12 spaces	18 spaces	6 spaces

**AIRCRAFT STORAGE REQUIREMENTS**

The requirement for aircraft storage at Arcadia Municipal Airport, whether it be T-hangars or open bay hangars or aircraft shelters, was determined by current based aircraft owner preferences. Because of the southwest central Florida weather and other factors, it was estimated that 90% of based aircraft owners will prefer some type of covered storage for their aircraft throughout the 20-year study period. The resulting aircraft storage requirements for Arcadia Municipal Airport are presented in Table III-5. Current aircraft storage capacity is 37 spaces. However, 17 of the spaces which are in aircraft shelters, will require rehabilitation or replacement in the near future.

**TABLE III-5 AIRCRAFT STORAGE REQUIREMENTS**

Year	Aircraft Storage Demand	Additional Need
1993	34 spaces	0 spaces
1998	45 spaces	7 spaces
2003	47 spaces	10 spaces
2008	49 spaces	12 spaces
2013	50 spaces	13 spaces

**AUTO PARKING & GROUND ACCESS**

Paved auto parking requirements for the Arcadia Municipal Airport were determined by using a demand ratio equal to 50% of the forecast based aircraft, plus a weight factor of 50% for

airport employees and non-flying visitors. The current auto parking capacity is for 40 vehicles. Table III-6 summarizes the auto parking demand requirements for the airport.

**TABLE III-6 AUTOMOBILE PARKING REQUIREMENTS**

<b>Year</b>	<b>Auto Parking Demand</b>	<b>Additional Need</b>
1993	29 spaces	0 spaces
1998	38 spaces	0 spaces
2003	39 spaces	0 spaces
2008	41 spaces	0 spaces
2013	42 spaces	2 spaces

Auto parking areas should be located so that they are convenient to the users of various facilities. Parking lot lighting should also be provided for safety and security reasons.

For safety and maintenance reasons, it is recommended that all public access roads on the Arcadia Municipal Airport be paved. This recommendation would require that the existing access road be paved and that all future public roads to aviation and aviation areas be eventually paved.

**FUEL STORAGE**

Fuel storage requirements at the Arcadia Municipal Airport were obtained by recommending that a 15 day storage capacity reserve be required and assuming that the 96,000 gallons of avgas and Jet-A dispersed at the airport annually will increase as aircraft activity increases. As a result, the year 2013 storage requirement was identified as 5,880 gallons of avgas and 5,880 gallons of Jet-A. This volume of fuel storage capacity can be accommodated with the 6,000 gallon above ground storage tanks currently available for each type of fuel. Unless a second FBO locates on the airport, no additional fuel storage capacity is anticipated during the 20 year study period .

**PROPERTY REQUIREMENTS**

With the exception of the runway and taxiway extensions, all proposed development items described in preceding paragraphs can be constructed on existing airport property. A definitive analysis is depicted on the Airport Layout Plan (ALP).

**ULTIMATE AIRPORT PLANNING CONSIDERATIONS**

Although not specifically forecast to be needed during the 1993 - 2013 planning period, the ALP depicts areas which should be reserved for airport facilities in the event local conditions change and demand increases. Ultimate planning should also consider space for facilities such as commercial aircraft maintenance and aero-industrial businesses which take advantage of the aviation facilities located at the airport.

**FACILITY REQUIREMENT SUMMARY**

The following table summarizes basic airport facility needs for the ensuing twenty year period. The desirability of ancillary development is explored on the Airport Layout Plan.

**TABLE III-6 SUMMARY OF REQUIRED FACILITIES**

Airfield	Existing	Future
Primary Runway (5-23)	Paved 3,700' x 75'; MIRL	Paved 4,300' x 75'; MIRL
Crosswind Runway (13-31)	Turf 2,780' x 140'	Same
Additional Runways	None	None
Parallel Taxiway (5-23)	Paved 40' Wide; MITL	Extend with Runway
Parallel Taxiway (13-31)	Turf	1 Add'l at Extended Runway End
Exit Taxiways	R/Y Ends + Center	Same
Visual Aids	None	GVGIs & REILs for 5-23
Navigational Aids	None	Non-Directional Beacon
Miscellaneous	Lighted WC & SC	ASOS
<b>Landside</b>		
Terminal Building	2,500 S.F.	Another terminal may be included in an optional 2nd FBO
FBO sites	One	Two (Optional)
Hangar Spaces	37	50
Paved Tiedown Spaces	12*	18
Roads & Parking	Unpaved Access Road 40 Unpaved Spaces	Paved Access Road 42 Paved Spaces

\* (Based on the future configuration of the existing apron)

**INTRODUCTION**

The Airport Layout Plan (ALP) is a scaled drawing which depicts existing and proposed airport facilities, including property lines, along with pertinent clearance and dimensional information to show conformance with applicable standards. This drawing and related documents were prepared for planning purposes only, using scaled dimensions, and may not be sufficiently accurate to be utilized for facility construction. Prior to fixing the exact location of any proposed facility, field surveys and engineering designs should be performed to verify the correctness and workability of horizontal and vertical location information shown thereon. Figure 4-A, Airport Layout Plan shows the recommended location of major facilities projected to be needed to accommodate the demand for twenty years and beyond.

Most proposed facilities located on the ALP were taken directly from the Facility Requirements chapter which describes basic development items needed to accommodate forecast demand, as well as airfield geometry (lateral clearances, runway protection zone sizes, etc.). All drawings were prepared following guidelines in FAA AC 150-300-13, "Airport Design", Appendix 7 and FAA AC 150-5070-6A, "Airport Master Plans".



**AIRFIELD FACILITIES****RUNWAYS**

The ALP for Arcadia Municipal Airport shows the existing Runway 5-23 to be extended to a length of 4,300 feet (as determined in Facility Requirements, page 3-2). The existing weight bearing strength of the runway (12,500 lbs. single wheel) and width (75 feet) will remain the same. The runway extension will accommodate aircraft up to the size and weight of the Beech Super King Air B-200. The future runway configuration of Runway 9-27 will fully meet FAA runway safety area requirements.

Runway 13-31 (turf crosswind runway) is planned remain in its current configuration for the twenty-year Master Plan period.

**TAXIWAYS**

The Runway 5-23 parallel taxiway will be extended with the runway and the 40 foot width will be retained. The Runway 13-31 turf taxiway will be retained in its current configuration.

**MISCELLANEOUS FACILITIES**

The locations of the following miscellaneous airfield facilities, which were listed in the Facility Requirements, are shown on the ALP:

- Automated Weather Observation System (AWOS).
- Non-Precision Instrument Approach Equipment (non-directional beacon).
- Generic Visual Glide Indicators (GVGI) for Runway 5-23.
- Runway End Identifier Lights (REIL), Runway 5-23.

### LANDSIDE FACILITIES

The areas adjacent to the airfield which are used or intended to be used for facilities such as FBO facilities, hangars, service buildings, aircraft parking, automobile parking, access roads and aviation-related facilities are considered the "landside". The ALP for Arcadia Municipal Airport also includes lease parcels intended for the construction of privately owned and developed landside facilities. These facilities would house future single aviation uses such as avionics repair and other single aviation-related commercial uses. It is anticipated that facilities located on the single aviation use lease parcels will house approximately 15% of the airport's future based aircraft. Existing and future landside facilities are depicted on the ALP in four different development areas on the airport. These areas are:

- North Quadrant: includes all the existing landside facilities (terminal/FBO, fuel farm, aircraft parking apron, etc.) plus a future 10 stall T-hangar building and a single aviation use lease parcel approximately one acre in size.
- West Quadrant: this area, located along Airport Road, will be reserved for a potential future second FBO and accompanying landside facilities.
- South Quadrant: one acre parcels that could be developed for single aviation uses are planned for this area located on the south side of the airport. Direct airfield access to these parcels will be provided via a planned taxiway connecting the landside facilities to Runway 5-23.
- East Quadrant: in the event the lease parcels in the south quadrant become fully occupied by the end of the 20-year study period, and/or a tenant is interested in developing aviation facilities that require multiple parcels, the aviation-related lease parcels planned on this side of the airport can be developed. Direct airfield access to the east quadrant developments will be provided via a taxiway that is planned to be connected to the northeast end of Runway 5-23.

