CHAPTER 8: IMPLEMENTATION PLAN

8.1 INTRODUCTION

The Implementation Plan presents the cost estimates, phasing and financial plan associated with the implementation of the Preferred Comprehensive Development Plan. The purpose of the implementation plan is to outline a development strategy to meet forecast aviation activity through the Master Plan Update horizon, estimated based on current aviation activity forecasts through 2030. The project cost estimates and phasing plan form the basis for the financial plan presented in this Chapter.

8.2 PROJECT PHASING

Components of the Preferred Comprehensive Development Plan were grouped by PAL according to the time period and aviation activity level that the project is anticipated to be required. The projects are identified by PAL on **Figure 8-1**. Individual projects are also listed by PAL on **Table 8-1** through **Table 8-4.** Enabling projects that support the projects in the Preferred Comprehensive Development Plan, such as the Environmental Impact Statement (EIS) and Airports GIS Survey that will precede design and construction of the Runway 11R-29L Relocation, are identified separately in the summary tables. They are included in the PAL that the specific support component would occur (e.g. the EIS would occur in PAL 1 while the Runway construction would occur in PAL 2).

Planning Activity Level 1 includes airfield projects in support of and preceding the construction of the Runway 11R-29L Relocation including the EIS, Airports GIS Survey and Obstructions analysis, Runway 11R-29L Design, and relocation of the Raytheon bunkers. The renovation of the main Terminal to provide administrative space as well as renovation of the security, concessions, ticketing and baggage claim areas are also included in PAL 1 along with continued extension of Taxiway G to support aircraft maintenance development.

Planning Activity Level 2 primarily includes construction of the major components of the Runway 11R-29L program including the runway, center and outboard taxiways along with the re-designation of all runways based on the current magnetic heading. PAL 2 also includes an expansion of the rental car service area and continued extension of Taxiway G.

Planning Activity Level 3 airfield projects are comprised of secondary airfield enhancement projects after completion of the Runway 11R-29L Relocation Program. The first phase of the Country Club Road extension would be completed during PAL 3 to support maintenance repair and overhaul (MRO) development sites. Terminal concourse expansion to the east is also included in PAL 3.

Planning Activity Level 4 includes the second phase of the Country Club Road, extending to Aeronautical Way, and would be completed along with an extension of Taxiway G to the north Future Industrial Aviation Complex.

Several projects were identified to occur beyond the Master Plan horizon including construction of the Future Far Parallel Runway, expansion of the terminal concourse to the west, consolidated fuel farm, and planning and preliminary engineering required to develop the infrastructure for a future ground cargo site.

RECOMMENDED IMPROVEMENTS

1. Construct full length parallel Runway 11R-29L (Group IV)
2. Construct new center parallel T/W
3. Construct new outboard parallel T/W
4. Shift arrivals threshold
5. Improve south run-up area access
6. Construct bypass Taxiway
7. Reconstruct itinerant aircraft apron
8. Construct extended blast pad
9. Straighten Taxiway D2 across R/W 21
10. Extend Taxiway G
11. Terminal Renovation
12. Expand Concourse to the East
13. Expand Consourse to the West
14. Install Solar Canopies
15. Expand Rental Car fueling and wash rack
16. Construct Rental Car storage area
17. Expand Country Club Drive
18. Expand Economy Parking Lot
19. Construct Fuel Farm
20. Construct ARFF Station
21. Future Air Traffic Control Tower

LEGEND

- Airport Property Boundary
- Existing Airfield Ramp, Taxiway
- Existing Runway Pavement
- Runway Protection Zone
- Buildings
- Extended Clear Zone
- Proposed Removal
- PAL 1 Project
- PAL 2 Project
- PAL 3 Project
- PAL 4 Project
- Beyond Master Plan Project
- Proposed Property Acquisition

Master Plan Update

HNTB

TUCSON INTERNATIONAL AIRPORT

DRAWING SCALE: 1" = 1250'

