Chapter Three

Facility Requirements

ERIC MARCUS MUNICIPAL AIRPORT

AJO, ARIZONA

AIRPORT MASTER PLAN

Chapter Three

FACILITY REQUIREMENTS

To properly plan for the future of Eric Marcus Municipal Airport, it is necessary to translate forecast aviation demand into the specific types and quantities of facilities that can adequately serve projected demand levels. This chapter uses the results of the forecasts prepared in Chapter Two, as well as established planning criteria, to determine the airfield (i.e., runways, taxiways, navigational aids, marking and lighting) and landside (i.e., hangars, aircraft parking apron, fueling, automobile parking and access) facility requirements.

The objective of this effort is to identify, in general terms, the adequacy of the existing airport facilities and outline what new facilities, if any, may be needed as well as when they may be needed to accommodate forecast demands. Having established these facility requirements, alternatives for the future direction of the airport will be evaluated in Chapter Four to determine the most cost-effective and efficient use of the airport over the course of the planning period.

PLANNING HORIZONS

The cost-effective, safe, efficient, and orderly development of an airport should rely more upon actual demand at an airport than a time-based forecast figure. Thus, in order to develop a master plan that is demand-based rather than time-based, a series of planning horizon milestones have been established that take into consideration the reasonable range of aviation demand projections. Over time, the actual activity at the airport may be higher or lower than the an-

nualized forecast portrays. By planning according to activity milestones, the resultant plan can accommodate unexpected shifts or changes in the aviation demand in a timely fashion. The demand-based schedule provides flexibility in development, as the schedule can be slowed or expedited according to actual demand at any given time over the planning period. The resultant plan provides airport officials with a financially responsible and needs-based program. **Table 3A** presents the planning horizon milestones for each activity demand category.

TABLE 3A
Aviation Demand Planning Horizons
Eric Marcus Municipal Airport

	2008	Short Term (± 5 Years)	Intermediate Term (± 10 Years)	Long Term (± 20 Years)
ANNUAL OPERATIONS				
Itinerant	240	240	480	800
Local	60	60	120	200
Total Operations	300	300	600	1,000
Based Aircraft	3	3	4	5

PEAKING CHARACTERISTICS

Airport capacity and facility needs analyses typically relate to the levels of activity during a peak or design period. The periods used in developing the capacity analyses and facility requirements in this study are as follows:

- **Peak Month** - The calendar month when peak volumes of aircraft operations occur.
- **Design Day** - The average day in the peak month. This indicator is easily derived by dividing the peak month operations by the number of days in a month.
- **Busy Day** - The busy day of a typical week in the peak month. This descriptor is used primarily to determine general aviation transient ramp space requirements.

It is important to note that only the peak month is an absolute peak within a given year. All other peak periods will be exceeded at various times during the year. However, they do represent reasonable planning standards that can be applied without overbuilding or being too restrictive.

General Aviation Itinerant Operations Peak Periods

General aviation itinerant peak operational characteristics were also included in this analysis. Based on activity at towered general aviation airports in the region, it has been determined that the peak month typically ranges between 10 and 15 percent of annual operations. Therefore, the current peak month for itinerant operations was estimated to be 15 percent of the annual itinerant operations. This ratio was kept constant through the planning period. Busy day operations were calculated at 1.5 times design day operations. **Table 3B** summarizes the peak operations forecast for the airport.

TABLE 3B
Peaking Characteristics
Eric Marcus Municipal Airport

	2008	Short Term (± 5 Years)	Intermediate Term (± 10 Years)	Long Term (± 20 Years)
OPERATIONS				
Total Operations				
Annual	300	300	600	1,000
Peak Month	45	45	90	150
Design Day	1	1	3	5
Busy Day	2	2	4	7
Itinerant Operations				
Annual	240	240	480	800
Peak Month	36	36	72	120
Design Day	1	1	2	4
Busy Day	2	2	3	6

AIRFIELD CAPACITY

A demand/capacity analysis measures the capacity of the airfield facilities (i.e., runways and taxiways) in order to identify a plan for additional development needs. The capacity of the airfield is affected by several factors, including airfield layout, meteorological conditions, aircraft mix, runway use, aircraft arrivals, aircraft touch-and-go activity, and exit taxiway locations. An airport's airfield capacity is expressed in terms of its annual service volume (ASV). Annual service volume is a reasonable estimate of the maximum level of aircraft operations that can be accommodated in a year.