Because the accuracy of any forecast and subsequent facility requirement analysis will not be known for years to come, it is prudent to "plan for unforeseen growth". Flexibility for general aviation facility expansion beyond the forecast need is provided by depicting facilities such as a second FBO, hangars and aircraft parking that are slightly in excess of 20-year requirements identified in Chapter 3.

All new landside facilities that are depicted on the ALP have at least a 365 foot set-back from the runway centerline. In the event that Arcadia Municipal Airport would ever realize "large" airplane operations in excess of 500 per year, this set-back requirement would protect lateral

clearances for the development of a new taxiway, 300 feet centerline to centerline from the existing runway. This level of large airplane operations, however, is not anticipated to occur in this master plan's 20 year study period (1994-2013).

### **ROADS AND INFRASTRUCTURE**

The existing entrance road will remain as the primary access to the north quadrant. It, however, is planned to be paved. A secondary public access road is planned to connect the north quadrant to State Road 31 located east of the airport.

If a second FBO is developed, future auto access to the west quadrant will be provided via a paved access road connecting into Airport Road. The south quadrant will be made accessible to vehicular traffic by constructing two access roads tying into Airport Estates Street.

Access to the east quadrant will be made via a planned public access road connecting into State Road 31. In the event that the planned acquisition of land associated with the runway extension does not come to fruition before the time demand for the East Quadrant occurs, an alternate access point to this area from the southeast corner of the airport is also depicted on the ALP.

Under the title "aviation-related use and infrastructure", the ALP shows potential locations that can be used for storm water management. It should be noted, that hydrological study associated with detailed facility design will be needed to determine the final location and size of storm water management structures on the airport. Space within the areas designated as aviation-related use & infrastructure that are not eventually needed for storm water management could be redesignated for some other type of development, provided that it is outside the building restriction line (BRL).

### **PROPERTY ANALYSIS**

A total of 26 acres of fee simple purchase will be needed for the Runway 5-23 extension and Runway Protection Zones (RPZ's). Future airport property (Figure 4-B) will total approximately 238 acres. Also, 22 acres of easement purchases will be necessary for portions of the Runway 5-23 and Runway 13-31 RPZ's that traverse over existing residential properties.

### **RUNWAY PROTECTION ZONE (RPZ) PLAN**

Figure 4-C presents detailed information regarding obstructions and height limitations in close proximity to the existing and future runway configurations at the Arcadia Municipal Airport. The future RPZ drawings consider a non-precision instrument approach for Runway 23 and

visual approaches to Runway 5 as well as both ends of Runway 13-31. Plan and profile sheet data was based on a field survey conducted in the Spring of 1993.

### AIRSPACE PLAN

The FAR Part 77 Airspace Plan drawing (Figure 4-D) graphically depicts information regarding the maximum height of structures that can be built at locations in the vicinity of Arcadia Municipal Airport without airspace interference. This plan also depicts the approach surface of the ultimate runway configuration as well as the location of FAA imaginary surfaces specific to Arcadia Municipal Airport. These Obstruction Standard heights and surfaces, which were previously described in Chapter Three include:

- **Primary Surface:** Equals width of RPZ inner width and extends 200 feet beyond the runways ends, no slope;
- **Transitional Surface:** Extends upward and outward from the primary surface at a 7:1 slope;
- **Approach Surface:** Extends 5,000 feet from the end of the primary surface at 20:1 slope with an outer width of 2,000 feet (Non-Precision), extends 5,000 feet from the end of the primary surface at 20:1 slope with an outer width of 1,250 feet (Visual);
- **Horizontal Surface:** 150 feet above the established airport elevation, no slope;
- **Conical Surface:** 20:1 slope from 150 feet to 350 feet above established airport elevation (63 feet).

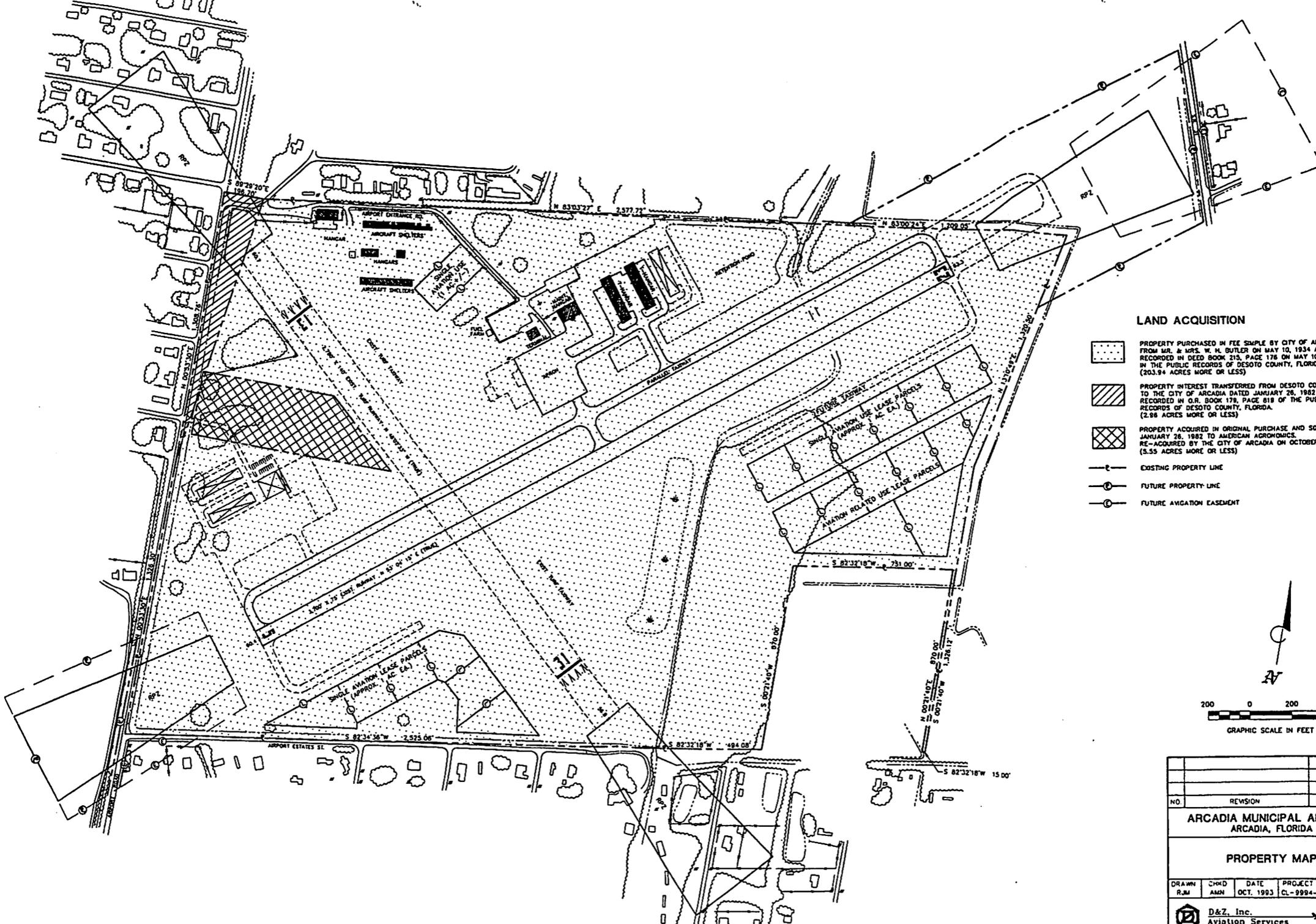
In addition to establishing and defining Obstruction Standard heights and surfaces, FAR Part 77 also sets requirements for notice of construction and alternation. It also provides for the aeronautical study of obstructions to air navigation.

