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GOVERNOR'S OFFICE FOR EXCELLENCE IN GOVERNMENT

Office for Excellence in Government

Organizational Analysis Report of the Aeronautics Division Arizona Department of Transportation

June 1994

DEPARTMENT OF TRANSPORTATION
DOT
STATE OF ARIZONA

STATE OF ARIZONA

EXECUTIVE OFFICE
OFFICE FOR EXCELLENCE IN GOVERNMENT

FIFE SYMINGTON
Governor

TIMOTHY L. BONCOSKEY
Director

June 20, 1994

Mr. Larry Bonine
Director
Arizona Department of Transportation
206 South 17th Avenue
Phoenix, AZ 85007

Dear Mr. Bonine:

The Governor's Office For Excellence In Government's Organizational Analysis Team has completed its review of the Arizona Department of Transportation Aeronautics Division, and we are pleased to present to you our report of findings and recommendations. Our review was conducted from February, 1994, through April, 1994.

In total, the team made three formal recommendations that included 34 "bullet-point" areas of potential improvement. The first recommendation concerns policy issues related to the Grand Canyon Airport, while the other two recommendations address operations issues at the airport and at the Phoenix headquarters. Although we found no easily quantifiable cost savings in the Aeronautics Division, we are convinced that cost avoidance savings will occur as a result of increased morale and productivity resulting from the successful implementation of these recommendations.

Once again, I thank you and all of the ADOT staff who assisted the team in this effort, and I look forward to a continuation of the successful relationship with ADOT as we begin the Administrative Services Division study.

Sincerely,

Tim Boncoskey
Director
Office for Excellence in Government

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FIFE SYMINGTON
Governor

LARRY S. BONINE
Director

June 21, 1994

Mr. Tim Boncoskey, Director
Governor's Office for Excellence
1700 West Washington, Suite 300
Phoenix, AZ 85007

Dear Mr. Boncoskey:

We have reviewed the SLIM report for the Aeronautics Division and accept the findings and recommendations that have been detailed by your staff. Mr. Marcum and his team should be commended for their efforts and their willingness to work with our staff on some very challenging issues.

We look forward to the improvements that will come about in the Aeronautics Division as a result of the SLIM recommendations and our own Quality and Productivity Initiative. Ultimately, they will help us provide better customer service to the people of Arizona.

Sincerely,

Larry Bonine

qp
Continuous improvement is our way of life

TABLE of CONTENTS

Page

EXECUTIVE SUMMARY iii

I. GRAND CANYON AIRPORT POLICY ISSUES

- Grand Canyon National Park Airport - Overview 2
- Airport Classification 3
- Terminal Complex 5
- General Aviation Facilities 7
- Airport Support Facilities 8
- Demand Forecast 10
- Future Airport Development Issues 13
- Principal Finding 14
- Possible Future Options 15
- Recommendation 18

Appoint a Grand Canyon Airport Commission 18

II. GRAND CANYON AIRPORT OPERATIONS ISSUES 19

III. PHOENIX OPERATIONS ISSUES 21

TABLE of CONTENTS

Page

TABLE 1
GCN - Historical Airport Activity 12

TABLE 2
GCN - Capital Improvement Program 13

TABLE 3
GCN - Revenue and Expenditures by Fiscal Year 15

IV. APPENDICES

APPENDIX A
GCN - Existing Airfield 23

APPENDIX B
GCN - Navigational Aids 24

APPENDIX C
GCN - Lighting and Marking 25

APPENDIX D
GCN - Apron And Tiedown Area 26

APPENDIX E
GCN - Fuel Storage Facilities 27

APPENDIX F
GCN - Glossary of Aviation Terms 28

EXECUTIVE SUMMARY

The Governor's Office For Excellence In Government (OEG) initiated a review of the Arizona Department of Transportation (ADOT) Aeronautics Division in February, 1994. The review of the Division was conducted by a three person OEG Organizational Analysis Team and was completed in April, 1994. This summary describes the objectives of the review, the methodology used during the analysis, and the recommendations made as a result of the effort.