Pursuant to FAA guidelines detailed in the FAA Advisory Circular (AC 150/5060-5, *Airport Capacity and Delay*, the annual service volume of a single runway configuration is approximately 230,000 operations at general aviation airports similar to Eric Marcus Municipal Airport. Since the forecasts for the airport indicate that activity throughout the planning period will remain well below 230,000 annual operations, the capacity of the existing airfield system will not be reached and the airfield is expected to accommodate the forecasted operational demands. Therefore, no additional runways or taxiways are needed for capacity reasons.

CRITICAL AIRCRAFT

The selection of appropriate FAA design standards for the development and location of airport facilities is based primarily upon the characteristics of the aircraft which are currently using or are expected to use the airport. The critical design aircraft is defined as the most demanding category of aircraft, or family of aircraft, which conducts at least 500 itinerant operations per year at the airport.

The FAA has established a coding system to relate airport design criteria to the operational and physical characteristics of aircraft expected to use the airport. This airport reference code (ARC) has two components. The first component, depicted by a letter, is the aircraft approach category and relates to aircraft approach speed (operational characteristic). The second component, depicted by a Roman numeral, is the airplane design group and relates to aircraft wingspan (physical characteristic). Generally, aircraft approach speed applies to runways and runway-related facilities, while airplane wingspan primarily relates to separation criteria involving taxiways, taxilanes, and landside facilities.

According to FAA Advisory Circular (AC) 150/5300-13, *Airport Design*, an aircraft's approach category is based upon 1.3 times its stall speed in landing configuration at that aircraft's maximum certificated weight. The five approach categories used in airport planning are as follows:

Category A: Speed less than 91 knots.

Category B: Speed 91 knots or more, but less than 121 knots.

Category C: Speed 121 knots or more, but less than 141 knots.

Category D: Speed 141 knots or more, but less than 166 knots.

Category E: Speed greater than 166 knots.

The airplane design group (ADG) is based upon the aircraft's wingspan. The six ADGs used in airport planning are as follows:

Group I: Up to but not including 49 feet.

Group II: 49 feet up to but not including 79 feet.

Group III: 79 feet up to but not including 118 feet.

Group IV: 118 feet up to but not including 171 feet.

Group V: 171 feet up to but not including 214 feet.

Group VI: 214 feet or greater.

Exhibit 3A summarizes representative aircraft by ARC.

The FAA advises designing airfield facilities to meet the requirements of the airport's most demanding aircraft, or critical aircraft. An aircraft or group of aircraft within a particular Approach Category or ADG must conduct more than 500 itinerant operations annually to be considered the critical design aircraft. In order to determine facility requirements, an ARC should first be determined, and then appropriate airport design criteria can be applied.

Eric Marcus Municipal Airport currently experiences less than 500 annual operations; therefore, a specific design aircraft cannot be identified. Currently, the airport has three based single-engine piston aircraft, each within ARC A-I and weighing less than 12,500 pounds. A review of com-

08MP05-3A-12/7/09

A-I

- Beech Baron 55
- **Beech Bonanza**
- Cessna 150
- Cessna 172
- Cessna Citation Mustang
- Eclipse 500
- Piper Archer
- Piper Seneca

C-I, D-I

- Beech 400
- **Lear 25, 31, 35, 45, 55, 60**
- Israeli Westwind
- HS 125-400, 700

B-I less than 12,500 lbs.

- Beech Baron 58
- Beech King Air 100
- Cessna 402
- **Cessna 421**
- Piper Navajo
- Piper Cheyenne
- Swearingen Metroliner
- Cessna Citation I

C-II, D-II

- Cessna Citation III, VI, VIII, X
- **Gulfstream II, III, IV**
- Canadair 600
- ERJ-135, 140, 145
- CRJ-200, 700, 900
- Embraer Regional Jet
- Lockheed JetStar

B-II less than 12,500 lbs.

