

---

## CAPITAL IMPROVEMENT PROGRAM



# CAPITAL IMPROVEMENT PROGRAM

The analyses conducted in previous chapters outlined airport development needs to meet projected aviation demand for the next 20 years based on forecast activity, facility needs, and operational efficiency. Next, basic economic, financial, and management rationale is applied to each development item so that the feasibility of each item contained in the plan can be assessed. The purpose of this chapter is to identify capital needs at Lake Havasu City Municipal Airport and identify when these should be implemented according to need, function, and demand.

The presentation of the capital improvement program (CIP) has been organized into two sections. First, the airport's capital needs, based on the projected CIP, are presented in narrative and graphic form. Second, capital improvement

funding sources on the federal, state, and local levels are identified and discussed.

## ***DEMAND-BASED PLAN***

The Lake Havasu City Municipal Airport Master Plan has been developed according to a demand-based schedule. Demand-based planning establishes guidelines for the airport based upon airport activity levels instead of guidelines based upon subjective factors such as points in time. By doing so, the levels of activity derived from the demand forecasts can be related to the actual capital investments needed to safely and efficiently accommodate the level of demand being experienced at the airport. More specifically, the intention of this Master Plan is that the facility improvements needed to serve



new levels of demand should only be implemented when the levels of demand experienced at the airport justify their implementation.

As discussed, most development items included in the recommended concept will need to follow demand indicators. For example, the plan includes the construction of new hangar aprons and taxilanes. Based aircraft will be the indicator for additional hangar needs. If based aircraft growth occurs as projected, additional hangars will need to be constructed to meet the demand. If growth slows or does not occur as projected, hangars and pavement projects can be delayed. As a result, capital expenditures will be undertaken as needed, which leads to a responsible use of capital assets. Some development items do not correspond specifically to actual demand levels, such as maintenance. Maintenance projects are typically associated with day-to-day operations or

aging factors and should be monitored and identified by airport staff.

A demand-based Master Plan does not specifically require the implementation of any of the demand-based improvements. Instead, it is envisioned that implementation of any Master Plan improvement would be examined against the demand levels prior to implementation. In many ways, this Master Plan is similar to a community's general plan. The Master Plan establishes a plan for the use of airport facilities consistent with the potential aviation needs and capital needs required to support that use. However, individual projects in the plan are not implemented until the need is demonstrated and the project is approved for funding.

**Table 6A** summarizes the key demand milestones for each of the three planning horizons.

<b>TABLE 6A Planning Horizon Milestone Summary Lake Havasu City Municipal Airport</b>				
	<b>2006</b>	<b>Short Term</b>	<b>Intermediate Term</b>	<b>Long Term</b>
<b>BASED AIRCRAFT</b>	<b>229</b>	<b>265</b>	<b>295</b>	<b>355</b>
<b>ANNUAL ENPLANED PASSENGERS</b>	<b>6,085</b>	<b>9,500</b>	<b>11,000</b>	<b>16,000</b>
<b>Itinerant Operations</b>				
Air Carrier	1,254	1,800	1,900	2,400
Air Taxi	1,600	2,100	2,700	4,400
General Aviation	22,600	28,000	29,900	38,300
Military	360	400	400	400
Total Itinerant	25,814	32,300	34,900	45,500
<b>Local Operations</b>				
General Aviation	23,360	30,300	36,500	46,900
Total Local	23,360	30,300	36,500	46,900
<b>TOTAL ANNUAL OPERATIONS</b>	<b>49,174</b>	<b>62,600</b>	<b>71,400</b>	<b>92,400</b>

## ***AIRPORT DEVELOPMENT SCHEDULE AND COST SUMMARIES***

Once the specific needs for the airport have been established, the next step is to determine a realistic capital improvement schedule and associated costs for implementing the plan. This section will identify these projects and the overall cost of each item in the development plan. The program outlined in the following pages has been evaluated from a variety of perspectives and represents the culmination of a comparative analysis of basic budget factors, demand, and priority assignments.

The recommended improvements are grouped by planning horizons: short term, intermediate term, and long term. Each year, Lake Havasu City Municipal Airport will need to re-examine the priorities for funding, adding or removing projects on the capital programming lists.

While some projects will be demand-based, others will be dictated by design standards, safety, or rehabilitation needs. In putting together a listing of projects, an attempt has been made to include anticipated rehabilitation needs and capital replacement needs through the planning period.

**Exhibit 6A** summarizes the CIP for Lake Havasu City Municipal Airport through the planning period of this Master Plan. An estimate has been included with each project of federal and state funding eligibility, although

this amount is not guaranteed. **Exhibit 6B** graphically depicts development staging. As a Master Plan is a conceptual document, implementation of these capital projects should only be undertaken after further refinement of their design and costs through architectural and engineering analyses.

The cost estimates presented in this chapter have been increased to allow for contingencies that may arise on the project. Capital costs presented here should be viewed only as estimates subject to further refinement during design. Nevertheless, these estimates are considered sufficiently accurate for planning purposes. Cost estimates for each of the development projects listed in the CIP are listed in current (2008) dollars. Adjustments will need to be applied over time as construction costs or capital equipment costs change.

In an effort to further identify capital needs at the airport, the proposed projects can be categorized as follows:

- 1) **Safety/Security (SS)** – these are capital needs considered necessary for operational safety and protection of aircraft and/or people and property on the ground near the airport.
- 2) **Environmental (EN)** – these are capital needs which are identified to enable the airport to operate in an environmentally acceptable manner or meet needs identified in the Environmental Evaluation (Chapter Five).

- 3) **Maintenance (MN)** – these are capital needs required to maintain the existing infrastructure at the airport.
- 4) **Efficiency (EF)** – these are capital needs intended to optimize aircraft ground operations or passengers' use of the terminal building.
- 5) **Demand (DM)** – these are capital needs required to accommodate levels of aviation demand. The implementation of these projects should only occur when demand for these needs is verified.
- 6) **Opportunities (OP)** – these are capital needs intended to take advantage of opportunities afforded by the airport setting. Typically, this will involve improvements to property intended for lease to aviation-related commercial and industrial developments. In most cases, projects under this category will be listed as intermediate or long term to be implemented as marketing opportunities present themselves.

Each capital need is categorized according to this schedule. The applicable category (or categories) included are presented in **Table 6B**.

The projects listed in the short term period include all categories and focus heavily on safety and security as well as efficiency. Items include upgrading airfield signage, improving existing utility infrastructure on the airfield, and enhancing aircraft parking apron and beacon lighting. Also included in the short term is the relocation of air cargo operations to a more desirable

location farther north. This will not only provide a safer and more secure environment, but also be more efficient for aircraft and vehicles transporting cargo. Also included is the construction of an additional high-speed taxiway exit connecting Runway 14-32 to parallel Taxiway A. Finally, existing airfield pavements are to be assessed and rehabilitated as warranted.