In total, three formal recommendations that include 34 "bullet-point" recommendations were written. The first recommendation contains strategic policy issues related to the division's management of the Grand Canyon Airport Facility. The second recommendation suggests a formal "partnering" session be conducted to address operations issues at the Grand Canyon Airport. It also suggests moving the ADOT employee housing facility at the airport to minimize the negative safety and quality of life impacts of planned helicopter operations near the current facility. The third recommendation calls for another formal "partnering" session to address operation issues at the division headquarters in Phoenix.

A fourth recommendation was discussed which concerned decentralizing the division's major functions to the appropriate process owners within ADOT, calling for the division to be managed horizontally in a project management style. It is felt this would increase the impact of the division through enhanced economies of scale and physical locations. It was mutually agreed upon that it would be more appropriate to address this recommendation when the team is in the Director's office studying ADOT strategic issues.

OBJECTIVES AND GOALS

The overall objective of the OEG review was to evaluate the Aeronautics Division using organizational analysis and Total Quality Management (TQM) techniques, identifying areas where improvements could be made in the delivery of the division's services. The goals were to streamline processes; improve systems and procedures; eliminate re-work and unnecessary work; and to re-align groups with related functions.

METHODOLOGY

The approach used in this study was to take an integrated view of the division, studying the following variables in each of the areas reviewed:

- leadership
- mission
- strategic focus
- process flows
- technological support
- information management
- organizational performance measurements
- quality and service levels (customer orientation)
- organizational structure
- logistics and physical assets

The analysis began with the team studying "shelf data" provided by the division, to become familiar with its mission, size, structure, and responsibilities. Next, an informal "partnering" session was held involving the OEG team and Aeronautics management. The purpose of the partnering session was to identify mutual expectations for the review, and to adopt an issue/conflict resolution procedure. The next phase was an extensive interviewing process aimed at all Aeronautics employees, ADOT management, and Aeronautics Division customers and constituents. The purpose of this activity was to identify potential areas for improvement within the division.

As issues were identified, meetings were scheduled with Aeronautics management and staff in an effort to reach consensus regarding issues on which the OEG team would focus its efforts. Those ultimately receiving such consensus were developed into the three formal recommendations contained in this document.

GRAND CANYON AIRPORT POLICY ISSUES

I. GRAND CANYON NATIONAL PARK AIRPORT -- AN OVERVIEW

Acknowledgement

Most of the background information contained in pages 2-12, the tables, and exhibits of this recommendation have been taken from the very detailed Master Plan for the Grand Canyon National Park Airport, prepared by Gilbertson Associates, Inc. and Coffman Associates, Inc. in January of 1991. (Note: In some cases, updated factual information and/or modified data has been addended to the narrative, tables and exhibits within the background section of this recommendation, to reflect activities or changes that have taken place since the time the Master Plan was originally issued three years ago.)

Locale

Grand Canyon National Park Airport (hereinafter referred to by its three-letter FAA designation of "GCN") is located in the Kaibab National Forest, just south of the unincorporated limits of Tusayan, six miles south of Grand Canyon National Park in northern Arizona. GCN is the third busiest air carrier airport in the state behind Phoenix and Tucson. The airport had 186,000 operations and over 535,000 passengers in 1993.

GCN is located approximately 81 miles north of Flagstaff, 146 miles southwest of Page and 60 miles north of Williams in Arizona. The major population centers are Las Vegas, Nevada, approximately 273 miles northwest; Phoenix, Arizona, 226 miles south; and Salt Lake City, Utah, approximately 419 miles north.

History

The United States Department of Agriculture conveyed the deed for the airport property to the State of Arizona in 1967 (from land controlled by the United States Forest Service) through Section 16 of the Federal Airport Act of 1946, as amended by the Federal Aviation Act of 1958. The airport property is surrounded on three sides (south, east and west) by the Kaibab National Forest and on the north by the unincorporated town of Tusayan.

In 1967, initial airport construction consisted of a 5,800 foot by 150 foot runway and a 75 foot wide parallel taxiway, equipped with Medium Intensity Runway Lights, a small aircraft parking apron, and access road to the airport from Arizona Highway 64. In 1968, the general aviation parking apron was expanded to 28,600 square yards and the Terminal Building was constructed. A major increase in airport capability occurred in 1972 when the runway and parallel taxiway were extended to a length of 9,000 feet.