- **Super King Air 200**
- Cessna 441
- DHC Twin Otter

C-III, D-III

- ERJ-170, 190
- Boeing Business Jet
- B 727-200
- **B 737-300 Series**
- MD-80, DC-9
- Fokker 70, 100
- A319, A320
- Gulfstream V
- Global Express

B-I, B-II over 12,500 lbs.

- Super King Air 350
- Beech 1900
- Jetstream 31
- Falcon 10, 20, 50
- Falcon 200, 900
- **Citation II**, III, IV, V
- Saab 340
- Embraer 120

C-IV, D-IV

- **B-757**
- B-767
- C-130
- DC-8-70
- DC-10
- MD-11
- L1011

A-III, B-III

- DHC Dash 7
- **DHC Dash 8**
- DC-3
- Convair 580
- Fairchild F-27
- ATR 72
- ATP

D-V

- **B-747** Series
- B-777

Note: Aircraft pictured is identified in bold type.

Exhibit 3A
AIRPORT REFERENCE CODES

pleted instrument flight plans for all aircraft types since 2004 revealed only 10 operations originating from or arriving to Eric Marcus Municipal Airport. The aviation demand forecasts projected a minimal increase in based aircraft and operations through the planning period.

The previous master plan established ultimate ARC B-II design standards for the airport to accommodate potential business jet and turboprop aircraft operations. This potential demand was based on the reopening of the open-pit mine in Ajo, which would stimulate economic activity and, as a result, aviation activities in the local area. However, the mine did not reopen, causing this potential demand to go unrealized.

The current airfield is designed to ARC B-I small airplane exclusive standards. It is anticipated that the airport will continue to be used exclusively by aircraft within ARC A-I and B-I categories through the planning period. Therefore, Eric Marcus Municipal Airport should maintain ARC B-I small airplane exclusive design standards through the planning period.

AIRFIELD REQUIREMENTS

The analyses of the operational capacity and the critical design aircraft are used to determine airfield needs. This includes runway configuration, dimensional standards, and pavement strength, as well as navigational aids and lighting.

RUNWAY CONFIGURATION

Key considerations in the runway configuration of an airport involve the orientation for wind coverage and the operational capacity of the runway system. FAA Advisory Circular 150/5300-13, *Airport Design,* recommends that a crosswind runway should be made available when the primary runway orientation provides less than 95 percent wind coverage for any aircraft forecast to use the airport on a regular basis. The 95 percent wind coverage is computed on the basis of the crosswind component not exceeding 10.5 knots (12 mph) for ARC A-I and B-I; 13 knots (15 mph) for ARC A-II and B-II; 16 knots (18 mph) for ARC A-III, B-III, and C-I through B-I; and 20 knots (23 mph) for ARC C-III through D-IV.

Wind data at Eric Marcus Municipal Airport is not available. The nearest weather observation system to Ajo is at Gila Bend Municipal Airport, located approximately 31 nautical miles north of Eric Marcus Municipal Airport. While this wind data may not exactly represent wind conditions at Eric Marcus Municipal Airport due to differences in topography, it gives a generalized summary of prevailing winds in the region. 18 years (1990-2008) of accumulated wind data was collected from Gila Bend Municipal Airport by the National Oceanic and Atmospheric Administration (NOAA). This information has been used to produce a wind rose for Eric Marcus Municipal Airport. This data is graphically depicted on the wind rose in **Exhibit 3B**.