The State of Florida also provides protection to navigable airspace through Chapter 333, Florida Statutes. This statute establishes the public interest in limiting the heights of structures by requiring political subdivisions to adopt, administer and enforce airport zoning regulations for adequate airspace protection.

Although the City of Arcadia and DeSoto County have enacted height zoning regulations, changes depicted in the ALP associated with this master plan update (specifically the runway extensions and non-precision approach) and recent changes made to Chapter 333 may require that the height zoning regulations of the two local political subdivisions be updated.

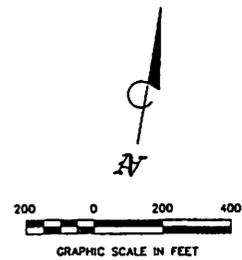
The City and County may also wish to design their height zoning obstruction standards to be more restrictive in order to preserve airspace for large airplane operations at the airport.

Because 500 or more operations performed by large airplanes are not forecast in the 20 year study period, the Airspace Plan included in ALP set must be consistent in depicting FAR Part 77 Obstruction Standards for airports having operations by only "small" airplanes. Planners at the State of Florida Department of Transportation Aviation Office, however, encourage political subdivisions to plan for more restrictive height zoning regulations to help eliminate "any" potential for tall structure penetration of existing and future (up to 50 years and beyond) FAR Part 77 Obstruction Standards and preservation of airport airspace.



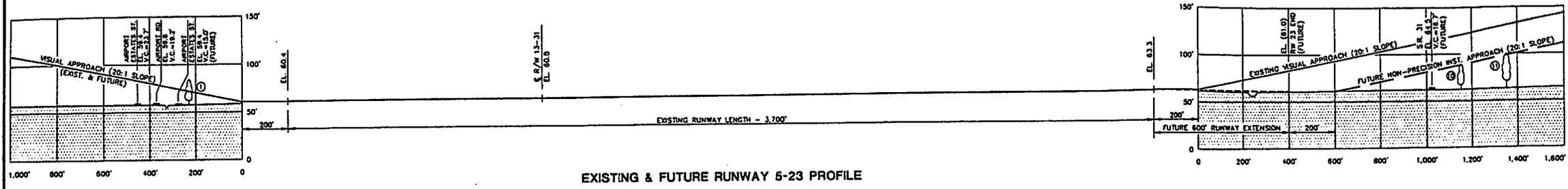
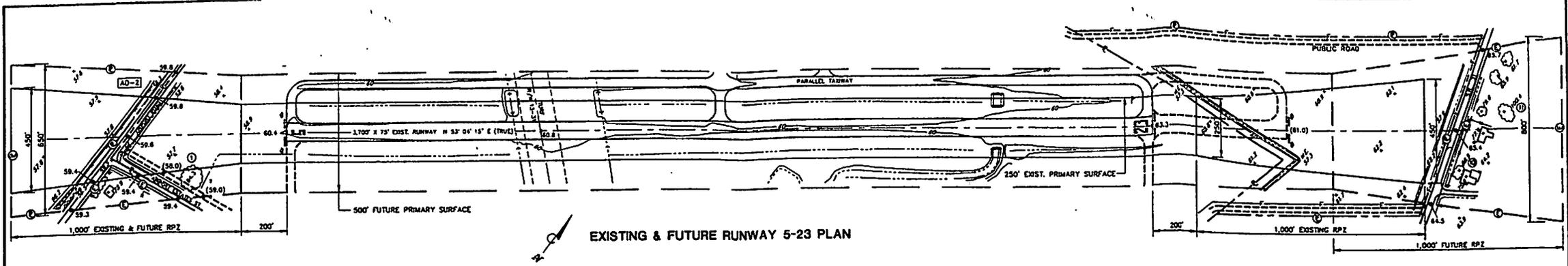
**LAND ACQUISITION**

-  PROPERTY PURCHASED IN FEE SIMPLE BY CITY OF ARCADIA FROM MR. & MRS. W. H. BUTLER ON MAY 10, 1934 AS RECORDED IN DEED BOOK 213, PAGE 176 ON MAY 10, 1943 IN THE PUBLIC RECORDS OF DESOTO COUNTY, FLORIDA. (203.94 ACRES MORE OR LESS)
-  PROPERTY INTEREST TRANSFERRED FROM DESOTO COUNTY TO THE CITY OF ARCADIA DATED JANUARY 26, 1982 AND RECORDED IN O.R. BOOK 178, PAGE 618 OF THE PUBLIC RECORDS OF DESOTO COUNTY, FLORIDA. (2.98 ACRES MORE OR LESS)
-  PROPERTY ACQUIRED IN ORIGINAL PURCHASE AND SOLD JANUARY 26, 1982 TO AMERICAN AGROHOMICS, RE-ACQUIRED BY THE CITY OF ARCADIA ON OCTOBER 20, 1989. (5.55 ACRES MORE OR LESS)
-  EXISTING PROPERTY LINE
-  FUTURE PROPERTY LINE
-  FUTURE AVIATION EASEMENT



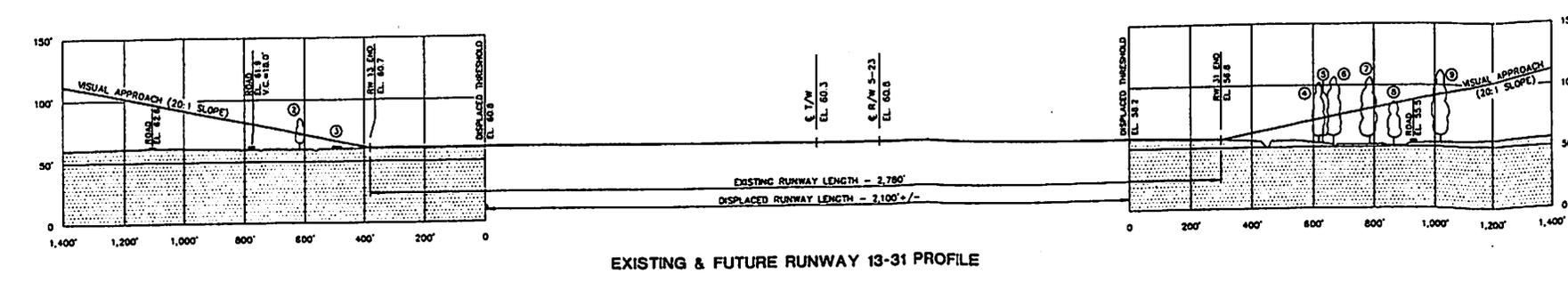
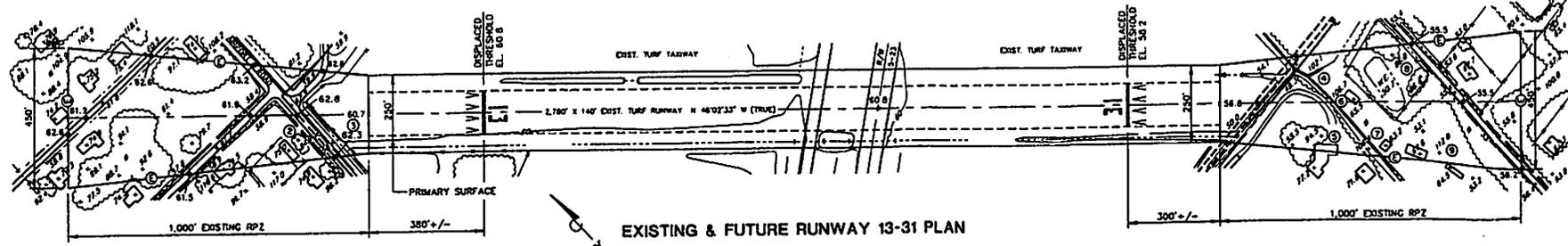
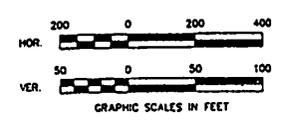
NO.	REVISION	BY	APP	DATE
<b>ARCADIA MUNICIPAL AIRPORT ARCADIA, FLORIDA</b>				
<b>PROPERTY MAP</b>				
DRAWN RJM	CHKD AMN	DATE OCT. 1993	PROJECT NO CL-9994-00	FILE NAME ARC-PM SHEET
 <b>D&amp;Z, Inc.</b> Aviation Services				<b>6</b>