In 1973, a building was constructed to contain the airport's Aircraft Rescue and Firefighting Equipment (ARFF). In 1974 and again in 1977, the aircraft parking apron was expanded. The Instrument Landing System (ILS) and Medium Intensity and Approach Lighting (MALSR) were installed during the period 1979-1982. In 1986-87, the aircraft parking apron was further expanded to its present size of 91,800 square yards.

EXISTING AIRPORT FACILITIES

This section presents a description of the existing facilities at the Grand Canyon National Park Airport.

Airport Classification

The National Plan of Integrated Airport Systems (NPIAS) classifies an airport in one of five categories based upon the airport's service level. The service level also determines the funding category (determined by Congress) of the airport to assist in airport development.

The GCN is classified as a Primary Commercial Service airport, defined as a "...public airport which ...enplanes 10,000 passengers or more and receives scheduled passenger service." Furthermore, GCN is sub classified as a Small commercial service airport as the annual enplanements are between 184,000 and 920,000 passengers. The NPIAS forecasts that the airport will remain in this classification throughout the NPIAS planning period (1986-1995).

The size of the airport property is approximately 858 acres. The airport's elevation is 6,606 feet above Mean Sea Level (MSL) and the airport is certificated under Federal Aviation Regulation Part 139.

Airfield Facilities. Airfield facilities at GCN include runways, taxiways, aprons, airfield lighting and navigational aids. It should be noted that *GCN is not equipped with an Airport Surveillance Radar* (italics added).

Runways. The airport is presently served by a single runway, 03-21, which is 8,999 feet by 150 feet and constructed of asphaltic concrete. The runway bearing strength is 88,000 pounds single wheel loading (SWL), 108,000 pounds dual wheel loading (DWL) and 160,000 pounds dual tandem wheel (DTW) loading. The runway gradient is 0.84 percent sloping to the southwest.

The instrument approaches available to Runway 03-21 are a precision instrument approach and a Very High Frequency Omni-range (VOR) nonprecision approach to Runway 03. There are no instrument approaches available to Runway 21.

Taxiways. A parallel taxiway, located 400 feet east of runway centerline, is 75 feet in width. In order to provide adequate parking area for aircraft, a portion of this taxiway is classified as a "taxilane" in order to achieve maximum available ramp space for parking aircraft. Like the runway, the taxiway is also constructed of asphaltic concrete. There are also six stub taxiways which connect the runway to the taxiway/apron. These taxiways are constructed with asphaltic concrete and are 75 feet in width. The major characteristics of the runway/taxiways are illustrated in Appendix A.

Navigational Aids. Ground-based electronic navigational aids are functionally described as either Enroute Navigational Aids (navaids that serve as a point-to-point navigational device and/or as part of a federally approved airway system) or Terminal Navigational Aids (navaids that assist in the approach-to-landing phase of flight and are part of a published instrument approach procedure). Some navaids serve both enroute and terminal roles in the FAA airway/airspace system.

Enroute Navigational Aids. Enroute navigational aids permit pilots to navigate through the airspace from their point of origin to final destination dependant upon the navigational equipment in the aircraft. The Grand Canyon VOR/DME, a Very High Frequency Omni-directional azimuth transmitter combined with Distance Measuring Equipment is located west of the runway near the Air Traffic Control Tower. The Grand Canyon VOR/DME serves as both an enroute and terminal navaid, providing azimuth and range information from the VOR/DME to the pilot.

The VOR/DME serves in the VOR and Low/Medium Frequency (L/MF) Airway System to provide point-to-point guidance along airways V-257, V-210, and V-293. The Grand Canyon VOR/DME also serves as a terminal navaid providing azimuth information for a non-precision instrument approach to Runway 03 and 21.

Terminal Navigational Aids. Terminal navaids are normally used in conjunction with an instrument approach procedure to provide the pilot assistance in landing at the airport in poor weather conditions or for practicing for such an occasion.

The Precision Instrument Landing System (ILS). A navaid that provides both azimuth, distance and glideslope information to the pilot, is available to Runway 03. This system is a Category I ILS, allowing approaches to a landing whenever the weather conditions permit a ceiling of 200 feet or greater and/or visibilities of one-half mile or greater.