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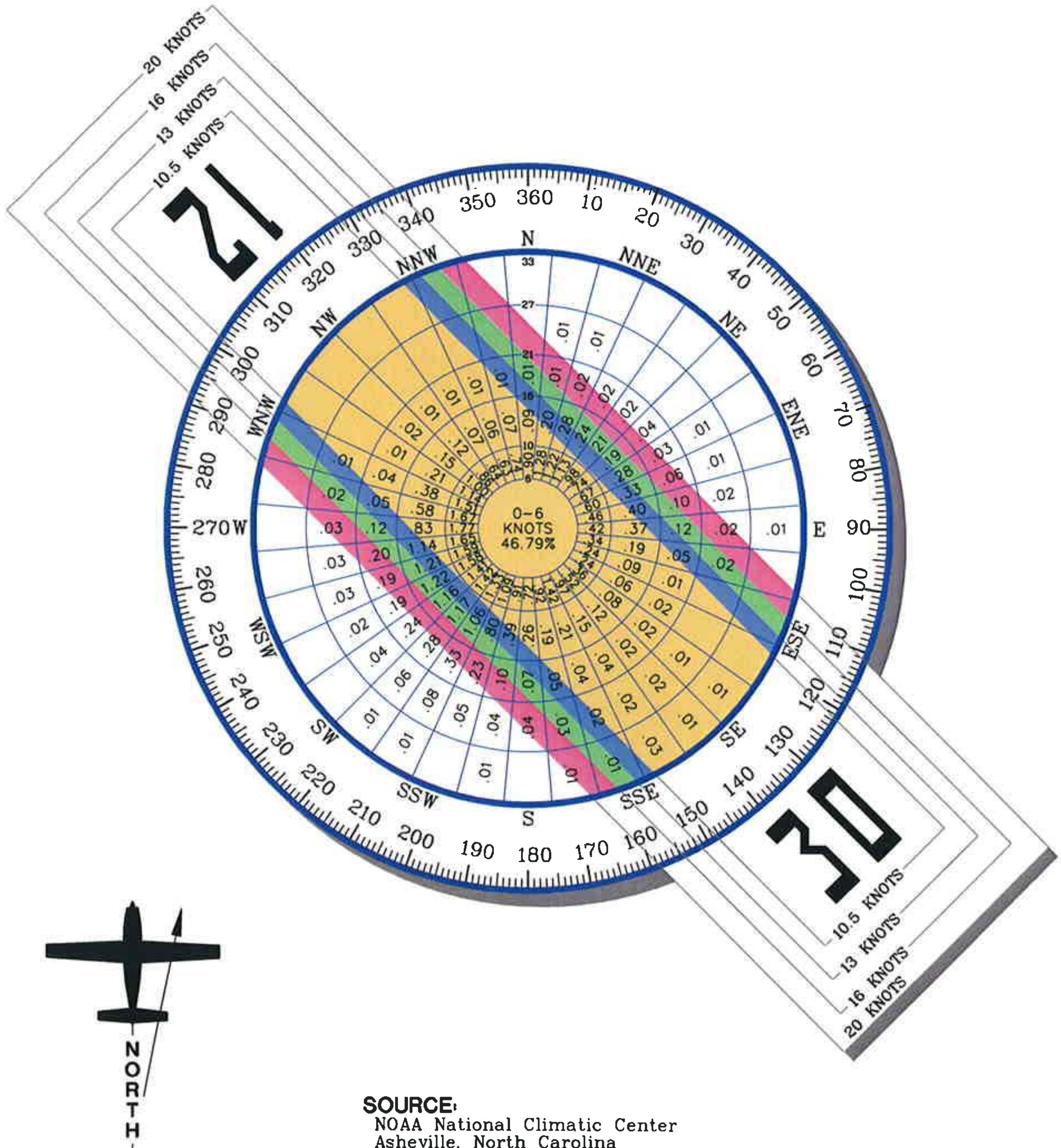
ALL WEATHER WIND COVERAGE

Runway	10.5 Knots	13 Knots	16 Knots	20 Knots
Runway 12-30	*87.40%*	*92.52%*	*97.49%*	*99.30%*



Magnetic Variance
11° 17' East (January 2009)
Annual Rate of Change
00° 05' West (January 2009)

SOURCE:
NOAA National Climatic Center
Asheville, North Carolina
Gila Bend Municipal Airport (E63)
Gila, Arizona

OBSERVATIONS:
71,024 All Weather Observations
12/1990-09/2008

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Exhibit 3B
WIND ROSE

Runway 12-30 provides 87.4 percent coverage for 10.5 knot crosswinds, 92.5 percent coverage for 13 knot crosswinds, 97.5 percent coverage for 16 knot crosswinds, and 99.3 percent coverage for 20 knot crosswinds. Based on this data, Runway 12-30 does not meet the 95 percent wind coverage design standard. The previous master plan recommended reactivating Runway 5-23 as a crosswind runway. However, due to the extremely low level of activity at the airport, maintaining a dual runway system would not be feasible.