**FIGURE 4-B**



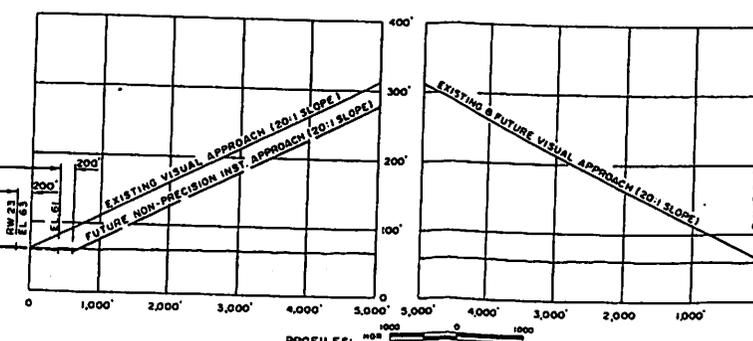
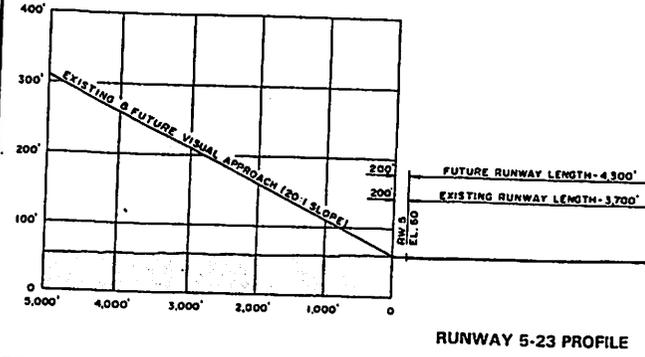
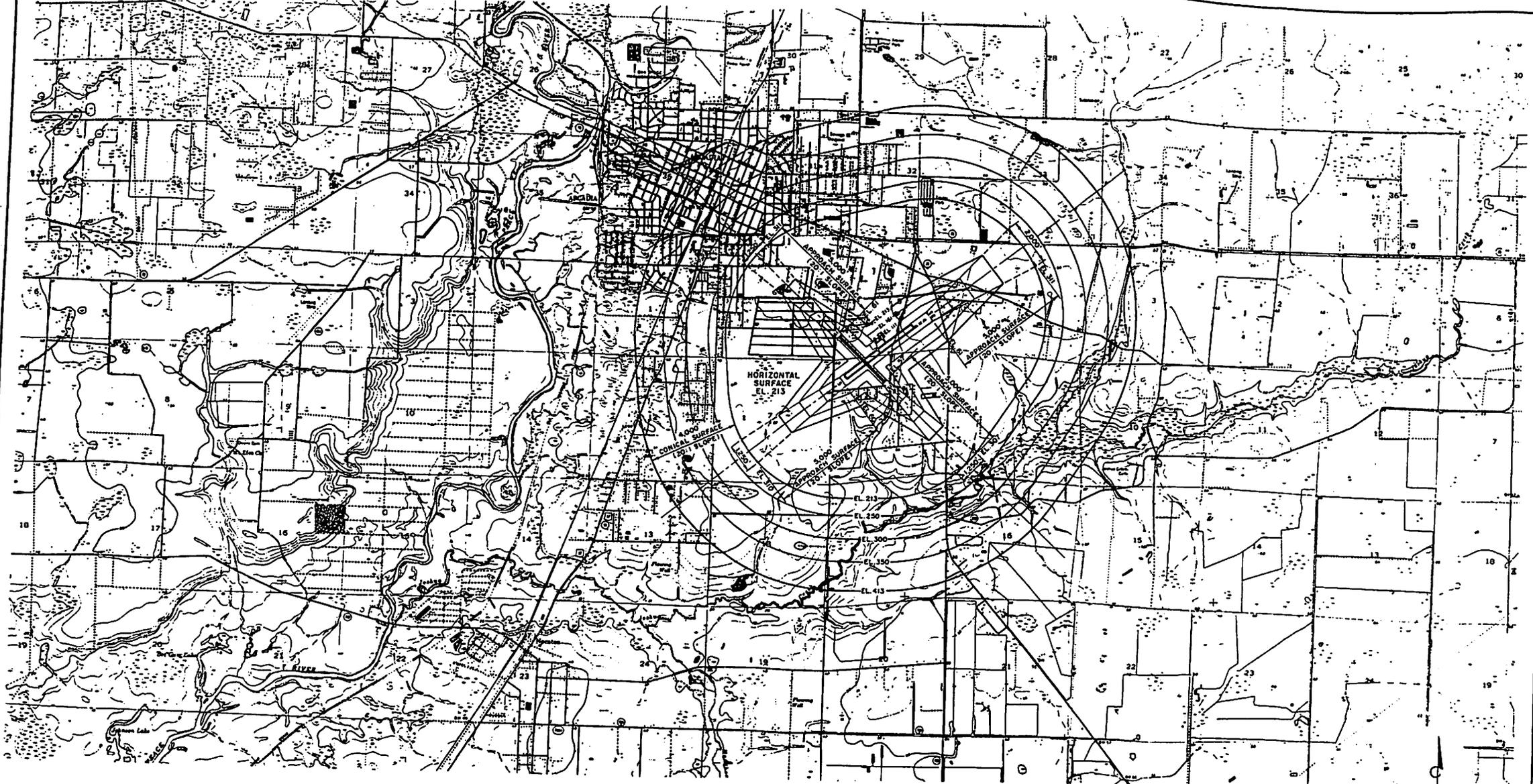
RUNWAY PROTECTION ZONE FACILITIES OBSTRUCTION DATA					FAR PART 77	
NO.	ITEM	EL. (MSL)	STATUS	ELEV.	PENETR.	
①	TREE (E)	84.3	T	71.8	12.5'	
②	TREE (E)	84.9	T	72.8	12.3'	
③	AIRPORT ROAD (E)	77.3	N	68.4	10.9'	
④	TREE (E)	102.1	T	72.7	29.4'	
⑤	TREE (E)	94.5	T	73.4	21.1'	
⑥	TREE (E)	108.7	T	75.2	31.5'	
⑦	TREE (E)	106.4	T	81.1	25.3'	
⑧	TREE (E)	88.8	T	85.0	1.8'	
⑨	TREE (E)	112.0	T	92.8	19.2'	
⑩	TREE (P)	88.9	T	88.6	0.3'	
⑪	TREE (P)	100.4	T	98.8	1.6'	