The system provides four functions: vertical guidance provided by a glideslope beacon, horizontal guidance provided by a localizer beacon, distance furnished by marker beacons (such as middle markers and outer markers and/or DME) and visual alignment supplied by the approach lighting system.

Marker Beacons. Beacons that serve to identify a particular point in space along an approach (such as the decision point in the ILS approach where the pilot must observe

the runway visually or discontinue the approach), are normally located along the ILS course to a particular runway. The Middle Marker (MM) beacon is located near the end of Runway 03 to identify one-half nautical mile distance to the runway end on the ILS approach. Aircraft equipped with ILS receivers will receive an audio two-letter morse code signal as well as visual light indication, when the aircraft passes over the beacon.

Visual Approach Slope Indicators (VASI). Visual Approach Slope Indicators are installed on Runway 21. A VASI provides visual approach slope information to the pilot through a system of lights which can be observed up to a distance of four miles from an airport. The approach slope angle for the VASI at GCN is 3 degrees above horizontal.

Surveillance Radars. Surveillance Radars are used to assist pilots in enroute navigation and as an expeditious method of handling terminal area traffic and/or as a final approach aid in a non-precision instrument approach. At the present time, air traffic transiting south from Dragon and Zuni corridors, converge at a point northeast of the airport and request landing instructions. At this same point, departures from Runway 03 are climbing enroute to their assigned flight plans and *cannot be observed by radar until they reach 9,000 feet MSL* (italics added). Aircraft approaching the airport are sequenced by a flow control position in the tower.

Lighting and Marking. A variety of lighting aids are found at GCN to facilitate identification, approach, landing and taxiing operations at night and in adverse weather conditions. These systems are categorized by function and are listed in Appendix B.

Terminal Complex

The Terminal Facilities include the Terminal Building, Apron and Tiedown areas, hangars, Air Traffic Control Tower and other government facilities, Support Facilities and Utilities.

Terminal Building. Terminal Building Facilities at GCN include the major components of the passenger terminal system: access and processing. The terminal building is the facility which is the focal point for passengers travelling to and from GCN. It serves not only the commercial and general aviation passenger but also the tourists and visitors as well. The initial impact or impression of the airport on the passenger is normally made by the Terminal Building. Therefore, the facility is important not only with regards to its function on the airport but for its aesthetic impact on travellers as well.

Terminal Access. Vehicular access to the airport terminal consists of two entrance roads connecting the terminal area with Arizona Highway 64. This road loops into a parking lot adjacent to the terminal. All paved parking is designated for customers of the terminal building, rental cars or buses/vans. There is an unpaved long term/employee parking facility southeast of the terminal.

Enplaning/Deplaning Curb. The lanes in front of the terminal provide approximately 250 linear feet of uncovered, enplaning/deplaning curb length. The curb is used for both passenger pick-up and drop-off. The parking area for commercial vehicles (vans, buses, etc.) is in the parking lot opposite the main entrance to the terminal.

Automobile Parking. The paved parking lot can accommodate up to 160 cars and 40 buses and motor homes. The parking lot south of the terminal building contains parking for 28 automobiles and handicapped parking.

Passenger Processing. The next component in the terminal element is that of processing the enplaning (departing) passenger. This consists of ticketing, baggage handling, circulation area, security screening, waiting and ancillary services (restaurant, convenience, gift shop and telephones).

Ticketing. There are many airlines that operate at the airport, some who reserve space in the terminal and others that do not. Scheduled airlines who occupy space facilities are Scenic Airlines and Air Nevada, Air Vegas, Grand Airways, Eagle Canyon Airlines, Canyon/Windrock, AirStar, Kenai, and Grand Canyon Helicopters.

Baggage Handling. Pass through baggage handling is available at the Scenic Airlines and Air Nevada ticket counters. There are no curbside baggage handling facilities at the airport. The baggage makeup area for Scenic Airlines, and Air Nevada is located immediately behind the respective airline ticket counter. Baggage is then placed on a transporter and delivered to the aircraft. Baggage is retrieved from an arriving aircraft in much the same manner and either transported to the Baggage Claim area or to the airline, where it is picked up by the passenger.