RUNWAY DIMENSIONAL REQUIREMENTS

Runway dimensional standards include the length and width of the runway, as well as the dimensions associated with runway safety areas and other clearances. These requirements are based upon the design aircraft, or group of aircraft. The runway length must consider the performance characteristics of individual aircraft types, while the other dimensional standards are generally based upon the most critical airport reference code expected to use the runway. Dimensional standards are outlined for the planning period for Runway 12-30.

Runway Length

The aircraft performance capability is a key factor in determining the runway length needed for takeoff and landing. The performance capability and, subsequently, the runway length requirement of a given aircraft type can be affected by the elevation of the airport, the air temperature, and the operating weight of the aircraft.

The airport elevation at Eric Marcus Municipal Airport is 1,458 feet above mean sea level (MSL). The mean maximum daily temperature during the hottest month is 103.0 degrees Fahrenheit.

For Eric Marcus Municipal Airport, due to the low level of activity, a runway length that will meet the needs of exclusively small aircraft weighing 12,500 pounds or less will be sufficient. According to runway length adjustment charts in AC 150/5325-4B, *Runway Length Requirements for Airport Design*, when adjusting for the elevation and ambient temperature of Eric Marcus Municipal Airport, 95 percent of small aircraft can operate on a 3,800-foot long runway. Runway 12-30 meets this length recommendation. This runway length will meet aircraft demands through the planning period and therefore should be maintained through the long range planning horizon.

Pavement Strength

An important feature of airfield pavement is the ability to withstand repeated use by aircraft of significant weight. Runway 12-30 is strength-rated at 12,000 pounds single wheel loading (SWL). This pavement strength can accommodate aircraft such as the Beech King Air 100. All existing based aircraft weigh less than 12,000 pounds SWL, and the airport is not anticipated to base aircraft weighing more than 12,000 pounds SWL throughout the planning period.

Therefore, this pavement strength should be maintained through the long term planning horizon.

Dimensional Design Standards

Runway dimensional design standards define the widths and clearances required to optimize safe operations in the landing and takeoff areas. These dimensional standards vary depending upon the ARC for the runway. **Table 3C** outlines key dimensional standards for the airport reference codes most applicable to Eric Marcus Municipal Airport, both now and in the future.

TABLE 3C
Airfield Design Standards
Eric Marcus Municipal Airport

Airport Reference Code	Current Runway 12-30 (ft.)	ARC B-I Small Airplanes Exclusive (ft.)
Runway Width	60	60
Runway Safety Area		
Width	120	120
Length Beyond End	240	240
Runway Object Free Area		
Width	250	250
Length Beyond End	240	240
Runway Centerline to:		
Holding Position	125	125
Parallel Taxiway	N/A	150
Parallel Runway	N/A	700
Taxiway Width	35	25
Taxiway Centerline to:		
Fixed or Movable Object	44.5	44.5
Parallel Taxiway	N/A	69
Taxilane Centerline to:		
Fixed or Movable Object	39.5	39.5
Parallel Taxilane	N/A	64
Runway Protection Zones - One mile or greater visibility		
Inner Width	250	250
Length	1,000	1,000
Outer Width	450	450

Runway 12-30 currently meets all ARC B-I small airplane exclusive design requirements and should be planned to maintain these design standards through the long-range planning horizon. A brief description of the FAA design standards is provided below.

Runway Width – The existing runway pavement width of 60 feet meets the ARC B-I small airplane exclusive design standard.

Runway Safety Area – The runway safety area (RSA) is defined in FAA Advisory Circular 150/5300-13, *Airport Design*, as a surface surrounding the runway, prepared or suitable for reducing the risk of damage to airplanes in the event of an overshoot, undershoot, or excursion from the runway. The RSA is centered on the runway and extends beyond either end. The FAA requires the RSA to be cleared and graded, drained by grading or storm sewers, capable of accommodating fire and rescue vehicles, and free of obstacles not fixed by navigational purposes. The RSA standard for Category B-I small airplane exclusive is 120 feet wide and extends 240 feet beyond each runway end.