**LEGEND**  
 L = TO BE LIGHTED AS PER FAR PART 77  
 T = TO BE TRIMMED AS PER FAR PART 77  
 R = TO BE REMOVED  
 N = NO ACTION  
 (E) = EXISTING FACILITIES OBSTRUCTION  
 (P) = PROPOSED FACILITIES OBSTRUCTION



NO.	REVISION	BY	APP	DATE
<b>ARCADIA MUNICIPAL AIRPORT ARCADIA, FLORIDA</b>				
<b>RUNWAY PROTECTION ZONE PLAN &amp; PROFILE</b>				
DRAWN RJM	CHKD AMN	DATE OCT. 1993	PROJECT NO CL-9994-00	FILE NAME ARC-PP
D&Z, Inc. Aviation Services				SHEET <b>4</b>

FIGURE 4-C



NO.	REVISION	BY	APP	DATE
<b>ARCADIA MUNICIPAL AIRPORT</b> ARCADIA, FLORIDA				
<b>AIRSPACE PLAN &amp; PROFILE</b>				
DRAWN R.M.	CHK'D AMN	DATE OCT. 1993	PROJECT NO CL-9994-00	FILE NAME
D&Z, Inc. Aviation Services				SHEET <b>3</b>

FIGURE 4-D

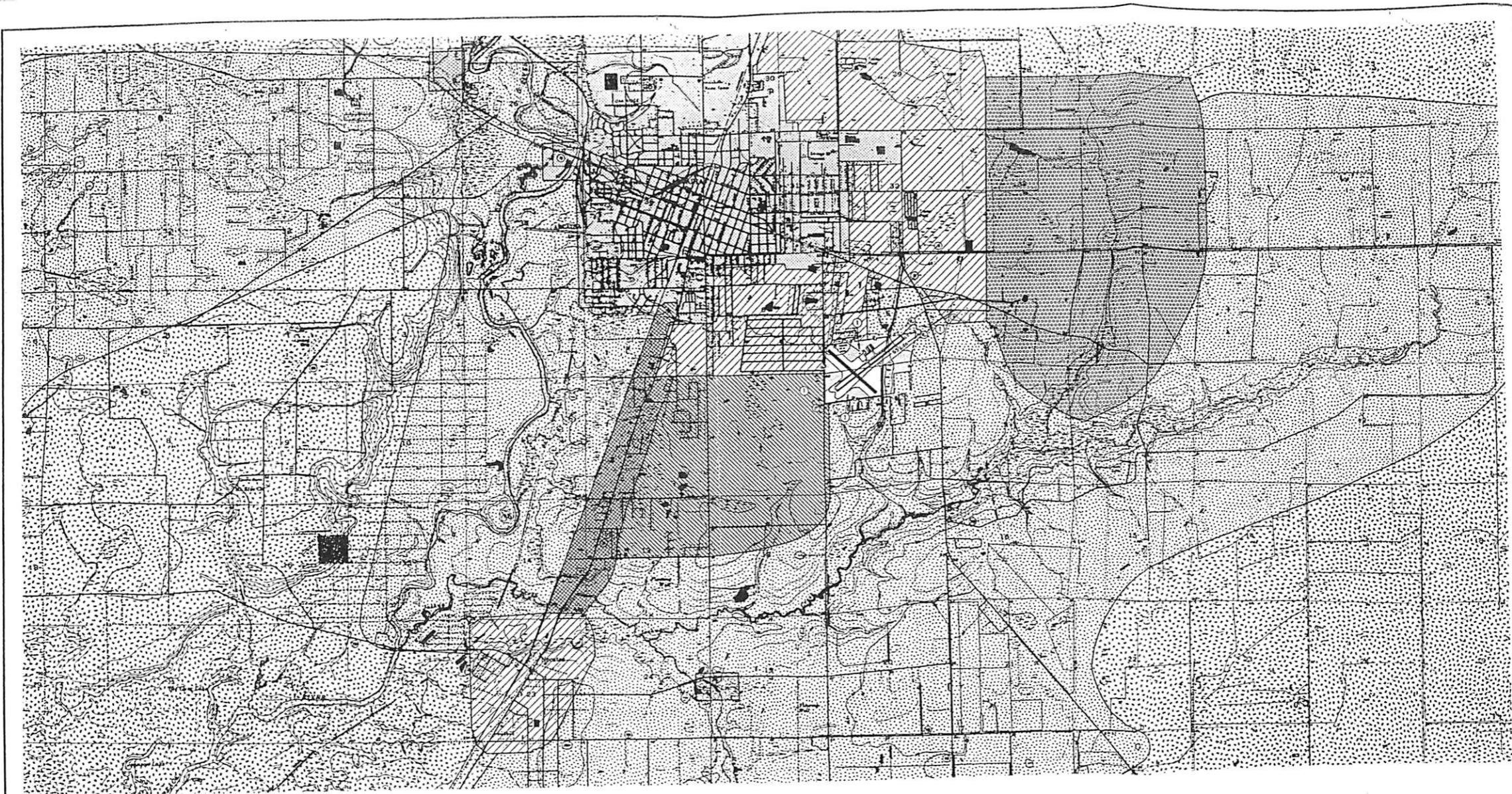
### OFF-AIRPORT LAND USE PLAN

DeSoto County's future land use plan for the area surrounding airport is depicted in Figure 4-E. In order to institute planned orderly development of the airport, it is recommended that the rural residential and suburban residential land uses depicted on the plan within the future airport boundary be appropriately re-designated as either airfield operations or airport-related development land use.

Chapter 333 of the Florida Statutes requires political subdivisions to adopt airport zoning regulations that restrict new uses, activity and construction within runway clear zones (or RPZ's, as defined in this master plan) which are incompatible with normal airport operations or endanger public health, safety and welfare. Political subdivisions are also required to adopt airport land development regulations under Chapter 163 of the Florida Statutes. If a political subdivision has not adopted land development regulations under Chapter 163, Chapter 333 requires that interim land use compatibility zoning be implemented. Interim land use compatibility zoning is to consider:

- Location of landfills relative to runways and imaginary surfaces.
- Residential construction in Airport Noise Impacted areas established by a noise study in accordance with FAR Part 150; or.
- Residential construction in an area of potential noise impact for airports which have not conducted noise studies.

Future (year 2013) noise contours were developed from the aviation activity forecasts contained in Chapter 2 of this master plan report using the FAA Integrated Noise Model Version 3.10. Despite the projected increased aircraft activity at the Arcadia Municipal Airport during the 20-year study period, the future 65 Ldn noise contour does not extend beyond the future boundary of the airport. Thus, airport noise/land use compatibility will not require any changes in land use outside the future boundary of the airport.



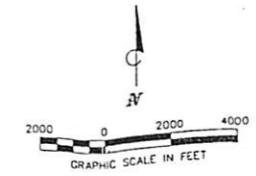
**LAND USE COMPATIBILITY RECOMMENDATIONS:**

① APPROPRIATELY DEPICT LAND USE WITHIN THE FUTURE BOUNDARY OF THE AIRPORT AS AIRFIELD OPERATIONS OR AIRPORT-RELATED DEVELOPMENT.