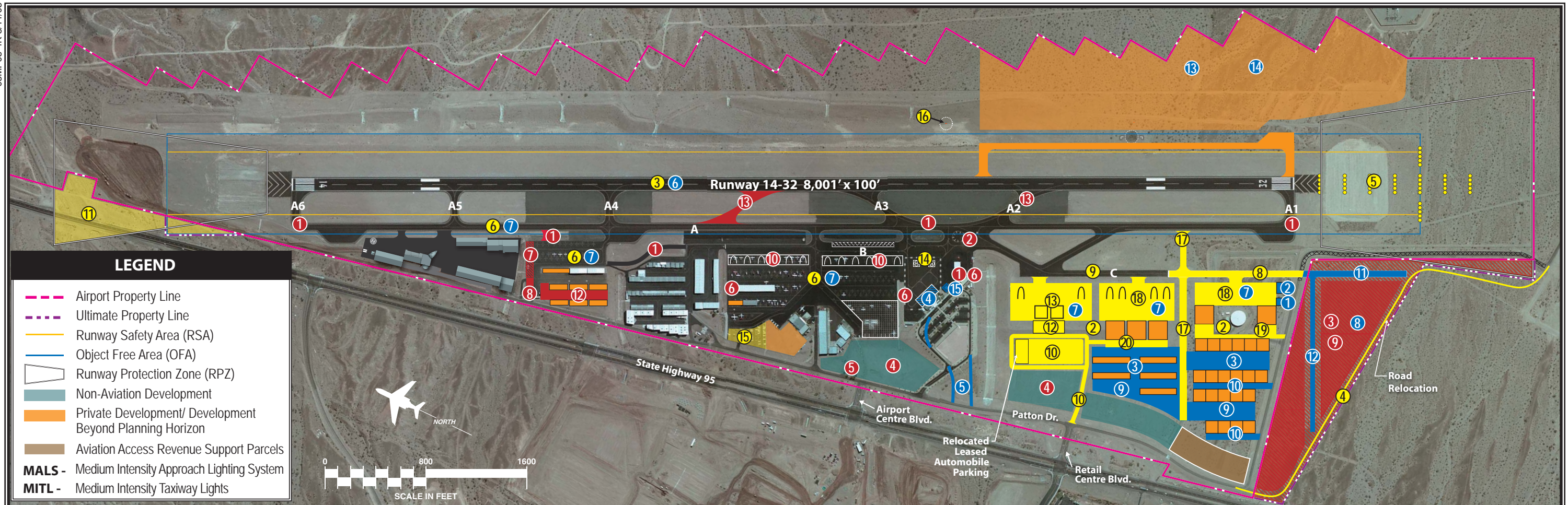
Intermediate term improvements relate to the development of the southwest side of the airport with the construction of a new passenger terminal building and extension of Taxiway C farther south. Additional aircraft parking aprons are proposed to support aviation-related growth. Demand will dictate the timeframe and to what extent these projects occur. Safety projects related to the airport transitioning to Airport Reference Code (ARC) C/D-II status are called for during this time and include the relocation of the perimeter road on the southwest side of the airport and land acquisition on the north side of the airport. Projects related to improved instrument approach procedures on Runway 32 are also identified in the intermediate term.

Long term improvements focus on the continued development of the southwest area of the airport while also calling for continued rehabilitation of existing airfield infrastructure. It is during this time that the existing passenger terminal building can be transformed to accommodate air cargo operations and other potential aviation-related activities. Toward the end of

05MPO8-6A-10/1/08

CAPITAL IMPROVEMENT PROGRAM		TOTAL COST	FAA ELIGIBLE	ADOT ELIGIBLE	LOCAL SHARE
<b>Short Term Program (0-5 Years)</b>					
<b>2010</b>					
1	Airfield Signage Improvements and Modifications / Pavement Modifications	\$572,000	\$543,400	\$14,300	\$14,300
<b>Subtotal 2010</b>		<b>\$572,000</b>	<b>\$543,400</b>	<b>\$14,300</b>	<b>\$14,300</b>
<b>2011</b>					
2	Improve Existing Utility Infrastructure	\$173,000	\$164,350	\$4,325	\$4,325
3	Environmental Assessment for Land Acquisition	150,000	142,500	3,750	3,750
4	Land Assessment for Non-Aeronautical Use of Specific Parcels on Airport Property	25,000	0	0	25,000
<b>Subtotal 2011</b>		<b>\$348,000</b>	<b>\$306,850</b>	<b>\$8,075</b>	<b>\$33,075</b>
<b>2012</b>					
5	Remove Water Tank Adjacent to Patton Drive	\$140,500	\$0	\$0	\$140,500
6	Aircraft Parking Apron Lighting Enhancements	268,000	254,600	6,700	6,700
7	Designate Area on North Parking Apron for Air Cargo Operations	210,500	199,975	5,263	5,262
8	Construct Auto Truck Access/Parking on North Apron to Support Air Cargo Operations	282,400	268,280	7,060	7,060
<b>Subtotal 2012</b>		<b>\$901,400</b>	<b>\$722,855</b>	<b>\$19,023</b>	<b>\$159,522</b>
<b>2013</b>					
9	Acquire Approximately 23 Acres of Land Southwest of Airport (Approach Protection, Aviation Development, Buffer)	\$4,025,000	\$3,823,750	\$100,625	\$100,625
10	Redesignate Areas on Main Parking Apron for Large Aircraft Parking	171,500	162,925	4,287	4,288
11	Assess Airport Pavement Conditions for Future Rehabilitation Projects (Crack Seal)	30,000	28,500	750	750
<b>Subtotal 2013</b>		<b>\$4,226,500</b>	<b>\$4,015,175</b>	<b>\$105,662</b>	<b>\$105,663</b>
<b>2014</b>					
12	Construct Additional Apron/Taxilanes for Hangar Development	\$488,100	\$463,695	\$12,203	\$12,202
13	Construct High-Speed Taxiway Exit on West Side of Runway 14-32	539,000	512,050	13,475	13,475
14	Crack Seal Airport Pavements As Needed	147,600	140,220	3,690	3,690
<b>Subtotal 2014</b>		<b>\$1,174,700</b>	<b>\$1,115,965</b>	<b>\$29,368</b>	<b>\$29,368</b>
<b>Short Term Program Totals (0-5 Years)</b>		<b>\$7,222,600</b>	<b>\$6,704,245</b>	<b>\$176,428</b>	<b>\$341,927</b>
<b>Intermediate Term Program (6-10 Years)</b>					
1	Assess Airport Pavement Conditions for Future Rehabilitation Projects (Crack Seal)	\$30,000	\$28,500	\$750	\$750
2	Improve Infrastructure and Utilities for Southwest Development Area (Phase I)	189,000	179,550	4,725	4,725
3	Rehabilitate Runway 14-32	1,768,000	1,679,600	44,200	44,200
4	Relocate Airport Perimeter Road Southwest Side of Airport	1,130,000	1,073,500	28,250	28,250
5	Install MALS on Runway 32	738,000	701,100	18,450	18,450
6	Rehabilitate Active Taxiways, Taxilanes, and Aircraft Parking Aprons	2,309,000	2,193,550	57,725	57,725
7	Crack Seal Airport Pavements as Needed				
8	Extend Taxiway C 1,000' South for Aviation Development	240,000	228,000	6,000	6,000
9	Extend Taxiway C 1,000' South for Aviation Development	617,800	586,910	15,445	15,445
9	Install MITL on Existing Taxiway C	214,000	203,300	5,350	5,350