Runway Object Free Area – The object free area (OFA) is an area centered on the runway to enhance the safety of aircraft operations by having an area free of objects, except for objects that need to be located in the OFA for air navigation or ground maneuvering purposes. The OFA must provide clearance of all ground-based objects protruding above the RSA edge elevation, unless the object is fixed by a function serving air or ground navigation. OFA design standards for ARC B-I extend 240 feet beyond the runway end and 250 feet in width.

Aircraft Holding Positions – Holdlines identify the location where a pilot should assure there is adequate separation with other aircraft before proceeding onto the runway. The current hold positions for Runway 12-30 are marked 125 feet from the runway centerline on each connecting taxiway. This 125-foot separation meets the standard for ARC B-I runways.

Runway Protection Zone – The runway protection zone (RPZ) is an area off the runway end that enhances the protection of people and property on the ground. This is best achieved through airport owner control over the RPZs. Such control includes maintaining RPZ areas clear of incompatible objects and activities.

The RPZ is trapezoidal in shape and is centered on the extended runway centerline. The dimensions of the RPZ are a function of the critical aircraft and the approach visibility minimums associated with the runway. The existing RPZs on each end of Runway 12-30 meet design requirements for small airplane exclusive runways and fall entirely on airport property.

Taxiways - Taxiways are constructed primarily to facilitate aircraft movements to and from the runway system. Some taxiways are necessary simply to provide access between the aprons and runways, whereas other taxiways become necessary as activity increases at an airport to provide safe and efficient use of the airfield.

As detailed in Chapter One, Runway 12-30 is served by two entrance/exit taxiways (A1 and A2) with widths of 35 feet. This width exceeds the ARC B-I small airplane exclusive design standard of 25 feet. To improve safety conditions at the airport, it is recommended that a turnaround be constructed at the end of Runway 12. When aircraft back-taxi, it becomes necessary to make 180 degree turns at the runway end. A turnaround will allow aircraft to make these turns safely. Dimensional and clearance standards for the taxiways are depicted on **Table 3C**.

NAVIGATIONAL AIDS AND INSTRUMENT APPROACH PROCEDURES

Navigational Aids

Navigational aids are electronic devices that transmit radio frequencies, which properly equipped aircraft and pilots translate into point-to-point guidance and position information. The very high frequency omnidirectional range (VOR), Global Positioning System (GPS), and LORAN-C are available for pilots to navigate to and from Eric Marcus Municipal Airport. These systems are sufficient for navigation to and from the airport; therefore, no other navigational aids are needed at the airport.

Instrument Approach Procedures

Instrument approach procedures consist of a series of predetermined maneuvers established by the FAA for navigation during inclement weather conditions. Currently, Eric Marcus Municipal Airport is not equipped with instrument approach procedures. The airport experiences very limited amounts of inclement weather conditions during the year, and with the airport's low activity level, the implementation of an instrument approach procedure would be economically infeasible. Eric Marcus Municipal Airport should remain exclusively a visual approach airport through the planning period.

AIRFIELD LIGHTING, MARKING, AND SIGNAGE

There are a number of lighting and pavement marking aids serving pilots using Eric Marcus Municipal Airport. These lighting and marking aids assist pilots in locating the airport during night or poor weather conditions, as well as assist in the ground movement of aircraft.

Identification Lighting

The location of an airport at night is universally indicated by a rotating beacon. The rotating beacon at the airport is located at the top of the southernmost T-hangar facility. This is sufficient and should be maintained through the planning period.

Runway and Taxiway Lighting

The medium intensity runway edge lighting (MIRL) currently available on Runway 12-30 will be adequate for the planning period. Taxiways A1 and A2 are equipped with taxiway edge reflective delineators, which will be adequate through the planning period.

Airfield Signs

Airfield signage assists pilots in identifying their location on the airport. Eric Marcus Municipal Airport is not equipped with airfield signage. Signs located at intersections of taxiways can provide crucial information to avoid conflicts between moving aircraft and potential runway incursions. Airfield signage should be incorporated at the airport.