DATE: May, 2013

Preferred Comprehensive Development Plan Phasing

FIGURE 8-1

8.3 PROJECT COST ESTIMATES

Cost estimates were developed for the projects identified in the Preferred Comprehensive Development Plan and each major development program was broken down into smaller components for phasing and cost estimating purposes. The costs presented include design, construction, contingency and administrative fees for each project. All costs are presented in 2013 dollars, are summarized for each PAL in **Table 8-1** through **Table 8-4** and represent a planning level estimate. As projects are further defined cost estimates may be further refined. The total of all PAL 1 costs representing near term development is approximately **$36,907,315.** PAL 2 costs, which include most of the Runway 11R-29L development program total approximately **$124,174,661.** PAL 3 and 4 projects equal approximately **$60,095,905 and $10,555,068**, respectively and include concourse expansion. Major projects identified beyond the master planning horizon are also identified and include development of the future far parallel runway. The identified projects are estimated to cost approximately **$313,850,158** in 2013 dollars**.**

Table 8-1: PAL 1 Project Costs

PAL 1 Projects	Projected Cost (2013 Dollars)
Airfield Projects	
EIS for Runway 11R-29L Relocation	$1,500,000
Airports GIS Survey and Obstruction Analysis	$687,789
Reassign and Clarify Taxiway Nomenclature	$2,198,437
Airport Wide Drainage Basin Study in Support of Runway 11R-29L Relocation	$231,579
Runway 11R-29L Design	$6,128,681
Relocate Raytheon Bunkers and Barriers in Support of Runway 11R-29L Relocation	TBD
Construct New Bypass Taxiway Around Runway11L and 11R Future RPZs	$9,336,908
Terminal Projects	
Terminal Renovation - Administrative Space	$1,931,855
Terminal Renovation - Security, Ticketing, Concessions and Office Space	$5,183,637
Landside Projects	
Install Solar Canopies on Top Level of RAC Garage	$7,402,847
General Aviation Support Projects	
Taxiway G Phase II Extension south to MRO 2	$2,305,582
TOTAL	**$36,907,315**

Source: DOWL HKM cost estimates February 2013

Table 8-2: PAL 2 Project Costs

PAL 2 Projects	Projected Cost (2013 Dollars)
Airfield Projects	
Demolish Raytheon Bunkers in Support of Runway 11R-29L Relocation	TBD
Construct New Perimeter Road and Fencing Around Future Relocated Runway 11R-29L	$1,419,896
Construct New Access for South Run-Up Area Including Taxiway A Enhancements	$1,598,800
Construct Taxiway Connecting West Ramp to Taxiway A5, Widening Taxiway A5 to Taxiway C	$6,371,963
Construct Taxiway A4 and A17 Bypass	$8,222,621
Remove Taxiways A7&A9 and Extend Taxiway A8 to Intersect Taxiway A and Provide a High-speed Exit	$4,525,724
Construct Outboard Taxiway Between Taxiways A5 and A8	$6,060,748
Construct Drainage Detention Basin in Support of Runway 11R-29L Relocation	$1,161,510
Runway 11R-29L Construction	$43,330,851
Construct New Outboard Taxiway from Taxiway A8 to Property Boundary	$12,052,766
Construct New Center Parallel Taxiway	$25,502,837
Redesignate All Runways Based on Current Magnetic Heading	$2,900,319
Displace Runway 11L Threshold and Relocate MALSR and Glideslope	$3,635,211
Landside Projects	
Install Solar Canopies in Economy Parking Lot	TBD
Expand Rental Car Service Area (Fueling and Wash Racks)	$5,085,833
General Aviation Support Projects	
Taxiway G Phase III Extension south from MRO 2 to MRO3	$2,305,582
TOTAL	**$124,174,661**