CAPITAL IMPROVEMENT PROGRAM		TOTAL COST	FAA ELIGIBLE	ADOT ELIGIBLE	LOCAL SHARE
<b>Intermediate Term Program (6-10 Years) continued</b>					
10	Construct Automobile Access Road and Parking Leading to New Terminal Building	1,756,000	1,668,200	43,900	43,900
11	Acquire Approximately 7.5 Acres of Land North of Runway (Safety Areas and Approach Protection)	1,312,500	1,246,875	32,813	32,812
12	Design and Construct New Terminal Building	6,003,000	5,702,850	150,075	150,075
13	Construct New Terminal Apron	1,987,000	1,887,650	49,675	49,675
14	Redesignate Portions of Existing Terminal Apron to Accommodate Helicopter Parking	193,000	183,350	4,825	4,825
15	Redesignate Existing Leased Automobile Parking Lot for Aviation Development	428,000	406,600	10,700	10,700
16	Relocate Segmented Circle and Wind Cone Farther Northeast on East Side of Runway 14-32	125,000	118,750	3,125	3,125
17	Construct Taxiway Extending from Parallel Taxiway A to the Southwest Development Area	850,500	807,975	21,262	21,263
18	Construct New Aircraft Aprons South of Relocated Terminal Area for Hangar Development, Aircraft Parking, and Aviation Support Facilities	2,664,000	2,530,800	66,600	66,600
19	Construct Additional Automobile Access Roads and Parking	665,700	632,415	16,643	16,642
<b>Intermediate Term Program Totals (6-10 Years)</b>		<b>\$23,220,500</b>	<b>\$22,059,475</b>	<b>\$580,513</b>	<b>\$580,512</b>
<b>Long Term Program (11-20 Years)</b>					
1	Construct Joint-Use Wash Rack for Aircraft and Airport Operations Equipment	\$316,000	\$300,200	\$7,900	\$7,900
2	Construct Permanent Airport Maintenance Facility	1,010,000	959,500	25,250	25,250
3	Construct Additional Apron/Taxilanes for Hangar Development and Aircraft Parking	2,099,300	1,994,335	52,482	52,483
4	Redesignate Existing Terminal Area for Air Cargo Operations	183,000	173,850	4,575	4,575
5	Realign Portions of Airport Centre Boulevard to Better Accommodate Ground Handling of Air Cargo	417,450	396,577	10,437	10,436
6	Rehabilitate Runway 14-32	1,869,500	1,776,025	46,738	46,737
7	Rehabilitate Active Taxiways, Taxilanes, and Aircraft Parking Aprons	5,103,000	4,847,850	127,575	127,575
8	Improve Infrastructure and Utilities for Southwest Development Area (Phase II)	470,000	446,500	11,750	11,750
9	Construct Additional Apron/Taxilanes for Hangar Development and Aircraft Parking	2,364,000	2,245,800	59,100	59,100
10	Construct Additional Automobile Access Roads and Parking	630,000	598,500	15,750	15,750
11	Extend Taxiway C 900 Feet South for Aviation Development	650,050	617,547	16,251	16,252
12	Construct Taxiway Leading to Aviation Access Revenue Support Parcels	767,250	728,887	19,181	19,182
13	Earthwork/Site Preparation for Development of Southeast Development Area	815,000	774,250	20,375	20,375
14	Improve Infrastructure and Utilities for Southeast Development Area	469,000	445,550	11,725	11,725
15	Construct Airport Traffic Control Tower (if necessary)	3,000,000	1,500,000	0	1,500,000
<b>Long Term Program Totals (11-20 Years)</b>		<b>\$20,163,550</b>	<b>\$17,805,371</b>	<b>\$429,089</b>	<b>\$1,929,090</b>
<b>TOTAL PROGRAM COST</b>		<b>\$50,606,650</b>	<b>\$46,569,091</b>	<b>\$1,186,030</b>	<b>\$2,185,529</b>



### SHORT TERM PROGRAM (0-5 Years)

- 2010**
- ① Airfield Signage Improvements and Modifications/Pavement Modifications
- 2011**
- ② Improve Existing Utility Infrastructure
  - ③ Environmental Assessment for Land Acquisition
  - ④ Land Assessment for Non-Aeronautical Use of Specific Parcels on Airport Property
- 2012**
- ⑤ Remove Water Tank Adjacent to Patton Drive
  - ⑥ Aircraft Parking Apron Lighting Enhancements
  - ⑦ Designate Area on North Parking Apron for Air Cargo Operations
  - ⑧ Construct Auto Truck Access/Parking on North Apron to Support Air Cargo Operations
- 2013**
- ⑨ Acquire Approximately 23 Acres of Land Southwest of the Airport (Approach Protection, Aviation Development, Buffer).
  - ⑩ Redesignate Areas on Main Parking Apron for Large Aircraft Parking
  - ⑪ Assess Airport Pavement Conditions for Future Rehabilitation Projects (Crack Seal)\*
- 2014**
- ⑫ Construct Additional Apron/Taxilanes for Hangar Development
  - ⑬ Construct High-Speed Taxiway Exit on West Side of Runway 14-32
  - ⑭ Crack Seal Airport Pavement as Needed\*

### INTERMEDIATE TERM PROGRAM (6-10 Years)

- ① Assess Airport Pavement Conditions for Future Rehabilitation Projects (Crack Seal)\*
- ② Improve Infrastructure and Utilities for Southwest Development Area (Phase I)
- ③ Rehabilitate Runway 14-32
- ④ Relocate Airport Perimeter Road on Southwest Side of Airport
- ⑤ Install MALS to Runway 32
- ⑥ Rehabilitate Active Taxiways, Taxilanes, and Aircraft Parking Aprons
- ⑦ Crack Seal Airport Pavement as Needed\*
- ⑧ Extend Taxiway C 1,000 Feet South for Aviation Development
- ⑨ Install MITL on Existing Taxiway C
- ⑩ Construct Automobile Access Road and Parking Leading to New Terminal Building
- ⑪ Acquire Approximately 7.5 Acres of Land North of Runway (Safety Areas and Approach Protection)
- ⑫ Design and Construct New Terminal Building
- ⑬ Construct New Terminal Apron
- ⑭ Redesignate Portions of Existing Terminal Apron to Accommodate Helicopter Parking
- ⑮ Redesignate Existing Leased Automobile Parking Lot for Aviation Development
- ⑯ Relocate Segmented Circle and Wind Cone Farther Northeast on East Side of Runway 14-32
- ⑰ Construct Taxiway Extending from Parallel Taxiway A to the Southwest Development Area
- ⑱ Construct New Aircraft Aprons South of Relocated Terminal Area for Hangar Development, Aircraft Parking, and Aviation Support Facilities
- ⑲ Construct Additional Automobile Access Roads and Parking

### LONG TERM PROGRAM (11-20 Years)

- ① Construct Joint-Use Wash Rack for Aircraft and Airport Operations Equipment
- ② Construct Permanent Airport Maintenance Facility
- ③ Construct Additional Apron/Taxilanes for Hangar Development and Aircraft Parking
- ④ Redesignate Existing Terminal Area for Air Cargo Operations
- ⑤ Realign Portions of Airport Centre Boulevard to Better Accommodate Ground Handling of Air Cargo
- ⑥ Rehabilitate Runway 14-32
- ⑦ Rehabilitate Active Taxiways, Taxilanes, and Aircraft Parking Aprons
- ⑧ Improve Infrastructure and Utilities for Southwest Development Area (Phase II)
- ⑨ Construct Additional Apron/Taxilanes for Hangar Development and Aircraft Parking
- ⑩ Construct Additional Automobile Access Roads and Parking
- ⑪ Extend Taxiway C 900 Feet South for Aviation Development
- ⑫ Construct Taxiway Leading to Aviation Access Revenues Support Parcels
- ⑬ Earthwork/Site Preparation for Development of Southeast Development Area
- ⑭ Improve Infrastructure and Utilities for Southeast Development Area
- ⑮ Construct Airport Traffic Control Tower (if necessary)

\* Not Depicted on Exhibit



the long term program, consideration is given to aviation-related develop-

ment on the southeast side of the airport.