Visual Approach Lighting

The landing phase of any flight at Eric Marcus Municipal Airport must be conducted in visual conditions. To provide pilots with visual guidance information during landings to the runway, electronic visual approach aids are commonly provided at airports. Both runway ends are currently equipped with precision approach path indicators (PAPI-2s). These lighting systems should be maintained through the planning period.

Threshold Lighting

Runway threshold lighting identifies the runway end for aircraft on approach and departure. Each runway end has three elevated green/red lights on each side of the threshold. Threshold lights are green in the direction of landing and are red in the opposite direction. These threshold lights should be maintained through the planning period.

Pilot-Controlled Lighting

Eric Marcus Municipal Airport is equipped with pilot-controlled lighting (PCL). PCL allows pilots to control the intensity of the runway lighting using the radio transmitter in the aircraft. PCL also provides for more efficient use of airfield lighting energy. A PCL system turns the airfield lights off or to a lower intensity when not in use. Similar to changing the intensity of the lights, pilots can turn up the lights using the radio transmitter in the aircraft. This system should be maintained through the planning period.

Pavement Markings

In order to facilitate the safe movement of aircraft about the field, airports use pavement markings, lighting, and signage to direct pilots to their destinations. Runway markings are designed according to the type of instrument approach available on the runway. FAA Advisory Circular 150/5340-1H, *Marking of Paved Areas on Airports*, provides the guidance necessary to design airport markings.

Runway 12-30 currently has basic (visual) markings, which identify the runway centerline, designation, and side strips. These basic markings will be adequate through the planning period.

Holdlines need to be marked on all taxiways connecting to the runway.

The holdlines for Runway 12-30 are currently placed 125 feet from the runway centerline, which meets ARC B-I small airplane exclusive standards. These markings assist in reducing runway incursions as aircraft must remain behind the holdline until taking the active runway for departure.

Taxiway and apron areas also require marking to assure that aircraft remain on the pavement and clear of any objects located along the taxiway/taxilane. Yellow centerline stripes are currently painted on both taxiway surfaces at the airport to provide assistance to pilots in taxiing along these surfaces at the airport. Besides routine maintenance, these markings will be sufficient through the planning period.

LANDSIDE FACILITIES

Landside facilities are those necessary for handling general aviation aircraft while on the ground. This section is devoted to identifying landside facility needs during the planning period for the following types of facilities normally associated with general aviation terminal areas:

- Hangars
- Aircraft Parking Apron
- Support Facilities

HANGARS & APRON

Existing hangars on the airport include two T-hangar facilities and a single portable shade hangar facility. These facilities provide a combined nine aircraft storage units. The airport currently has three based aircraft with a possibility of an additional two based through the planning period. Therefore, the existing hangar facilities will be sufficient to accommodate potential hangar demands. The hangar requirements summary is presented in **Table 3D**.

TABLE 3D
Landside Facilities Requirements
Eric Marcus Municipal Airport

	Available	Current Need	Short Term	Intermediate Term	Long Term
HANGAR REQUIREMENTS					
Based Aircraft		3	3	4	5
Hangar Positions	9	3	3	4	5
APRON REQUIREMENTS					
Transient/Based Tie-down Positions	9	2	2	2	3
Transient/Based Apron Area (s.y.)	82,000	1,000	1,000	1,000	1,500

Apron space at Eric Marcus Municipal Airport is in abundance. However, a significant portion of the apron is in very poor condition and would need to be reconstructed for regular use. Presently the apron has nine aircraft tiedown spaces which are used on an infrequent basis. Based on the airport's forecasted peak busy day itinerant operations, long term demand for apron parking positions is three, as shown in **Table 3D**. A planning criterion of 500 square yards per tiedown space was used to estimate future apron area demand. The existing apron will be adequate through the planning period.

SUPPORT FACILITIES

Various facilities that do not logically fall within classifications of airfield or general aviation facilities have been identified for inclusion in this Master Plan. Facility requirements have been identified for these remaining facilities:

- Airport Access
- Aviation Fuel Storage
- Perimeter Fencing

Airport Access

In airport facility planning, both on- and off-airport vehicle access is important. For the convenience of the user (and to provide maximum capacity), access to the airport should include (to the extent practical) connections to the major arterial roadways near the airport.