Source: DOWL HKM cost estimates February 2013

Table 8-3: PAL 3 Project Costs

PAL 3 Projects	Projected Cost (2013 Dollars)
Airfield Projects	
Close Taxiway A2	$184,487
Remove Taxiways T and A14	$156,474
Straighten Taxiway D2 and ANG B Perpendicular to Runway 3-21	$831,156
Terminal Projects	
Expand Concourse to the East	$41,545,263
Landside Projects	
Country Club Road Extension Phase 1 south to ARFF Access Road	$734,988
Construct Rental Car Storage Area Along Corona	$1,415,400
Build Out North Portion of the Economy Parking Lot	$3,066,538
General Aviation Support Projects	
Reconstruct West Apron - Itinerant Aircraft Apron	$12,161,599
TOTAL	**$60,095,905**

Source: DOWL HKM cost estimates February 2013

Table 8-4: PAL 4 and Beyond Project Costs

PAL 4 Projects	Projected Cost (2013 Dollars)
Landside Projects	
Country Club Road Extension Phase 2 south to Aeronautical Way	$1,018,261
General Aviation Support Projects	
Taxiway G Phase IV Extension North to Future Industrial Aviation Complex	$5,607,536
Ancillary Support Projects	
Land Acquisition - Stewart Title	$970,502
Land Acquisition - Griggs / Ameron	$554,573
Land Acquisition - Hughes Sand and Gravel / AAA	$2,404,196
TOTAL PAL 4	**$10,555,068**
Beyond Master Planning Horizon	
Development of Future Far Parallel Runway Program	$160,000,000
Construct Fuel Farm	$30,378,947
Expand Concourse to the West	$115,744,670
Planning and Preliminary Engineering For Future Ground Cargo Site Development	$5,323,393
Land Acquisition - Granite	$2,403,148
TOTAL Beyond Horizon	**$313,850,158**

Source: DOWL HKM cost estimates February 2013

8.4 FINANCIAL PLAN

The purpose of this chapter is to demonstrate the Airport's ability to finance the projects recommended in the Master Plan Update. This analysis is not intended to determine the feasibility of bond issuance, which would require a more extensive analysis. Rather, it is intended to show the accessible sources of capital – Airport Improvement Program grants, etc. – available to fund the projects recommended during the planning period and to identify shortfalls, if any.

Existing Airport Financial Structure

TAA obtains its operating revenues from many sources, including airline rates and charges, concessions, rentals, general aviation, and reimbursements. Airline rates and charges are determined by the Airport Use Agreement. The Agreement is a residual agreement wherein signatory landing fees are set to offset the difference between revenues from non-landing fee sources and Airport costs for operating and maintenance (O&M) expenses, debt service, and other capital costs. In addition to landing fees, TIA collects revenues from space rentals and concession agreements with terminal building concessionaires such as restaurants and gift shops, parking, and rental car operators.

In addition to operating revenues, TIA obtains non-operating revenues in the form of federal grants, passenger facility charges and capital contributions from the State to fund capital projects. In fiscal year 2011, TIA collected $49.4 million in operating revenues and $8.0 million in non-operating revenues.

Airport cash flow expenses consist primarily of O&M costs and debt service. In FY 2011, O&M expenses were reported at $30.1 million excluding depreciation. At the end of FY 2010, the Airport had $88.0 million in outstanding long-term debt and annual debt service is currently about $5.4 million.

Available Funding Sources

Financing capital improvements at the Airport will not rely exclusively upon operating revenue or internal financial resources. Capital improvements funding is available through various grant-in-aid programs on federal levels. The Airport has five potential sources of funding for capital projects at this time:

- FAA Airport Improvement Fund Funds
- Passenger Facility Charges
- Arizona Department of Transportation Grants
- Third Party sources (private, etc.)
- The Airport's rates and charges

AIP Funds

Funding is provided to airports through the AIP (Airport Improvement Program) as awarded by the FAA. AIP funds are divided into two categories: entitlement funds and discretionary funds.