- ON-AIRPORT**
-  AIRFIELD OPERATIONS
  -  AIRPORT-RELATED DEVELOPMENT

- OFF-AIRPORT**
-  CITY OF ARCADIA
  -  TOWN CENTER
  -  MIXED USE CORRIDOR  
6 DU / ACRE
  -  SUBURBAN RESIDENTIAL  
6 DU / ACRE
  -  SEMI-RURAL RESIDENTIAL  
1 DU / ACRE

-  RURAL RESIDENTIAL  
1 DU / 5 ACRES
-  RURAL / AGRICULTURAL  
1 DU / ACRE
-  PUBLIC / INSTITUTIONAL
-  RECREATION
-  NOISE CONTOUR (YEAR 2013)
-  LAND USE COMPATIBILITY RECOMMENDATION



SOURCE: DESOTO COUNTY ENGINEERING DEPARTMENT

NO.	REVISION	BY	APP	DATE
ARCADIA MUNICIPAL AIRPORT ARCADIA, FLORIDA				
FUTURE OFF-AIRPORT LAND USE PLAN				
DRAWN TMF	CHKD AMN	DATE OCT. 1993	PROJECT NO CL-9994-00	FILE NAME
D&Z, Inc. Aviation Services				SHEET <b>5</b>

FIGURE 4-E

## NON-STANDARD CONDITIONS

Permit Aircraft parking Positions on Existing and Future Apron to Penetrate the Runway Visibility Zone to Runway 13-31

This non-standard condition is being requested from the FAA to allow aircraft to park on portions of the existing apron within the RVZ to Runway 13-31, which is an infrequently used turf runway (when compared to paved Runway 5-23). It is also being requested that the existing apron be allowed to expand further into the RVZ when demand for apron space adjacent to the FBO occurs. Apron expansion to any other direction is not feasible because of the existing runway, structures and storm water management ponds.

Permit Future Non-Standard Object Free Area at the Runway 5 Approach End

This non-standard condition is for the future southwest approach end Object Free Area. This will allow full usage of Runway 5-23 when it is extended to the northeast, as well as having to avoid relocating existing roadways (Airport Road and Airport Estates Street) and a proposed restricted-use perimeter maintenance/security road. The only other alternatives are to relocate the southwest approach end of Runway 5-23 to the northeast (thereby, causing the relocation of a road at the opposite end of the airport), relocating existing and proposed roads at the southwest end of Runway 5-23, or relocating the southwest end of Runway 5-23 and limit the length of the extended runway. Currently, the airport has a standard object free area at the southwest end of the runway. Standards for the future design aircraft (Beech Super King Air) will approximately double the size of the OFA. Many other airport standards such as runway-taxiway separation are being met by using the "rationale method" described in AC 150/5300-13. There is, however, no "rationale method" applicable for OFA's. Therefore, approval of this non-standard condition is being requested from the FAA.

**INTRODUCTION**

The need for specific facility development is dictated by the nature and the amount of activity at any given airport. Accordingly, the forecast of activity will dictate the timetable for most capacity related development. Information produced in the Facility Requirements section of this Master Plan, in conjunction with the Airport Layout Plan Report section, was used to define the necessary types of facility development planned for the Arcadia Municipal Airport. The anticipated sequencing of the development was derived from the aviation forecasts, proposed five-year plan and discussions with the City of Arcadia and the Airport Advisory Committee.

**PROJECT PHASING AND COST ESTIMATES**

Phasing of the proposed developments is presented for four periods as stated below.

- Phase I: Short-Term Development (1994 to 1998).
- Phase II: Mid-Term Development (1998-2003).
- Phase III: Long-Term Development (2003-2013).
- Ultimate: Development Beyond 20 years and User Dependent Development.

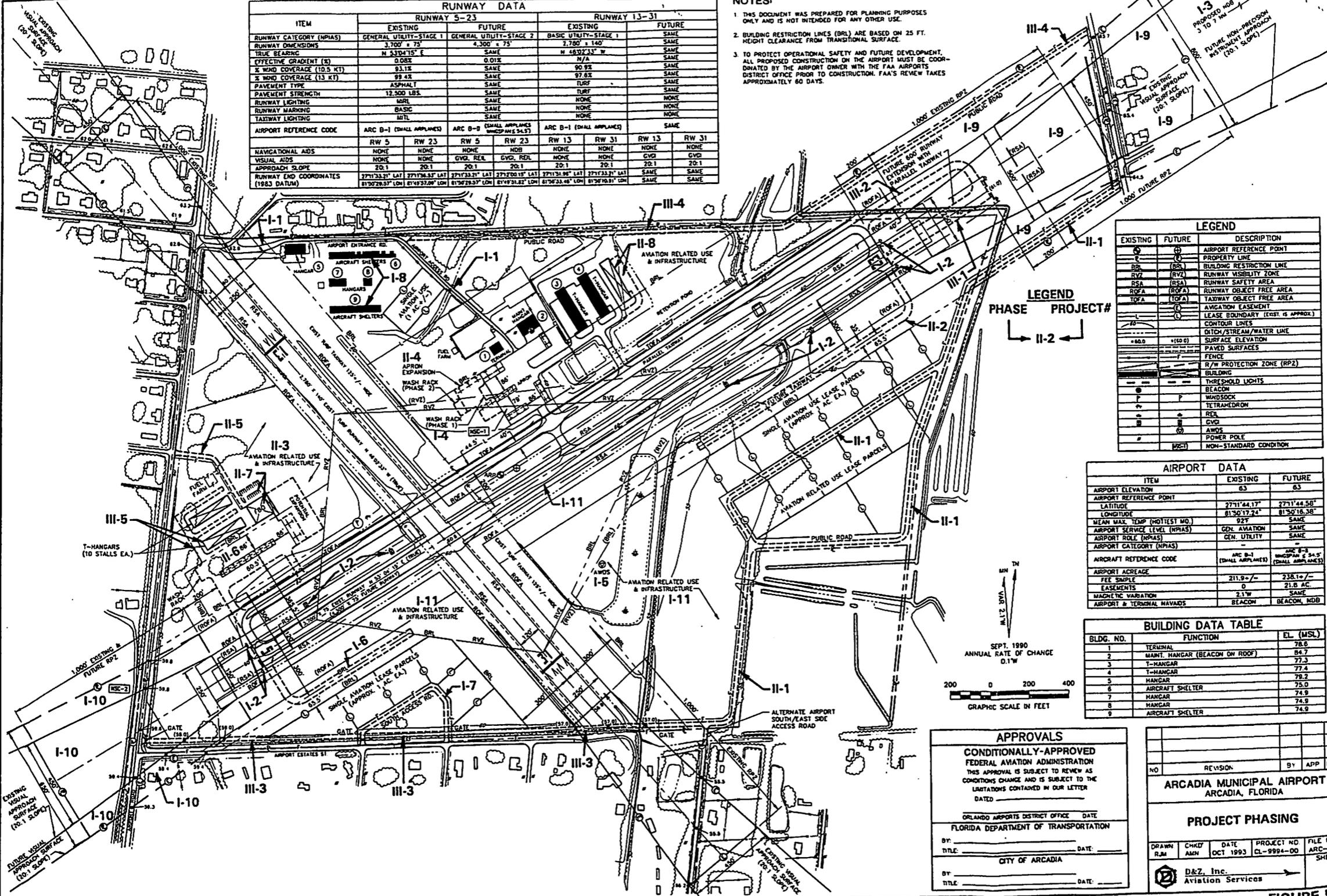
The location and phasing of improvements are depicted on Figure 5-A.