Access to Eric Marcus Municipal Airport is available from State Highway 85. State Route 85 is a two-lane highway that runs parallel to the airport's western property line border. Mead Road, a paved two-lane roadway, intersects with Highway 85 northwest of the airport and extends to an airport access road east of the airport's unpaved automobile parking lot. These roadways and the unpaved parking lot should be adequate to meet the airport's needs through the planning period.

Aviation Fuel Storage

The airport does not currently have fuel storage capabilities. With the current and forecast demand levels, fuel storage will not be needed at Eric Marcus Municipal Airport through the planning period.

Perimeter Fencing

Perimeter fencing is used at airports to primarily secure the aircraft operations area. The physical barrier of perimeter fencing provides the following functions:

- Gives notice of the legal boundary of the outermost limits of a facility or security-sensitive area.
- Assists in controlling and screening authorized entries into a secured area by deterring entry elsewhere along the boundary.
- Deters casual intruders from penetrating a secured area by presenting a barrier that requires an overt action to enter.
- Demonstrates the intent of an intruder by their overt action of gaining entry.

- Causes a delay to obtain access to a facility, thereby increasing the possibility of detection.

- Creates a psychological deterrent.

- Optimizes the use of security personnel while enhancing the capabilities for detection and apprehension of unauthorized individuals.

- Demonstrates a corporate concern for facility security.

- Provides a cost-effective method of protecting facilities.

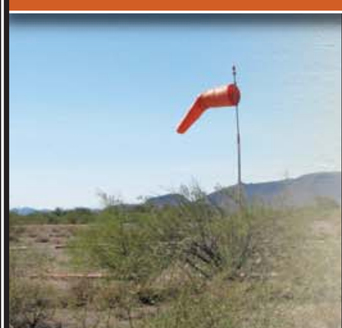
- Limits inadvertent access to the aircraft operations area by wildlife.

The airport perimeter is equipped with cattle fencing, which provides no added security for the airfield or hangar facilities. Six-foot chain-link fencing with three-strand barbed wire security fencing should be constructed on the airport's perimeter during the planning period. This will include manual access gates near the hangar facilities and at various locations around the airport's perimeter to control access to the airfield and hangar facilities.

SUMMARY

The intent of this chapter has been to outline the facilities required to meet aviation demands projected for Eric Marcus Municipal Airport through the long term planning horizon. A summary of these facility requirements is depicted on **Exhibit 3C**. Following the facility requirements determination, the next step is to develop alternatives that analyze the future direction of the airport. The remainder of the Master Plan will be devoted to outlining this direction, its schedule, and its costs.

08MP05-3C-12/7/09

	Available	Short Term Need	Long Term Need
RUNWAYS			
	**Runway 12-30** 3,800' x 60' ARC B-I Small Airplane Exclusive 12,000# SWL PAPI-2 Visual Marking	**Runway 12-30** 3,800' x 60' ARC B-I Small Airplane Exclusive 12,000# SWL PAPI-2 Visual Marking	**Runway 12-30** 3,800' x 60' ARC B-I Small Airplane Exclusive 12,000# SWL PAPI-2 Visual Marking
TAXIWAYS			
	Entrance/Exit Taxiways A1 & A2 35' Wide Delineators	Entrance/Exit Taxiways A1 & A2 35' Wide Delineators Airfield Signs	Entrance/Exit Taxiways A1 & A2 35' Wide Delineators Airfield Signs Taxiway Turnaround Runway 12 End
HANGARS AND APRON			
	Hangar Positions (9) Transient / Based Apron Positions (9) Apron Area (s.y.) 82,000	Hangar Positions (3) Transient / Based Apron Positions (2) Apron Area (s.y.) 1,000	Hangar Positions (5) Transient / Based Apron Positions (3) Apron Area (s.y.) 1,500
OTHER			
	Segmented Circle/ Lighted Wind Sock	Perimeter Fencing Segmented Circle/ Lighted Wind Sock	Perimeter Fencing Segmented Circle/ Lighted Wind Sock

KEY:

ARC - Airport Reference Code
PAPI - Precision Approach Path Indicator
SWL - Single Wheel Loading

PIMA COUNTY DOT

Exhibit 3C
FACILITY REQUIREMENTS