

## Section 8

### PLAN IMPLEMENTATION

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This section addresses implementation of the proposed airport development plans. Whereas the need for a professional airport management team and careful selection of a fixed base operator are mentioned, the discussion primarily concerns itself with financial requirements. First, a capital improvement program is analyzed, identifying specific development items by planning period and estimating their respective costs. This analysis results in an estimated \$4.1 million dollar airport investment over the twenty-year planning period. Secondly, an economic and financial analysis is undertaken, which results in the conclusion that the airport development project is economically and financially feasible, although airport revenues are not sufficient to cover development costs.

#### 8.1 CAPITAL IMPROVEMENT PROGRAM

Prior to the preparation of a capital improvement program, the assumptions used for the calculation of landside facility requirements and facilities planning are re-evaluated. Landside facilities requirements were calculated using assumptions intended to allow the preparation of highly flexible facilities plans and, as a result, indicated the need for more facilities than actually required or expected to be constructed. Therefore, a second set of landside facility requirements is calculated for the purpose of financial planning. This set also serves as the recommended landside improvements in the event that the sponsor undertakes the development.

An inventory of airports throughout the country will show that generally 60 percent of the based aircraft are provided indoor storage. This is not to say that the figure is desirable on either the part of the aircraft owner or the fixed base operators, but rather is a proportion

which is generally acceptable. The calculation of landside requirements for financial planning assumes that the 60 percent figure will be achieved and that the remaining aircraft storage needs will be satisfied by outdoor tie-downs. Exhibit 8-1 presents the landside facility requirements for financial planning.

Combining the landside facility requirements for financial planning--the airside facility requirements and the various airport plans--a capital improvement program is prepared. The capital improvement program presented in Exhibit 8-2 includes cost estimates in terms of 1980 dollars for each of the development items. Development items are grouped by planning period and are intended to satisfy the demand forecast for the close of the period in which they are shown. A breakdown of federal and local participation is also provided. The federal amount shown represents the maximum participation authorized by the legislation which expired in October 1980, or 90 percent.

The only major improvements that are foreseen, other than those occurring during the short-range planning period, are the construction of a parallel taxiway, and the development of a second FBO facility during the long-range planning period. Landside facilities associated with the FBO's are often developed and funded by private enterprise. These items are shown in parentheses under the local share in Exhibit 8-2 and have been included so that, in the event the sponsor undertakes this development, an estimate will be available.

Development cost estimates, shown in Exhibit 8-2 by period and item, are summarized in Exhibit 8-3. The summary shows that, if all airport development were undertaken in 1980, the total costs would be approximately \$4.1 million. Additionally, the summary shows that the FAA is authorized to provide \$3.0 million in financial assistance. Lastly, private enterprise would be expected to invest \$0.6 million, resulting in a sponsor share of \$0.5 million.

Exhibit 8-1

LANDSIDE FACILITY REQUIREMENTS  
FOR FINANCIAL PLANNING

	<u>Planning Period</u>		<u>1991-2000</u>
	<u>1981-1985</u>	<u>1986-1990</u>	
<u>NAVAJO AVIATION AUTHORITY</u>			
Conventional Hangars	2	2	2
Conventional Hangar Spaces	5	5	5
Administration Building (SF)	2,500	2,500	2,500
Auto Parking Spaces	10	10	10
Auto Parking Area	355	355	355
<u>FIXED BASE OPERATOR (A)</u>			
Conventional Hangars	1	1	1
Conventional Hangar Spaces	9	9	9
Tee Hangars	6	14	21
Aircraft Tie-down Positions	14	19	24
Terminal Building (SF)	784	1,225	1,960
Auto Parking Spaces	21	33	52
Auto Parking Area	746	1,172	1,420
<u>FIXED BASE OPERATOR (B)</u>			
Conventional Hangars	-	-	1
Conventional Hangar Spaces	-	-	9
Tee Hangars	-	-	0
Aircraft Tiedown Positions	-	-	6
Terminal Building (SF)	-	-	80
Auto Parking Spaces	-	-	26
Auto Parking Area	-	-	923

## Exhibit 8-2

CAPITAL IMPROVEMENT PROGRAM  
(1980 DOLLARS)