Table V-1 lists each improvement numerically in order of priority with a breakdown of funding eligibility from the Florida Department of Transportation (FDOT) and the Federal Aviation Administration (FAA) in accordance with current guidelines and interpretations by controlling agencies. Costs are categorized into Federal, State and Sponsor funding.

If the City of Arcadia anticipates significant legal and administrative costs (including environmental permitting) associated with improvement projects, these should be added to the project preapplication at the time of filing. Also, since these estimates reflect current representative costs they should be re-evaluated periodically to compensate for inflation and other cost adjustments which may apply.

ITEM	RUNWAY DATA			
	RUNWAY 5-23		RUNWAY 13-31	
	EXISTING	FUTURE	EXISTING	FUTURE
RUNWAY CATEGORY (NPIAS)	GENERAL UTILITY-STAGE 1	GENERAL UTILITY-STAGE 2	BASIC UTILITY-STAGE 1	SAFELY
RUNWAY DIMENSIONS	3,700' x 75'	4,300' x 75'	7,780' x 140'	SAFELY
TRUE BEARING	N 53°04'15" E	SAFELY	N 48°02'33" W	SAFELY
EFFECTIVE GRADIENT (%)	0.08%	0.01%	0.1%	SAFELY
% WIND COVERAGE (10.5 KT)	83.1%	SAFELY	90.8%	SAFELY
% WIND COVERAGE (13 KT)	99.4%	SAFELY	97.8%	SAFELY
PAVEMENT TYPE	ASPHALT	SAFELY	TURF	SAFELY
PAVEMENT STRENGTH	12,500 LBS.	SAFELY	TURF	SAFELY
RUNWAY LIGHTING	MRL	SAFELY	NONE	SAFELY
RUNWAY MARKING	BASIC	SAFELY	NONE	SAFELY
TAXIWAY LIGHTING	MIL	SAFELY	NONE	SAFELY
AIRPORT REFERENCE CODE	ARC B-1 (SMALL AIRPLANE)	ARC B-1 (SMALL AIRPLANE)	ARC B-1 (SMALL AIRPLANE)	SAFELY
	RW 5 RW 23	RW 5 RW 23	RW 13 RW 31	RW 13 RW 31
NAVIGATIONAL AIDS	NONE	NONE	NONE	NONE
VISUAL AIDS	NONE	GVQ, REL	NONE	GVQ
APPROACH SLOPE	20:1	20:1	20:1	20:1
RUNWAY END COORDINATES (1983 DATUM)	2711'33.11" LAT 81°30'29.37" LONG	2711'33.21" LAT 81°30'29.37" LONG	2713'00.15" LAT 81°31'31.96" LONG	2713'33.31" LAT 81°30'29.37" LONG

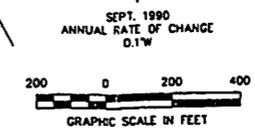
- NOTES**
- THIS DOCUMENT WAS PREPARED FOR PLANNING PURPOSES ONLY AND IS NOT INTENDED FOR ANY OTHER USE.
  - BUILDING RESTRICTION LINES (BRL) ARE BASED ON 25 FT. HEIGHT CLEARANCE FROM TRANSITIONAL SURFACE.
  - TO PROTECT OPERATIONAL SAFETY AND FUTURE DEVELOPMENT, ALL PROPOSED CONSTRUCTION ON THE AIRPORT MUST BE COORDINATED BY THE AIRPORT OWNER WITH THE FAA AIRPORTS DISTRICT OFFICE PRIOR TO CONSTRUCTION. FAA'S REVIEW TAKES APPROXIMATELY 60 DAYS.



EXISTING	FUTURE	LEGEND	DESCRIPTION
○	○	○	AIRPORT REFERENCE POINT
—	—	—	PROPERTY LINE
BR	BR	BR	BUILDING RESTRICTION LINE
RVZ	RVZ	RVZ	RUNWAY VISIBILITY ZONE
RSA	RSA	RSA	RUNWAY SAFETY AREA
TOFA	TOFA	TOFA	TAXIWAY OBJECT FREE AREA
—	—	—	AVIATION EASEMENT
—	—	—	LEASE BOUNDARY (EAST IS APPROX.)
—	—	—	CONTOUR LINES
—	—	—	DITCH/STREAM/WATER LINE
—	—	—	SURFACE ELEVATION
—	—	—	PAVED SURFACES
—	—	—	R/W PROTECTION ZONE (RPZ)
—	—	—	BUILDING
—	—	—	THRESHOLD LIGHTS
—	—	—	BEACON
—	—	—	WINDSOCK
—	—	—	TETRAHEDRON
—	—	—	REL
—	—	—	GVQ
—	—	—	AWOS
—	—	—	POWER POLE
—	—	—	NON-STANDARD CONDITION

AIRPORT DATA		
ITEM	EXISTING	FUTURE
AIRPORT ELEVATION	63	63
AIRPORT REFERENCE POINT		
LATITUDE	2711'44.13"	2711'44.56"
LONGITUDE	81°30'12.74"	81°30'16.38"
MEAN MAX TEMP (HIGHEST MO.)	92°	SAFELY
AIRPORT SERVICE LEVEL (NPIAS)	GEN. AVIATION	SAFELY
AIRPORT ROLE (NPIAS)	GEN. UTILITY	SAFELY
AIRPORT CATEGORY (NPIAS)		
AIRCRAFT REFERENCE CODE	ARC B-1 (SMALL AIRPLANE)	ARC B-1 (SMALL AIRPLANE) & 34.5' (SMALL AIRPLANE)
AIRPORT ACRES		
FEE SIMPLE	218.4/-	218.4/-
EASEMENTS	0	21.8 AC
MAGNETIC VARIATION	2.1 W	SAFELY
AIRPORT & TERMINAL NAVIGATIONS	BEACON	BEACON, MDB

BUILDING DATA TABLE		
BLDG. NO.	FUNCTION	EL. (MSL)
1	TERMINAL	78.6
2	MAINT. HANGAR (BEACON ON ROOF)	84.7
3	T-HANGAR	77.3
4	T-HANGAR	77.4
5	HANGAR	79.2
6	AIRCRAFT SHELTER	75.0
7	HANGAR	74.9
8	HANGAR	74.9
9	AIRCRAFT SHELTER	74.9



**APPROVALS**

CONDITIONALLY-APPROVED FEDERAL AVIATION ADMINISTRATION THIS APPROVAL IS SUBJECT TO REVIEW AS CONDITIONS CHANGE AND IS SUBJECT TO THE LIMITATIONS CONTAINED IN OUR LETTER DATED \_\_\_\_\_

ORLANDO AIRPORTS DISTRICT OFFICE DATE \_\_\_\_\_

FLORIDA DEPARTMENT OF TRANSPORTATION

BY: \_\_\_\_\_ DATE: \_\_\_\_\_

CITY OF ARCADIA

BY: \_\_\_\_\_ DATE: \_\_\_\_\_

NO.	REVISION	BY	APP	DATE
<b>ARCADIA MUNICIPAL AIRPORT</b> ARCADIA, FLORIDA				
<b>PROJECT PHASING</b>				
DRAWN R.M.	CHKD A.M.	DATE OCT 1993	PROJECT NO CL-9994-00	FILE NAME ARC-ALP SHEET
D&Z, Inc. Aviation Services				