<b>TABLE 6B</b> <b>Development Needs by Category</b> <b>Lake Havasu City Municipal Airport</b>		
<b>PROJECT DESCRIPTION</b>		<b>CATEGORY</b>
<b>SHORT TERM PROGRAM (0-5 YEARS)</b>		
1	Airfield Signage Improvements and Modifications/Pavement Modifications	SS
2	Improve Existing Utility Infrastructure	SS
3	Environmental Assessment for Land Acquisition	EN
4	Land Assessment for Non-Aeronautical Use of Specific Parcels on Airport Property	OP
5	Remove Water Tank Adjacent to Patton Drive	OP
6	Aircraft Parking Apron Lighting Enhancements	SS
7	Designate Area on North Parking Apron for Air Cargo Operations	SS/EF
8	Construct Auto Truck Access/Parking on North Apron to Support Air Cargo Operations	SS/EF
9	Acquire Approximately 23 Acres of Land Southwest of Airport (Approach Protection, Aviation Development, Buffer)	SS/DM
10	Redesignate Areas on Main Parking Apron for Large Aircraft Parking	SS/DM
11	Assess Airport Pavement Conditions for Future Rehabilitation Projects (Crack Seal)	MN
12	Construct Additional Apron/Taxilanes for Hangar Development	DM
13	Construct High-Speed Taxiway Exit on West Side of Runway 14-32	SS/EF
14	Crack Seal Airport Pavements As Needed	MN
<b>INTERMEDIATE TERM PROGRAM (6-10 YEARS)</b>		
1	Assess Airport Pavement Conditions for Future Rehabilitation Projects (Crack Seal)	MN
2	Improve Infrastructure and Utilities for Southwest Development Area (Phase I)	DM
3	Rehabilitate Runway 14-32	MN
4	Relocate Airport Perimeter Road on Southwest Side of Airport	SS
5	Install MALs on Runway 32	SS/DM
6	Rehabilitate Active Taxiways, Taxilanes, and Aircraft Parking Aprons	MN
7	Crack Seal Airport Pavements As Needed	MN
8	Extend Taxiway C 1,000 Feet South for Aviation Development	DM
9	Install MITL on Existing Taxiway C	SS
10	Construct Automobile Access Road and Parking Leading to New Terminal Building	DM
11	Acquire Approximately 7.5 Acres of Land North of Runway (Safety Areas and Approach Protection)	SS
12	Design and Construct New Terminal Building	EF/DM
13	Construct New Terminal Apron	DM
14	Redesignate Portions of Existing Terminal Apron to Accommodate Helicopter Parking	SS/EF

<b>TABLE 6B (Continued)</b> <b>Development Needs by Category</b> <b>Lake Havasu City Municipal Airport</b>		
<b>PROJECT DESCRIPTION</b>		<b>CATEGORY</b>
<b>INTERMEDIATE TERM PROGRAM (6-10 YEARS) (Continued)</b>		
15	Redesignate Existing Leased Automobile Parking Lot for Aviation Development	DM/OP
16	Relocate Segmented Circle and Wind Cone Farther Northeast on East Side of Runway 14-32	SS
17	Construct Taxiway Extending from Parallel Taxiway A to the Southwest Development Area	EF/OP
18	Construct New Aircraft Aprons South of Relocated Terminal Area for Hangar Development, Aircraft Parking, and Aviation Support Facilities	DM
19	Construct Additional Automobile Access Roads and Parking	DM
<b>LONG TERM PROGRAM (11-20 YEARS)</b>		
1	Construct Joint-Use Wash Rack for Aircraft and Airport Operations Equipment	EN/DM
2	Construct Permanent Airport Maintenance Facility	EF
3	Construct Additional Apron/Taxilanes for Hangar Development and Aircraft Parking	DM
4	Redesignate Existing Terminal Area for Air Cargo Operations	OP
5	Realign Portions of Airport Centre Boulevard to Better Accommodate Ground Handling of Air Cargo	SS
6	Rehabilitate Runway 14-32	MN
7	Rehabilitate Active Taxiways, Taxilanes, and Aircraft Parking Aprons	MN
8	Improve Infrastructure and Utilities for Southwest Development Area (Phase II)	DM
9	Construct Additional Apron/Taxilanes for Hangar Development and Aircraft Parking	DM
10	Construct Additional Automobile Access Roads and Parking	DM
11	Extend Taxiway C 900 Feet South for Aviation Development	DM
12	Construct Taxiway Leading to Aviation Access Revenue Support Parcels	DM
13	Earthwork/Site Preparation for Development of Southeast Development Area	DM
14	Improve Infrastructure and Utilities for Southeast Development Area	DM
15	Construct Airport Traffic Control Tower (if necessary)	SS
MALS - Medium Intensity Approach Lighting System MITL - Medium Intensity Taxiway Lights Categories: SS - Safety/Security EN - Environmental MN - Maintenance EF - Efficiency DM - Demand OP – Opportunities		

A primary assumption in the capital improvement program is that all future hangar construction will be completely private. The capital plan does provide for the City to construct apron and taxilane improvements leading to

proposed hangar development which is Federal Aviation Administration (FAA) and Arizona Department of Transportation (ADOT) – Aeronautics Division grant eligible. This reduces

the overall development costs for the private hangar construction.

## **SHORT TERM PROGRAM**

The short term planning horizon CIP considers 14 projects for the five-year period as presented on **Exhibit 6A** and illustrated on **Exhibit 6B**. The first year of the CIP considers projects that may be accomplished in the 2010 federal funding cycle (October 2009 to September 2010). A large majority of these projects deal with providing more efficient operational activity for aircraft utilizing the airport and improving and enhancing existing infrastructure at the airport.

The first project listed in the plan calls for signage improvements and other airfield modifications to provide a safer environment. This includes replacing the existing electrical vault on the southeast side of the airport rescue and firefighting (ARFF) facility with a newer and more efficient one, providing medium intensity taxiway lighting (MITL) on Taxiway B, and updating signage serving the runway and taxiway system. In addition, pavement modifications to the north area of the airport are proposed to help provide more efficient aircraft flow.

Another safety-related project in the short term program involves the replacement of a fire hydrant located east of the terminal building between Taxiways A and B with a flush mount unit. The existing fire hydrant protrudes upward and poses a potential hazard to aircraft taxiing in its vicinity. The flush mount unit will enhance

safety and allow the area to be used for overflow parking of aircraft if other dedicated parking aprons are full.