Short-Range Planning Period (1981-1985)				
Development Item		Total	Federal	Local
<u>Site Preparation</u>				
Grading 50,000 CY @ \$2/CY	(82)	<u>\$100,000</u>	<u>\$90,000</u>	<u>\$10,000</u>
Total Site Preparation		\$100,000	\$90,000	\$10,000
<u>Paving</u>				
RW 02/20 3" Overlay				
62,250 CY @ \$2.50/SY	(82)	466,875	420,187	46,688
Turnaround				
3,272 SY @ \$22.50/SY	(83)	73,630	66,267	7,363
Connecting Taxiway				
3,556 SY @ \$22.50/SY	(83)	80,000	72,000	8,000
Aircraft Tie-down Apron				
7,300 SY @ \$13.00/SY	(83)	94,900	85,410	9,490
Tee Hangar Access				
2,222 SY @ \$13.00/SY		28,890		(28,890)
Auto Parking Overlay				
1,100 SY @ \$2.50/SY	(84)	2,750		2,750
Access Road 1,300 LF				
@ \$40/LF	(84)	<u>52,000</u>	<u>46,800</u>	<u>5,200</u>
Total Paving		\$799,045	\$690,664	\$108,381
<u>Lighting</u>				
MIRL 7,000 LF @ \$10/LF	(83)	\$70,000	\$63,000	\$7,000
MITL 800 LF @ \$12/LF	(83)	9,600	8,640	960
Rotating Beacon - 10"	(83)	4,500	4,050	450
Lighted Wind Cone & Segmented Circle	(83)	<u>5,000</u>	<u>4,500</u>	<u>500</u>
Total Lighting		\$89,100	\$80,190	\$8,910
<u>Approach Aids</u>				
VASI-2 2 Units @ \$7,500	(83)	\$15,000	\$15,000	--
REILS	(83)	<u>9,000</u>	<u>9,000</u>	--
Total Approach Aids		\$24,000	\$24,000	\$--

Exhibit 8-2  
(CONTINUED)

Short-Range Planning Period (1981-1985)				
<u>Development Item</u>		<u>Total</u>	<u>Federal</u>	<u>Local</u>
<u>Buildings</u>				
Conventional Hangar - 1 Unit		\$125,000	\$--	\$125,000
Tee Hangars - 6 Units @ \$10,000		60,000	--	(60,000)
Terminal Space 784 SF @ \$60/SF		<u>47,040</u>	--	<u>(45,040)</u>
Total Buildings		\$232,040	\$--	\$232,040
<u>Miscellaneous</u>				
Runway Marking - NPI				
7,000 LF @ \$350	(83)	\$24,500	\$22,050	\$2,450
Perimeter Fencing				
19,845 LF @ \$6/LF	(82)	<u>119,070</u>	<u>107,163</u>	<u>11,907</u>
Total Miscellaneous		\$143,570	\$129,213	\$14,357
Total This Period		\$1,387,755	\$1,014,067	\$373,688

( ) Indicates investment by private enterprise.

SOURCE: PRC Speas

Exhibit 8-2  
(CONTINUED)

Intermediate-Range Planning Period (1986-1990)				
<u>Development Item</u>		<u>Total</u>	<u>Federal</u>	<u>Local</u>
<u>Paving</u>				
Connecting Taxiway				
2,000 SY @ \$22.50/SY	(86)	\$67,500	\$60,750	\$6,750
Aircraft Tie-down Apron				
3,650 SY @ \$13/SY	(86)	47,450	42,705	4,745
Tee Hangar Access		<u>38,480</u>	<u>--</u>	<u>(38,480)</u>
Total Paving		\$153,430	\$103,455	\$49,975
<u>Buildings</u>				
Tee Hangars				
8 @ \$10,000		\$80,000	\$--	\$(80,000)
Terminal Space				
441 SF @ \$60/SF		<u>26,460</u>	<u>--</u>	<u>(26,460)</u>
Total Building		\$106,460	\$--	\$(106,460)
Total This Period		\$259,890	\$103,455	\$156,435

( ) Indicates investment by private enterprise.