Circulation. The terminal building has only ground level loading design capability and the baggage cart access roadway is located on the apron side of the apron/gate area. The majority of passengers arriving from or departing for their flights, pass through a single set of doors in the center of the terminal. Most passengers travel to and from the terminal to the Park by tour bus or van.

Corridors vary in width from 8 to 14 feet throughout the terminal, with the smallest corridor width serving deplaning/enplaning passengers to Gate 2 at the south end of the terminal building.

For deplaning passengers, two exits provide access to the baggage claim area. The 8 foot corridor widths are the same at both exits. The passenger, upon retrieving baggage at the outdoor baggage claim facility, must re-enter the terminal in order to obtain the services of a rental car agency, bus or other means of ground transportation. The signage in the terminal building is adequate. A gift shop and concession area operated by the gift shop personnel is located adjacent to the Lobby and Waiting Lounge. Telephones are also located in the lobby.

Public rest room facilities are located at the south end of the building. Interviews with GCN staff confirm the fact that restroom capacity is not satisfactory during peak tourist periods. Employee restrooms are located on either side of the south exit to the baggage claim area.

Rental car agencies are located in the north end of the terminal building, as well as transportation service agencies.

Mechanical/Equipment rooms and corridors combine to make up the additional area of the terminal building.

Apron and Tiedown Areas. There is one large apron area on GCN, which accommodates all scheduled and unscheduled airline activity as well as general aviation aircraft. The main apron is divided into three parts for ease of description: the General Aviation Apron, the Air Carrier Apron and the South Apron.

The main apron was constructed of asphaltic concrete in several stages. The original Air Carrier apron, approximately 14,000 square yards, was constructed with the initial runway (5,800 feet x 150 feet) in 1965-1967. The General Aviation apron, approximately 14,500 square yards, was added in 1968. In 1974, the Air Carrier apron was expanded to the south by about 16,000 square yards. An apron expansion (south apron) took place in 1986-87 with 51,000 additional square yards of apron constructed south of the Air Carrier apron, and another in 91-92 that added 10,000 square yards.

Due to the low volume of based aircraft, all the Air Carrier and South apron tiedowns are considered transient tiedowns. The local tiedowns are on the General aviation apron and they are managed by the Fixed Base Operator (FBO) Grand Canyon Airlines. Appendix D describes the pertinent facts about each of the apron areas.

General Aviation Facilities

General aviation facilities include apron and tiedown areas, hangars, fixed based operators, and fuel storage.

General Aviation Hangars. There is only one conventional hangar, a large 10,000 square foot hangar owned and operated by the FBO, Grand Canyon Airlines. There are presently no shade or T-hangars on the airport.

Fixed Base Operations. Grand Canyon Airlines is the only fixed base operator (FBO) at the airport. The FBO provides small aircraft and DeHavilland airframe repair, engine and some propeller and avionics repair. The FBO performs annual aircraft inspections, charter service, transient tiedown services and provides all the fuel service on the airport.

The FBO maintains an 8,384 square foot terminal building, constructed in 1977, with more than adequate pilot facilities. This building also accommodates the Grand Canyon Airlines Tour operations.

Fuel Storage Facilities. Grand Canyon Airlines stores and provides fuel to aircraft at the airport. The fuel storage facility contains eight underground storage tanks located at the north end of the airport, adjacent to Taxiway A. Three 12,000 gallon tanks store Jet A fuel and two 12,000 gallon tanks store 100 Low Lead fuel. One 8,000 gallon capacity tank is used for vehicle fuel. There is one unused 12,000 gallon storage tank. The status of the underground fuel storage tanks is listed in Appendix E.

Airport Support Facilities

Airfield support activities at GCN include an Air Traffic Control Tower (ATCT), Aircraft Rescue and Firefighting (ARFF), U.S. Forest Service, Airport Management and an Airport Housing area.

Air Traffic Control Tower (ATCT). The ATCT was constructed by the FAA in 1975. The tower operates from 6:00 am to 8:00 pm in the summer and from 7:00 am to 6:00 pm in the winter. There are presently eight ATCT controllers assigned to the facility. The tower is equipped with Automatic Terminal Information Service (ATIS) which provides 24 hour weather, altimeter and landing runway to pilots equipped with UHF radio transmitters. There is also an automated surface observation station (ASOS) located on the airport. This unit automatically takes weather observations and reports them to national weather service on a 24 hour basis.