The next project calls for an environmental assessment (EA) to comply with the *National Environmental Policy Act* (NEPA) and permit the fee simple acquisition of approximately 23 acres on the southwest side of the airport for future aviation development. Projects such as land acquisition require an EA under FAA guidance. A Finding of No Significant Impact (FONSI) will be required prior to the acquisition of land.

The next two projects deal specifically with maximizing land on airport property for revenue support. As previously discussed, portions of land on the west side of the airport are not provided airside access. As a result, the utility of these areas is limited to non-aviation development in the form of commercial and/or industrial activities. These uses are allowable by the FAA as long as they are not minimizing the availability of aviation-related property. Assessing certain parcels and coordinating with the FAA will determine whether portions of airport property can be used for non-aviation purposes. In addition, the removal of an abandoned water tank adjacent to Patton Drive will provide a more aesthetic appeal to property that may be utilized for commercial or industrial use in the future.

Making upgrades to the existing aircraft parking apron lighting is also included in the short term CIP, as is the replacement of the airport beacon. These improvements will provide a sa-

fer and more secure environment and allow for maximum identification of the airport environment during night-time conditions.

The next two projects involve the relocation of air cargo operations to the north parking apron. Current air cargo activity is limited to the northwest corner of the main aircraft parking apron. Cargo aircraft must taxi adjacent to multiple aircraft parking areas and fixed base operator (FBO) activities in order to access the dedicated cargo area. Relocating air cargo to the north apron will provide aircraft more desirable access to the runway and taxiway system. A dedicated vehicle parking area immediately west of the cargo apron will allow for convenient automobile access from Patton Drive.

Once the EA is conducted on 23 acres of land adjacent to the southwest side of the airport, the fee simple property acquisition can occur. It is desirable for the airport to gain control over this property. With the onset of improved instrument approach procedures to Runway 32, the runway protection zone will expand significantly and include approximately 1.5 acres of this proposed land acquisition. The remaining property can be utilized for future aviation development and a buffer to proposed development farther south of the airport.

Additional parking space is needed for business turboprops and jets that operate at the airport. The current design of the main aircraft parking apron provides a limited number of marked tiedowns for large aircraft. This project would dedicate a minimum of 12 marked parking spaces ad-

jacent to Taxiway B on the main aircraft parking apron that will allow for convenient access to and from the runway and taxiway system for these larger aircraft. As demand dictates, additional taxilanes and apron space should be constructed at this time to accommodate hangar development adjacent to the north aircraft parking apron. Private hangar development in the form of T-hangars or shade hangars is proposed in this area.

Other projects in the short term include the construction of one high-speed taxiway exit on the west side of Runway 14-32 that better accommodates the 8,001 feet of usable runway length. The construction of this high-speed taxiway exit will complement the existing high-speed Taxiways A2 and A3, which were originally constructed to accommodate a 5,500-foot runway.

Remaining projects include the ongoing maintenance pertaining to Runway 14-32 and all taxiways, taxilanes, and aircraft parking aprons. A pavement evaluation is proposed toward the end of the short term planning horizon to assess the condition of pavements and the need for crack sealing. Shortly thereafter, those airport pavements in need of repair can be crack sealed.

Short term projects listed on **Exhibit 6A** and graphically depicted on **Exhibit 6B** have been estimated to cost approximately \$7.2 million. Of this total, \$6.7 million is eligible for FAA grant funding, \$176,400 is eligible for state funds, and the local share is projected to be approximately \$341,900.

## **INTERMEDIATE TERM PROGRAM**

The intermediate term CIP considers 19 projects for the airport during the six to ten-year timeframe. Due to the fluid nature of aviation growth, and the uncertainty of infrastructure and development needs more than five years into the future, the projects in the intermediate term were combined into a single project listing and not prioritized by year. However, the project listing is intended to depict a prioritization of projects as now anticipated to meet future demand. Intermediate term improvements are listed on **Exhibit 6A** and depicted on **Exhibit 6B**.

The initial project is the continued assessment of active airfield pavements to determine deficiencies and the need for crack sealing and/or other rehabilitation. Similar to what was called for in the short term program, crack sealing areas in need of repair will follow the pavement study.

The next project listed in the intermediate term involves infrastructure and utility improvements in the southwest development area. As shown on the recommended plan, this area is to be dedicated for the continued growth and development of the airport by accommodating hangar development, a new terminal building, and additional aircraft parking aprons and taxiways. Extending utility services to this area will allow for the future development of these facilities.

The next project is associated with rehabilitating Runway 14-32. The con-

dition of the runway pavement at this time will determine the scope of improvements needed. It can be expected that at least a slurry seal and re-application of runway markings will be needed.

Projects are also identified that relate to improved instrument approach procedures to Runway 32. The existing airport perimeter road located on the southwest side of the airport is to be relocated so it does not serve as a penetration to the proposed runway protection zone (RPZ) associated with a straight-in instrument approach procedure with visibility minimums as low as three-quarters of a mile. In order to obtain these proposed visibility minimums, a medium intensity approach lighting system (MALS) is to be implemented on Runway 32. Future design and engineering will determine the exact placement of the MALS, and as with any significant airport development, an EA will be conducted prior to the installation of the equipment. As previously discussed in Chapter Five, further analysis by the FAA will determine whether Runway 32 will be able to accommodate approach minimums with visibility as low as three-quarters of a mile. This determination could impact the degree to which these projects are implemented.

Next, projects are listed that call for improving conditions on existing airport pavements that could include crack sealing, slurry sealing, and/or other rehabilitation projects. The areas to be addressed include active Taxiways A, B, and C, taxilanes leading to hangar storage facilities, and

the terminal, main, and north aircraft parking aprons that support aircraft tiedowns and commercial aviation activities.

Extending Taxiway C 1,000 feet to the south and installing MITL on existing portions of the taxiway are also included in the intermediate term CIP. These improvements will provide for additional aviation development in the southwest area of the airport and enhance safety and guidance for aircraft utilizing Lake Havasu City Municipal Airport, especially during nighttime and/or poor weather conditions.

Three of the next four projects are associated with the relocated terminal facility to the southwest development area. As previously discussed, forecasts predict that additional terminal building space will be needed to accommodate the future demands of passengers utilizing the airport if the airport is to regain scheduled commercial airline service. The plan calls for the design and construction of a new terminal building to be located approximately 900 feet south of the existing facility. A large aircraft parking apron is planned immediately east of the new terminal building which would be dedicated for commercial airline activities. Adjacent to the west of the terminal building is an automobile parking lot with direct access being provided by a new roadway extending east from Retail Centre Boulevard.

As larger aircraft utilize the airport on a more frequent basis, it can be expected that the airport's ARC classification will transition to C/D-II. As a result, the object free area (OFA) and RPZ will expand to include approx-

imately 7.5 acres of land currently located outside airport property north of the airport. Additional property would need to be acquired to secure the RPZ and OFA. At this time, the plan considers the fee simple acquisition of approximately 1.2 acres of this land located within the proposed OFA. The RPZ extends farther north across State Highway 95 and encompasses the remaining 6.3 acres. It is recommended that this area be controlled through an aviation easement.