SOURCE: PRC Speas

Exhibit 8-2  
(CONTINUED)

Long-Range Planning Period (1991-2000)			
<u>Development Item</u>	<u>Total</u>	<u>Federal</u>	<u>Local</u>
<u>Paving</u>			
Rwy Widening & Strengthening (96)	\$ 816,875	\$ 735,187	\$ 81,688
Parallel's Connecting Twy. 45,683 SY @ \$22.50/SY (91)	1,027,870	925,083	102,787
Aircraft Tie-down Apron 8,085 SY @ \$13/SY (91)	105,105	94,594	10,511
Tee Hangar Access 2,590 SY @ \$13/SY	<u>33,670</u>	<u>--</u>	<u>(33,670)</u>
	\$1,983,520	\$1,754,864	\$228,656
<u>Lighting</u>			
MITL 10,285 LF @ \$12/LF (91)	<u>\$123,420</u>	<u>\$111,078</u>	<u>\$12,342</u>
Total Lighting	\$123,420	\$111,078	\$12,342
<u>Buildings</u>			
Conventional Hangar - 1 Unit	\$125,000	\$--	\$(125,000)
Tee Hangars 7 Units @ \$10,000	70,000	--	(70,000)
Terminal Space 1,715 SF @ \$60/SF	<u>102,900</u>	<u>--</u>	<u>(102,900)</u>
Total Building	\$297,900	\$--	\$297,900
<u>Miscellaneous</u>			
Taxiway Marking 10,285 LF @ \$2.20/LF (91)	<u>\$22,627</u>	<u>\$20,364</u>	<u>\$2,263</u>
Total Miscellaneous	\$22,627	\$20,364	\$2,263
Total This Period	\$2,427,467	\$1,886,306	\$541,161

( ) Indicates investment by private enterprise.

SOURCE: PRC Speas.

Exhibit 8-3

SUMMARY OF DEVELOPMENT COSTS

<u>Planning Period</u>	<u>Total</u>	<u>Federal</u>	<u>Local</u>	<u>Private</u>
Short-Range (1981-1985)	\$1,387,755	\$1,014,067	\$239,758	\$133,930
Intermediate-Range (1986-1990)	259,890	103,455	11,495	144,940
Long-Range (1991-2000)	<u>2,427,467</u>	<u>1,886,306</u>	<u>209,591</u>	<u>331,570</u>
	\$4,075,112	\$3,003,828	\$460,844	\$610,440

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Source: PRC Speas



In order to more accurately define potential costs associated with improvements at Window Rock Airport, a phased capital improvement program was developed. Underlying this program is the recognition that neither the federal government or Navajo Nation is prepared or capable of funding each planning period's improvements in a single year. The capital improvement program was, therefore, phased such that the airport sponsor will maximize the amount of federal assistance, consistent with maintenance of a safe and efficient airport.

The schedule of capital outlays and anticipated offsetting federal grants associated with the phased capital improvement program are presented in Exhibit 8-4. The capital outlays include only the public investment items. Further, the phasing recognizes that construction costs have risen in real terms at an annual rate of 3.3 percent over the last ten years. The 1980 construction costs have, therefore, been adjusted to recognize the potential increase in costs between 1980 and the year of construction.

As reflected in Exhibit 8-4, the local share of capital outlays in 1982 is estimated at \$72,550; in 1983 at \$39,600; in 1984 at \$8,900; in 1986 at \$13,700, and in 1991 at \$299,555. Recognizing that a goal of the Navajo Tribe is a self-supporting air transportation system, the total local share of \$4,434,305 represents a cost which should be recovered from airport revenues. Stated another way, annual airport revenues after expenses must average \$43,400 a year over the ten-year development process in order to cover the local share of the capital improvement program.

## 8.2 FINANCIAL ANALYSIS

Currently, the Department of Air Transportation manages Window Rock Airport in addition to providing non-scheduled air service to the Navajo government. The airport provides avgas and aircraft tie-down services. Window Rock Airways, a privately-owned enterprise on the airport, provides air taxi and charter services. There currently are no hangar facilities or maintenance services provided on the airport.