FIGURE 5-1

Table V-1  
**ARCADIA MUNICIPAL AIRPORT**  
**PHASING OF PLANNED IMPROVEMENTS**  
 (Costs in 1993 Dollars)

**PHASE I: 1994-1998**

PROJECT	FAA SHARE	STATE SHARE	SPONSOR SHARE	TOTAL COST
1. Pave Main Entrance Road	---	71,100	71,100	142,200
2. Visual Nav aids - Rwy. 5-23	140,715	7,818	7,817	156,350
3. NDB - Rwy. 5-23	35,820	1,990	1,990	39,800
4. Wash Rack - Main Apron	46,017	2,557	2,556	51,130
5. AWOS	167,427	9,302	9,301	186,030
6. Access Taxiway - South Side	172,557	9,587	9,586	191,730
7. Access Road - South Side	---	39,120	39,120	78,240
8. Rehab/Replace Aircraft Shelters	---	379,500	379,500	759,000
9. Land Acquisition - Existing Rwy 23 RPZ/Future Rwy. Extension	221,400	12,300	12,300	246,000
10. Land Acq./ Easements - Rwy. 5 RPZ	75,240	4,180	4,180	83,600
11. Rwy. 5-23 Infrastructure Rehab. & Improvements	876,346	48,686	48,686	973,718
<b>PHASE I TOTAL</b>	<b>\$1,735,522</b>	<b>\$586,140</b>	<b>\$586,136</b>	<b>\$2,907,798</b>

TABLE V-1  
(Continued)

## PHASE II: 1998-2003

PROJECT	FAA SHARE	STATE SHARE	SPONSOR SHARE	TOTAL COST
1. East Side Access Road	—	269,250	269,250	538,500
2. East Side Access Taxiway	208,062	11,559	11,559	231,180
3. Infrastructure Improvements	585,000	32,500	32,500	650,000
4. Main Apron Expansion*	119,466	6,637	6,637	132,740
5. West Side Access Rd. *	—	29,420	29,420	58,840
6. West Side Apron/Wash Rack*	339,894	18,883	18,883	377,660
7. FBO Hangar & Auto Parking*	—	—	730,080	730,080
8. T-Hangars (10 Units)	—	—	695,640	695,640
<b>PHASE II TOTAL</b>	<b>\$1,252,422</b>	<b>\$368,249</b>	<b>\$1,793,969</b>	<b>\$3,414,640</b>

\* Demand for a second FBO may accelerate or delay these projects.

## PHASE III: 2004-2013

PROJECT	FAA SHARE	STATE SHARE	SPONSOR SHARE	TOTAL COST
1. Runway 5-23 Extension	233,766	12,987	12,987	259,740
2. Taxiway Extension	144,450	8,025	8,025	160,500
3. South Side Perimeter Rd.	266,535	14,808	14,807	296,150
4. North Access Rd.	—	203,175	203,175	406,350
5. T-Hangars (5 Units)	—	—	703,950	703,950
<b>PHASE III TOTAL</b>	<b>644,751</b>	<b>238,995</b>	<b>238,944</b>	<b>1,826,690</b>
<b>GRAND TOTAL</b>	<b>\$3,632,695</b>	<b>\$813,884</b>	<b>\$3,702,549</b>	<b>\$8,149,128</b>

**NOTES TO TABLE 5-1**

**Estimated Project Cost:** Based on current prices using approximated quantities. Should be used for budget projections only. Includes normal ancillary costs such as engineering, testing and surveying. Does not include legal and administrative expenses.

**FAA Share of Funding:** Based on current Airport Improvement Program (AIP) legislation using 90% federal funding on eligible items to be pursued.

**FDOT Share of Funding:** Based on grants which match Sponsor costs for AIP eligible items and 50%/50% Joint Participation Agreement funding between the Sponsor and FDOT.

**Sponsor Share of Funding:** Assumes no other grant sources other than FAA and FDOT are available.

## POTENTIAL FUNDING SOURCES

### FEDERAL FUNDING ASSISTANCE

The primary federal funding source for airport capital improvements is through the Federal Aviation Administration's Airport Improvement Program (AIP). Projects considered eligible for AIP funds include:

- **Land** - airfield, clear/approach/transitional zones, noise compatibility
- **Relocation benefits** - displaced residents, businesses and institutions
- **Pavements** - runways, taxiways, aprons, access and service roads
- **Lighting** - runway, taxiway, apron, beacon, and approach lights
- **Approach aids** - electronic and visual
- **Buildings** - commercial service terminal buildings (public use areas) and buildings to house safety and security equipment
- **Equipment** - safety items required under FAR Part 107

The funds available to the Arcadia Municipal Airport from this program come through discretionary funds. These funds are available on a case-by-case basis determined by a priority level established in the National Plan of Integrated Airport Systems (NPIAS). These funds can be used to finance up to 90 percent of the development cost of eligible items. The extent of Federal participation in the funding of development items listed in the Airport Master Plan will be determined on the eligibility and priority at the time when the item is needed. Acceptance of the Airport Master Plan does not bind the FAA to fund any or all development items.

Another federal source of capital improvement funds is from the U.S. Department of Commerce's Economic Development Administration (EDA). An EDA grant is primarily centered around developing industrial and other commercial projects in areas of high unemployment or which have other economic disadvantages.

### STATE FUNDS

The State of Florida provides financial assistance to airports through the Florida Department of Transportation (FDOT). Normally, the FDOT will fund five percent of an FAA eligible and funded project (12.5% for the 7 major commercial airports in the State), matching the local share of the project. Certain items considered ineligible may be funded by the FDOT on a 50-50 basis. It is assumed, therefore, for financial planning purposes that the FDOT will be able to participate in both FAA-eligible projects at the five percent level and FDOT eligible-only projects at a 50 percent level. FDOT aviation programs applicable to Arcadia Municipal Airport include:

- **Airport Improvement-** funding to maintain and enhance capacity and airport safety.

- **Land Acquisition-** assist in purchasing land to increase airport capacity at new or existing airports where a need has been demonstrated, maintain runway protection zones, protect approach areas from tall structures and increase capacity to protect Florida's citizens against airport noise.
- **Economic Development-** provides airport development funds to establish revenue producing capital improvements such as hangars and industrial park facilities.
- **Aviation Planning-** provides aid to airport sponsors and local governments to allow for appropriate master planning, development of layout plans and noise studies that provide procedures and policies to protect Florida's public against noise encroachment. Five percent of this master plan is funded under this program.

**SPONSOR FUNDING**

The sponsor's share of Federal and/or State financially assisted projects, or sponsor implemented projects ineligible for government funding assistance, are satisfied by airport generated revenues and/or local tax supported subsidy.

**REVENUE BONDS**

Revenue bonds are bonds secured by the anticipated direct revenues of the project to be funded by the bonds. They normally required a substantial debt reserve based on the perceived risk and have a higher interest rate than other types of bonds. The net benefit of the revenue bond is that it allows capital improvements to be funded without the burden being placed on the local taxpayer, but rather the user, tenant, etc.

**BANK FINANCING**

Bank financing of revenue-producing development items may be an alternative to other funding sources where local banks are willing to underwrite the development costs of revenue-producing facilities which are held as collateral until the loan is repaid. Interest rates for bank loans are generally tied to the prime interest rate.

**PRIVATE FINANCING**

Private financing of certain development items may be an alternative to other funding sources where private enterprises are willing to underwrite the development costs while "ownership" of the facility reverts back to the airport owner after the facility is amortized.

This type of financing is common for FBO hangar and fuel facilities which are ineligible for state and federal funding, and are usually financed by the tenant.