When airport terminal facilities are shifted to the southwest development area, the existing terminal apron can be used for other aviation-related activities. Locating two helicopter hardstands in this area will provide adequate separation of fixed wing and rotary aircraft. In addition, the leased automobile parking lot that currently exists in the northwest corner of the main aircraft parking apron can be redesignated for aviation development since the parking lot associated with the new terminal facility will accommodate those automobiles that lease parking space at the airport.

Another project associated with the airport transitioning to ARC C/D-II includes relocating the segmented circle and wind cone farther northeast of its current location. In doing so, the facility will not penetrate the expanded OFA and will provide a more desirable midfield location that will be more visible to pilots utilizing the airport.

Remaining projects in the intermediate term deal specifically with the continued development of the southwest area of the airport. The con-

struction of a taxiway extending approximately 1,500 feet west of Taxiway A designed to accommodate airplane design group (ADG) II aircraft will lead to future aviation development in this area. Two aircraft aprons are identified that could support hangar development, aircraft parking, and other aviation support facilities. Finally, as demand warrants, additional automobile access roads and parking can be constructed in this area that will lead to private hangar development that serves commercial aviation activities and aircraft storage.

The total investment necessary for the intermediate term CIP is approximately \$23.2 million, as presented on **Exhibit 6A** and graphically depicted on **Exhibit 6B**. Of this total, \$22.1 million is eligible for FAA grant funding, and \$580,500 is eligible for state funds, with the City responsible for \$580,500.

## LONG TERM PROGRAM

The long term CIP considers 15 projects for the ten-year period focused on several areas to include the expansion of the southwest development area, additional aviation uses within the existing terminal area, continued maintenance of the runway, taxiways, and aircraft parking aprons, and potential development of the southeast side of the airport. These improvements are listed on **Exhibit 6A** and illustrated on **Exhibit 6B**.

The first two projects in the long term include the construction of a wash rack and permanent airport mainten-

ance facility in the southwest area of the airport adjacent to the Taxiway C extension. The construction of an aircraft wash rack will give aircraft owners a designated area to wash their aircraft while also properly collecting cleaning fluids used during the cleaning process. This facility could also accommodate airport operations and maintenance equipment. Immediately to the east of the wash rack, a permanent airport maintenance building is proposed. This will provide a more desirable location for airport maintenance compared to the current utilization of an aircraft hangar and other outside locations for equipment storage.

Continued private hangar development in the southwest area of the airport is expected. As demand warrants, projects including apron expansion and taxilane construction will support this hangar infrastructure.

At this point in the planning horizon, the existing terminal area can be transformed to accommodate air cargo operations at the airport. The terminal facility will provide a more secure location for the screening of cargo and vehicles and provide adequate parking adjacent to the west side of the building for larger vehicles associated with the ground movement of cargo. The realignment of the roadway entering and exiting this area is also proposed to allow easier access for larger vehicles carrying cargo to and from the facility.

The next two projects in the long term are associated with rehabilitating the runway, taxiways, taxilanes, and air-

craft parking aprons. As with other rehabilitation projects called out in the short and intermediate term planning horizons, pavement analysis done leading up to these projects will determine the scope and degree to which rehabilitation in these areas will be needed.

Toward the end of the long term program, several projects regarding the continued expansion of the southwest side of the airport are called out. Additional utilities, aircraft parking aprons, taxilanes, and automobile access roads and parking are included that would provide the necessary infrastructure to meet the potential aviation demand. The extension of Taxiway C 900 feet to the south is also proposed which will open up additional land for aviation development. A taxiway extending to the west of the proposed Taxiway C extension will lead to aviation access revenue support parcels that could support aviation businesses and/or aircraft storage.

All projects previously mentioned occur on the west side of Runway 14-32 and would provide for potential build-out of the west side of the airport. In order to maximize the amount of airport property for aviation use and revenue support, the last projects involve the potential development of the southeast side of the airport. These projects call for site preparations and the extension of utilities in order to support aviation-related development. As is the case with a large majority of projects listed in the CIP, demand will dictate the need to utilize this area of the airport for future development. In the event that this area is to be utilized, it is most likely that this will oc-

cur beyond the 20-year planning horizon of this Master Plan. The last project to be considered deals with the construction of an airport traffic control tower (ATCT). An area adjacent to the south side of the existing terminal building is set aside for the potential development of the ATCT should airport operations ever justify one.

Total long term projects listed on **Exhibit 6A** and graphically depicted on **Exhibit 6B** have been estimated to cost approximately \$20.2 million in today's (2008) dollars. Of this total, \$17.8 million is eligible for FAA grant funding, \$429,100 is eligible for state funds, and \$1.9 million is the responsibility of the airport sponsor. The total CIP program costs are estimated at approximately \$50.6 million.

## **CIP PROGRAM SUMMARY**

The CIP covers potential demand-based development at Lake Havasu City Municipal Airport over the next 20 years. Many of the planned facilities at the airport are not included in the CIP, as they are either projected to be necessary beyond the scope of this plan or assumed to be private development, as is the case with future hangar construction at the airport.

Several airport improvements presented in the recommended concept are demand-based. These facilities should be constructed to serve an existing demand at the airport at that time. This plan does not support building facilities in order to attract activity. Because the plan is demand-

based rather than time-based, it provides Lake Havasu City with the flexibility to develop facilities as needed. Should demand increase at a rate greater than forecast, implementation of these improvements can be advanced. Should demand slow, the life of the Master Plan is effectively increased.

## ***CAPITAL IMPROVEMENTS FUNDING***

Financing capital improvements at Lake Havasu City Municipal Airport will not rely solely on the financial resources of the airport. Capital improvement funding is available through various grant-in-aid programs on both the federal and state levels. The following discussion outlines key sources of funding potentially available for capital improvements at Lake Havasu City Municipal Airport.

### **FEDERAL GRANTS**

The United States Congress has long recognized the need to develop and maintain a system of aviation facilities across the nation for purposes of national defense and promotion of interstate commerce. Various grant-in-aid programs to public airports have been established over the years for this purpose. The most recent legislation is the Airport Improvement Program (AIP) of 1982. The AIP has been reauthorized several times, with the most recent legislation enacted in late 2003 and entitled the *Vision 100 – Century of Aviation Reauthorization Act*. *Vision 100*'s enacted four-year program

covered FAA fiscal years 2004, 2005, 2006, and 2007.

The source for *Vision 100* funds was the Aviation Trust Fund. The Aviation Trust Fund was established in 1970 to provide funding for aviation capital investment programs (aviation development, facilities and equipment, and research and development). The Aviation Trust Fund also finances the operation of the FAA. It is funded by user fees, taxes on airline tickets, aviation fuel, and various aircraft parts. Funds are distributed each year by the FAA from appropriations by Congress. A portion of the annual distribution is to primary commercial service airports based on enplanement levels. General aviation airports, however, also received entitlements under the last reauthorization. After all specific funding mechanisms are distributed, the remaining AIP funds are disbursed by the FAA, based upon the priority of the project for which they have requested federal assistance through discretionary apportionments. A national priority system is used to evaluate and rank each airport project. Those projects with the highest priority are given preference in funding.