Exhibit 8-4

SCHEDULE OF CAPITAL OUTLAYS  
AND ANTICIPATED OFFSETTING GRANTS  
ADJUSTED 1980 DOLLARS

<u>Year</u>	<u>Capital Outlay</u>	<u>Federal Grant</u>	<u>Local Outlay</u>
1982	\$725,620	\$653,070	\$72,550
1983	422,000	382,400	39,600
1984	61,600	52,700	8,900
1985	--	--	--
1986	137,300	123,600	13,700
1987	--	--	--
1988	--	--	--
1989	--	--	--
1990	--	--	--
1991	2,995,535	2,695,970	299,555
1992	--	--	--

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SOURCE: PRC Speas

Utilizing data provided by the Air Transportation Department, 1979 revenues from airport operations alone were estimated at approximately \$7,860 from tie-down fees and fuel sales. Currently, Window Rock Airways is not charged rental for land or buildings used. Assuming an annual fee of \$14,000 (\$2,000 for land and \$12,000 for the hangar), the total revenues from airport operations could be approximately \$22,000. Expenses include utilities, supplies and maintenance. Only marginal maintenance has been performed at the airport, while utilities costs include the costs associated with providing the governmental air service. Incorporating a portion of the department manager's and secretary's salary into the total expenses of running the airport, a best estimate of total airport expenses is \$20,000. Net revenues, therefore, are currently only about \$2,000 a year, substantially less than the required \$43,400 a year necessary to cover the cost of airport improvements.

Alternative methods of airport operations are not anticipated to improve the prospects of covering the local share of capital improvements. For example, the recommended means of operating the airport is through the use of a full-service fixed base operator (FBO). The FBO would provide aircraft hangar, tie-down and maintenance services, as well as sell aviation fuel and operate a terminal facility. He would also provide air taxi and charter services, as well as potentially provide flight training and aircraft sales. Revenues to the Navajo Tribe would include a fuel flowage fee and rentals on land. Exhibit 8-5 presents an estimate of annual revenues for a ten-year period. Airport operating expenses payable by the Navajo Tribe would include the cost of supplies and services to maintain the airport, the cost of operating the navigational aids and runway/taxiway system, and any miscellaneous costs. Using a 1982 estimate of \$6,500, expenses were allowed to grow in real terms at 1.5 percent per annum.

Exhibit 8-6 presents the total revenues, expenses and net cash resulting airport operations. As can be seen, net cash remains substantially below that required to cover the local share of the capital improvement program. This is consistent with the experience of other local governments with a low activity airport.

Exhibit 8-5

AVIATION-RELATED CASH REVENUES  
1980 DOLLARS

<u>Year</u>	<u>Fuel Flowage Fee</u>		<u>Land Rental</u>	
	<u>Gallons Consumed</u>	<u>Revenues @ 4¢/Gal.</u>	<u>Square Feet</u>	<u>Revenues @ 4¢/SF/Yr.</u>
1982	17,660	\$710	261,360	\$10,450
1983	20,090	800	261,360	10,450
1984	22,860	910	261,360	10,450
1985	26,000	1,040	261,360	10,450
1986	29,390	1,180	304,920	12,200
1987	33,230	1,330	304,920	12,200
1988	37,560	1,500	304,920	12,200
1989	42,460	1,700	304,920	12,200
1990	48,000	1,920	304,920	12,200
1991	51,060	2,040	349,200	13,970
1992	54,310	2,170	349,200	13,970

SOURCE: PRC Speas

Exhibit 8-6

NET CASH FROM AIRPORT OPERATIONS

<u>Year</u>	<u>Airport Revenues</u>	<u>Airport Expenses</u>	<u>Net Cash</u>
1982	\$11,160	\$6,500	\$4,660
1983	11,250	6,600	4,650
1984	11,360	6,700	4,660
1985	11,490	6,800	4,690
1986	13,380	6,900	6,480
1987	13,530	7,000	6,530
1988	13,700	7,110	6,590
1989	13,900	7,210	6,690
1990	14,120	7,320	6,800
1991	16,010	7,430	8,580
1991	16,140	7,540	8,600

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SOURCE: PRC Speas