Entitlement Funds

Each primary airport is eligible for annual AIP entitlement grants to fund eligible project based upon the number of passenger boardings at the airport. These funds are calculated as follows:

- $7.80 for each of the first 50,000 passenger boardings
- $5.20 for each of the next 50,000 passenger boardings
- $2.60 for each of the next 400,000 passenger boardings
- $0.65 for each of the next 500,000 passenger boardings
- $0.50 for each passenger boarding in excess of 1 million

Also, under current law in any fiscal year in which the total amount made available for AIP grant funding under *Section 48103 of Title 49 U.S.C.* is $3,200,000,000 or more, the amount to be apportioned to an airport sponsor shall be increased by doubling the amount that would otherwise be apportioned under the formula and the minimum apportionment to a sponsor is increased to $1,000,000 from $650,000.

Under the terms of the law, a large or medium hub airport may use AIP funds to cover 75% of project eligible costs; whereas small and non-hub airports may use AIP funds to cover 90% of project eligible costs and within the State of Arizona, the percent is increased to 91.06%. Additionally, large or medium hub airports that impose PFCs lose 50% of their entitlements with $3.00 PFCs and 75% of their entitlements with $4.50 entitlements.

Future levels of AIP entitlements will be dependent upon the level of enplanements at TIA and, Congressional reauthorization and appropriations of AIP funding above the $3.2 billion threshold. This analysis assumes that AIP funding will be maintained above this critical threshold, however with the national deficit, the long-term funding of AIP at these levels cannot be guaranteed.

Discretionary Funds

Discretionary funds are awarded at the discretion of the FAA for projects based on a national priority system. The highest weights are assigned to safety, reconstruction, and capacity projects. The airport sponsor cannot commence the work on projects funded using discretionary funds until the grant has been awarded and must be able to commence work during the same fiscal year as the grant agreement or within 6 months, whichever is later. Currently as a small primary airport in Arizona, TIA can fund up to 91.06% of eligible costs with grants; however, the portion covered by discretionary grants may be lower dependent on the amount of available discretionary funds allocated.

Passenger Facility Charges

Airport sponsors for commercial service airports may impose Passenger Facility Charges to supplement public airport capital needs on eligible projects. PFCs are federally authorized and the FAA must review applications to impose PFCs for projects to determine eligibility but PFCs imposed at the local level in consultation with airlines serving the airport. PFCs are collected by airlines as part of the total air fare and transmitted to the airport minus an administrative fee. PFC projects must accomplish one of the following objectives set forth by statute: (1) preserving or enhancing airport safety, security, or capacity; (2) reducing airport noise; or (3) enhancing competition among airlines. Airports are required to consult with air carriers operating at their airports; however airline agreement is not needed to collect or use PFCs. PFCs can be imposed at the level of $1, 2, 3, 4, or 4.50 per enplaned passenger. TIA currently imposes PFCs at the maximum $4.50 level.

ADOT Grants

ADOT has a program similar to the FAA's AIP which distributes grants to Arizona airports to:

- Assist in matching federal grants;
- Fund projects that may not be funded by the FAA but still achieve the State system goals in safety, security, capacity, environmental, planning, or sustainability;
- Assist in airport pavement management;
- Assist statewide aviation planning; or
- Fund low-interest loans for Airport projects.

The maximum amount of ADOT funds awarded to an airport in any fiscal year may not exceed 10% of the prior three fiscal years average revenue to the Arizona Aviation Fund. According to the ADOT draft 2014-2018 Airport Capital Improvement Program, this will approximately $2.1 million in FY 2014.

Third-Party Sources

Third-party sources, such as tenant-funded projects, may provide an alternative funding approach for the new hangar projects or certain third-party operated facilities. Most of the master plan and Airport CIP projects involve airfield, terminal, or pavement reconstruction or improvement, which are generally not funded by third parties. Therefore, the analysis assumes third party funding for a limited number of projects, such as the installation of solar panels on parking garages.

Airport Revenues

Airport revenues, obtained from reserve funds or by issuing general airport revenue bonds (GARBs), are another source of funding. These revenues are typically used to match federal or state grants or to fund projects that are not eligible for, or cannot obtain, funding from other sources.