*Vision 100* expired on September 30, 2007. Currently (September 2008), the United States Congress has not passed a reauthorization or long term AIP program. The federal government has been operating on a series of continuing resolutions which allows the continued collection of aviation taxes at 2007 levels. Both the Senate and House of Representatives have considered legislation reauthorizing the

AIP program and reestablishing the Aviation Trust Fund; however, Senate and House versions vary and neither bill has been passed. While different in make-up, both bills retained the fundamentals of the current program for eligibility and matching levels. Therefore, the CIP assumes a similar funding system will be in place through the planning period of this Master Plan.

### **Primary Entitlement Funds**

AIP provides funding for eligible projects at airports through an entitlement program. Primary commercial service airports receive a guaranteed minimum of federal assistance each year, based on their enplaned passenger levels and Congressional appropriation levels. A primary airport is defined as any commercial service airport enplaning at least 10,000 passengers annually.

Under the entitlement formula, airports enplaning 10,000 or more passengers annually will receive the higher of \$1.0 million or an amount based upon the entitlement formula. The entitlement formula is based upon \$15.60 per enplaned passenger for the first 50,000 enplanements and \$10.40 per enplanement for the next 50,000 boardings. The next 400,000 enplanements provide \$5.20 each, and an airport receives \$1.30 for the next 500,000 boardings.

As previously discussed, scheduled commercial airline service ceased operations at Lake Havasu City Municipal Airport in May 2007. Prior to this

time, annual enplanement levels had historically been below 10,000. Only in 2004 did enplanements exceed 10,000. In the event that the airport regains commercial airline service, the projected forecast does anticipate adequate demand in the area to reach the 10,000 annual enplanement mark by the intermediate term of the Master Plan. If that were the case, the airport could expect to receive annual entitlements of \$1.0 million.

### **Non-Primary Entitlement Funds**

Funds are distributed each year by the FAA from appropriations by Congress. As mentioned above, a portion of the annual distribution is to primary commercial service airports based upon enplanement levels. For those airports that do not meet the criteria for a primary commercial service airport, eligible airports could receive up to \$150,000 of funding each year in Non-Primary Entitlement (NPE) funds. Eligible airports comprise those that are included in the *National Plan of Integrated Airport Systems* (NPIAS). Lake Havasu City Municipal Airport is currently eligible for full NPE funding.

### **Discretionary Funds**

In a number of cases, airports face major projects that will require funds in excess of the airport's annual non-primary entitlements. Thus, additional funds from discretionary appropriations under AIP become desirable. The primary feature about discretionary funds is that they are distri-

buted on a priority basis. These priorities are established by the FAA, utilizing a priority code system. Under this system, projects are ranked by their purpose. Projects ensuring airport safety and security are ranked as the most important priorities, followed by maintaining current infrastructure development, mitigating noise and other environmental impacts, meeting standards, and increasing system capacity.

Whereas entitlement monies are guaranteed on an annual basis, discretionary funds are not assured. If the combination of entitlement and discretionary funds does not provide enough capital for planned development, projects would either be delayed or require funding from the airport's revenue or other authorized sources, such as those described in the following subsections.

### **Passenger Facility Charges**

The *Aviation Safety and Capacity Expansion Act of 1990* contained a provision for airports to levy passenger facility charges (PFCs) for the purposes of enhancing airport safety, capacity, security, or to reduce noise or enhance competition.

Title 14 of the Code of Federal Regulations (CFR) Part 158 of May 29, 1991, establishes the regulations that must be followed by airports choosing to levy PFCs. Passenger facility charges may be imposed by public agencies controlling a commercial service airport with at least 2,500 annual passengers with scheduled service. Au-

thorized agencies were allowed to impose a charge of \$1.00, \$2.00, or \$3.00 per enplaned passenger. Legislation (*AIR-21*) passed in 2000 allowed the cap to increase to \$4.50, which remains the current cap level.

Prior approval is required from the Department of Transportation (DOT) before an airport is allowed to levy a PFC. The DOT must find that the projected revenues are needed for specific, approved projects. Any AIP-eligible project, whether development or planning related, is eligible for PFC funding. Gates and related areas for the movement of passengers and baggage are eligible, as are on-airport ground access projects. Any project approved must preserve or enhance safety, security, or capacity; reduce/mitigate noise impacts; or enhance competition among carriers.

PFCs must be used only on approved projects. However, PFCs can be utilized to fund 100 percent of a project. They may also be used as matching funds for AIP grants or to augment AIP-funded projects. PFCs can be used for debt service and financing costs of bonds for eligible airport development. These funds may also be commingled with general revenue for bond debt service. Before submitting a PFC application, the airport must give notice and an opportunity for consultation with airlines operating at the airport.

PFCs are to be treated similar to other airport improvement grants, rather than as airport revenues, and are administered by the FAA. Airlines retain up to 11 cents per passenger for

collecting PFCs. It should also be noted that only revenue passengers pay PFCs. Non-revenue passengers such as those using frequent flier rewards or airline personnel are counted as enplanements, but do not generate PFCs.

## **STATE FUNDING PROGRAM**

In support of the state aviation system, the State of Arizona also participates in airport improvement projects. The source for state airport improvement funds is the Arizona Aviation Fund. Taxes levied by the state on aviation fuel, flight property, aircraft registration tax, and registration fees (as well as interest on these funds) are deposited in the Arizona Aviation Fund. The Transportation Board establishes the policies for distribution of these state funds.

Under the State of Arizona's grant program, an airport can receive funding for one-half (currently 2.5 percent) of the local share of projects receiving federal AIP funding. The state also provides 90 percent funding for projects which are typically not eligible for federal AIP funding or have not received federal funding. The maximum amount the state can grant for any single airport project is ten percent of the annual Aviation Fund amount. In recent history, the total annual Aviation Fund amount was approximately \$20 million.

It should be noted that due to recent budget shortfalls, limitations have been placed on state funding programs. This has directly impacted the

State's Aviation Fund, as the amount of money dedicated to airport improvements has been significantly reduced. It is projected that the Aviation Fund will return to normal levels within the next few years as the State's budget improves.

## **State Airport Loan Program**

The Arizona Department of Transportation (ADOT) – Aeronautics Division's Airport Loan Program was established to enhance the utilization of state funds and provide a flexible funding mechanism to assist airports in funding improvement projects. Eligible projects include runway, taxiway, and apron improvements; land acquisition, planning studies, and the preparation of plans and specifications for airport construction projects; as well as revenue-generating improvements such as hangars and fuel storage facilities. Projects which are not currently eligible for the State Airport Loan Program are considered if the project would enhance the airport's ability to be financially self-sufficient.

There are three ways in which the loan funds can be used: Grant Advance, Matching Funds, or Revenue-Generating Projects. The Grant Advance loan funds are provided when the airport can demonstrate the ability to accelerate the development and construction of a multi-phase project. The project(s) must be compatible with the Airport Master Plan and be included in the ADOT Five-Year Airport Development Program. The Matching Funds are provided to meet the local matching fund requirement for secur-

ing federal airport improvement grants or other federal or state grants. The Revenue-Generating funds are provided for airport-related construction projects that are not eligible for funding under another program.

### **Pavement Maintenance Program**

The airport system in Arizona is a multi-million dollar investment of public and private funds that must be protected and preserved. State aviation fund dollars are limited and the State Transportation Board recognizes that need to protect and extend the maximum useful life of the airport system's pavement. The Arizona Pavement Preservation Program (APPP) has been established to assist in the preservation of the Arizona airport system infrastructure. Lake Havasu City Municipal Airport participates in this program.

Public Law 103-305 requires that airports requesting federal AIP funding for pavement rehabilitation or reconstruction have an effective pavement maintenance program system. To this end, ADOT-Aeronautics maintains an Airport Pavement Management System (APMS). This system requires monthly airport inspections which are conducted by airport management and supplied to ADOT.

The Arizona Airport Pavement Management System uses the Army Corps of Engineers "Micropaver" program as a basis for generating a Five-Year APPP. The APMS consists of visual inspections of all airport pavements. Evaluations are made of the types and

severities observed, and entered into a computer program database. Pavement Condition Index (PCI) values are determined through the visual assessment of pavement conditions in accordance with the most recent FAA Advisory Circular 150/5380-7, *Pavement Management System*, and range from 0 (failed) to 100 (excellent). Every three years, a complete database update with new visual observations is conducted. Individual airport reports from the update are shared with all participating system airports. ADOT-Aeronautics ensures that the APMS database is kept current, in compliance with FAA requirements.

Every year, ADOT-Aeronautics utilizing the APMS, will identify airport pavement maintenance projects eligible for funding for the upcoming five years. These projects will appear in the State's Five-Year Airport Development Program. Once a project has been identified and approved for funding by the State Transportation Board, the airport sponsor may elect to accept a state grant for the project and not participate in the APPP, or the airport sponsor may sign an Inter-Government Agreement (IGA) with ADOT-Aeronautics to participate in the APPP.

### **LOCAL FUNDING**

The balance of project costs, after consideration has been given to grants, must be funded through local resources. Lake Havasu City Municipal Airport is operated by Lake Havasu City, and could receive some assistance from the City. The goal for the

operation of the airport is to generate ample revenues to cover all operating and maintenance costs as well as the local matching share of capital expenditures. As with many airports, this is not possible and other financial methods will be needed.

According to **Exhibit 6A**, local funding will be needed in each planning horizon. This includes \$341,900 in the short term, \$580,500 in the intermediate term, and \$1.9 million in the long term.

There are several alternatives for local financing options for future development at the airport, including airport revenues, direct funding from the City, issuing bonds, and leasehold financing. These strategies could be used to fund the local matching share, or complete the project if grant funding cannot be arranged.

Local funding options may also include the solicitation of private developers to construct and manage hangar facilities at the airport. This practice is currently in place at Lake Havasu City Municipal Airport. The capital improvement program has assumed that much of the landside facility development would be undertaken in this manner. Outsourcing hangar development can benefit the airport sponsor by generating land lease revenue and relieving the sponsor of operations and maintenance costs.

There are several municipal bonding options available to Lake Havasu City, including general obligation bonds, limited obligation bonds, and revenue

bonds. General obligation bonds are a common form of municipal bond which is issued by voter approval and is secured by the full faith and credit of the City. City tax revenues are pledged to retire the debt. As instruments of credit, and because the community secures the bonds, general obligation bonds reduce the available debt level of the community. Due to the community pledge to secure and pay general obligation bonds, they are the most secure type of municipal bond and are generally issued at lower interest rates and carry lower costs of issuance. The primary disadvantage of general obligation bonds is that they require voter approval and are subject to statutory debt limits. This requires that they be used for projects that have broad support among the voters, and that they are reserved for projects that have the highest public priorities.

In contrast to general obligation bonds, limited obligation bonds (sometimes referred to as self-liquidating bonds) are secured by revenues from a local source. While neither general fund revenues nor the taxing power of the local community is pledged to pay the debt service, these sources may be required to retire the debt if pledged revenues are insufficient to make interest and principal payments on the bonds. These bonds still carry the full faith and credit pledge of the local community and, therefore, are considered, for the purpose of financial analysis, as part of the debt burden of the local community. The overall debt burden of the local community is a factor in determining interest rates on municipal bonds.

There are several types of revenue bonds, but in general, they are a form of municipal bond which is payable solely from the revenue derived from the operation of a facility that was constructed or acquired with the proceeds of the bonds. For example, a lease revenue bond is secured with the income from a lease assigned to the repayment of the bonds. Revenue bonds have become a common form of financing airport improvements. Revenue bonds present the opportunity to provide those improvements without direct burden to the taxpayer. Revenue bonds normally carry a higher interest rate because they lack the guarantees of general and limited obligation bonds.

Leasehold financing refers to a developer or tenant financing improvements under a long term ground lease. The obvious advantage of such an arrangement is that it relieves the community of all responsibility for raising the capital funds for improvements. However, the private development of facilities on a ground lease, particularly on property owned by a government agency, produces a unique set of concerns. In particular, it is more difficult to obtain private financing as only the improvements and the right to continue the lease can be claimed in the event of a default. Ground leases normally provide for the reversion of improvements to the lessor at the end of the lease term, which reduces their potential value to a lender taking possession. Also, companies that want to own their property as a matter of financial policy may not locate where land is only available for lease.

To ensure that the airport maximizes revenue potential in the future, Lake Havasu City should also periodically review aviation services rates and charges (i.e., fuel flowage fees, hangar and tiedown rental, etc.) at other regional airports to ensure that rates and charges at the airport are competitive and similar to aviation services at other airports. Additionally, all new leases at the airport should have inflation clauses allowing for periodic rate increases in line with inflationary factors.

While it is desirable for the airport to directly pay for itself, the indirect and intangible benefits of the airport to the community's economy and growth must be considered in implementing future capital improvements.

## ***PLAN IMPLEMENTATION***

The best means to begin implementation of the recommendations in this Master Plan is to first recognize that planning is a continuous process that does not end with completion and approval of this document. Rather, the ability to continuously monitor the existing and forecast status of airport activity must be provided and maintained. The issues upon which this Master Plan is based will remain valid for a number of years. The primary goal is for the airport to best serve the air transportation needs of the region, while continuing to be economically self-sufficient.

The actual need for facilities is most appropriately established by airport

activity levels rather than a specified date. For example, projections have been made as to when additional hangars may be needed at the airport. In reality, however, the timeframe in which the development is needed may be substantially different. Actual demand may be slower to develop than expected. On the other hand, high levels of demand may establish the need to accelerate the development. Although every effort has been made to conservatively estimate when facility development may be needed, aviation demand will dictate when facility improvements need to be delayed or accelerated.

The real value of a usable Master Plan is in keeping the issues and objectives in the minds of the managers and decision-makers so that they are better able to recognize change and its effect. In addition to adjustments in aviation demand, decisions made as to when to undertake the improvements recommended in this Master Plan will impact the period that the plan remains

valid. As previously discussed, recommended improvements listed in the CIP will need to continuously be re-examined in order to determine their priority given the conditions surrounding the airport. It is likely that projects may be added or removed depending on funding, demand, and other factors. The format used in this plan is intended to reduce the need for formal and costly updates by simply adjusting the timing. Updating can be done by the manager, thereby improving the plan's effectiveness.

In summary, the planning process requires that airport management consistently monitor the progress of the airport in terms of aircraft operations and based aircraft. Analysis of aircraft demand is critical to the timing and need for new airport facilities. The information obtained from continually monitoring airport activity will provide the data necessary to determine if the development schedule should be accelerated or decelerated.