Key Assumptions

Financial projections are necessarily reliant on a set of assumptions about future conditions. These are set forth as follows.

Passenger Forecast

The 2010 Terminal Area Forecast was the basis of the FAA approved master plan forecast for TIA. Since then, however, the TAF has been revised twice and is now projecting passenger levels almost 20% lower than the 2010 TAF by 2030. In financial analysis there is greater risk involved in overestimating activity and revenue than in underestimating activity and revenue. In recognition of the current economic climate, and to provide a robust financial plan capable of weathering future uncertainties, the more conservative 2012 TAF was applied to this financial analysis.

Cost Escalation

Inflation and cost escalation are assumed to increase 2.5% per year for the purpose of this analysis.

AIP Funding Levels and Discretionary Funding

The AIP entitlement formula is assumed to remain unchanged through the forecast period. In addition, it is assumed that the national AIP funding level will remain at $3.2 billion or higher, allowing the apportionment to remain at double the amount calculated by the formula. However, in recognition of the fiscal challenges faced by the FAA, it is assumed that discretionary funding will only be available for apron and runway reconstruction projects.

PFC Funding Levels

The maximum PFC charge is assumed to remain at $4.50 per boarding, without adjustment for inflation.

ADOT Funding

The ADOT funding program is assumed to continue in its present state. The maximum available funding is assumed to be $2.1 million per year.

GARB Interest Rates

Current low interest rates are not considered to be sustainable in the long run. Therefore, interest rates for future revenue bond issues are assumed to be 5.0% per year.

Proposed Capital Program

In determining project financial feasibility, the critical elements to analyze are project costs, project priority, funding sources, and the ability of the Authority to leverage funding sources by issuing bonds. These elements manifest themselves in the year-by-year phasing of construction expenditures. Delaying a project can provide time to accumulate funding and allow the Authority to exploit additional bonding capacity in future years. However, project costs tend to escalate while needed improvements are deferred. Delaying expansion may also constrain airport activity and prevent it from generating the revenues necessary to finance the planned improvements. Delays could also adversely affect the safety and operational efficiency of the Airport.

The recommended phasing and costs of the proposed master plan projects were detailed in **Figure 8-1** and **Tables 8-1** through **8-4**. The focus of this analysis is the recommended projects; however, projects in the existing Capital Improvement Program must also be considered since they will rely on many of the same funding sources as the Master Plan projects. For example, the amount of AIP entitlement and PFC funds available to TIA each year is limited. Therefore, any AIP entitlement funds used for existing CIP projects would not be available for Master Plan projects. The cost of each project was escalated to the year it was anticipated to be constructed, typically the mid-point of the PAL it is anticipated to be implemented in. At this stage in the analysis, no revisions to the program have been made to facilitate their funding.

It should be noted that funding eligibility does not guarantee funding. Typically, the demands from each source (AIP, ADOT, PFC, etc.) far exceed the available supply of funding. Therefore, estimated funding for each project was based on the assumptions above, and took into account the available funding from each source in each year. The greatest demands for funding are estimated for 2018-2020 (relocation of RW 11R-29L and associated airfield improvements, 2023-2025 (east concourse expansion), and post-Master Plan horizon (far parallel runway, west concourse expansion and fuel farm).

Financial Analysis

After accounting for Federal and State funding sources, a substantial portion of the remaining capital costs would need to be funded from internal airport sources. Although airport reserves can be used to fund some of the smaller projects, general airport revenue bonds (GARBs) are usually used to fund larger projects. Many of these projects are partially or fully PFC-eligible. Therefore, much of the debt service associated with these bonds could be paid from PFC funds to the extent that they are available.

Conclusion

The analysis presented in this chapter highlights the need to secure FAA AIP discretionary funding in order to minimize the impact of the master plan and CIP on TIA finances and airline landing fees. Without discretionary funding or off-setting revenue, such as PFCs, the project costs have the potential to impact TIA's cost per enplaned passenger.