Aircraft Rescue And Firefighting Facility. The Aircraft Rescue and Firefighting Facility (ARFF) is located north of the Terminal Building in a 2,100 square foot hangar constructed in 1978.

The ARFF is certified to provide Index A or B firefighting capability, in accordance with Federal Aviation Regulation (FAR) Part 139. Compliance with Index A requires that the airport be equipped with a minimum of one vehicle with a capacity of a combined 100 gallons of foam fire suppressant and at least 500 pounds of sodium based dry chemical or halon 1211. Index B requires the same as above plus a vehicle carrying an amount of water and commensurate quality of foam so that the total quality of water for foam production carried by both vehicles is at least 1,500 gallons.

The ARFF is equipped with one Oshkosh firefighting vehicle containing 1,500 gallons of water, foam suppressant material and 200 pounds of dry chemical. The airport's ten maintenance personnel are all trained in ARFF procedures and requirements. The airport also has a rapid intervention vehicle equipped with 50 gallons of foam and 500 pounds of dry chemical, and a structure fire fighting truck containing 1,000 gallons of water.

Snow Removal Equipment. On average, there are about 24 days annually when snow accumulates on the runway/taxiways, requiring removal. The airport maintains four vehicles equipped with snowplows for snow removal purposes and two rotary snowblowers.

U.S. Forest Services. The U.S. Forest Service leases a 3.8 acre parcel of land, located approximately midfield, that is a facility for storing fire retardant materials (slurry) for aerial delivery.

Airport Management. The Airport Manager and Airport Maintenance Supervisor are located in a modular building to the southeast of the terminal building. Airport management maintains the airport with 12 permanent personnel, which includes ten personnel assigned to maintenance, security and ARFF duties. The Coconino County Sheriff's department provides after hours surveillance security to the airport. Two airport buildings, one a 1,750 square foot maintenance building and one a 1,500 square foot vehicle storage building, are located southeast of the terminal building.

Airport Housing. The State of Arizona has constructed several homes on the airport for the airport employees due to a lack of housing facilities in Tusayan. The housing area, with approximately 15 homes and trailers, is located southeast of the terminal building. *See recommendation entitled Airport Housing and Safety on P. 20 of the report.*

Utilities. The airport is served with propane gas, water, sewer, electricity and telephone. Water for the airport is provided from two sources: a precipitation collection system and transportation of water from offsite.

Water System. The heart of the water collection system on the airport is a collection basin, which is located at the north end of the runway between the runway and taxiway. Storm water runoff is collected in this basin as well as from the roof of the Terminal. In normal years, the water collected by this system has met airport needs. However, at times, water had to be trucked to the airport from the Grand Canyon National Park or from the water supplies of Williams, Arizona.

The water system treats the water from the collection basin which is then used for domestic use. When sufficient water is not available for treatment, potable water is purchased and trucked in from the Williams area.

Domestic use water is distributed to the Terminal, FAA Tower, Employee Housing, Equipment Buildings (ARFF, vehicle storage and maintenance) and the FBO. Raw water is stored in two tanks, a 379,701 gallon underground storage tank located north of the Terminal and a 124,252 gallon above ground tank located east of the employee housing area. Any expansion or development of additional facilities will require a study of available water to support development.

A longstanding dispute over water rights was resolved in March of 1994 at a cost to the Arizona Aviation Fund in the amount of $6.7 million. The resolution of this case should solve the airports water problems for the foreseeable future, after modifications to the storage and collection system are made.

Waste Water System. The waste water system, which was established as a septic tank system, was modified in 1980 to a central collection and treatment system. Waste water is collected in an eight inch Polyvinylchloride (PVC) pipe and transported off the airport to a waste water treatment facility owned and operated by the South Grand Canyon Sanitary District. The airport pays a monthly fee for treatment and disposal of the airport's waste water.

Electric, Gas And Telephone. Electricity is supplied to the airport by Arizona Public Service. US West Telephone Company provides telephone service to the airport.

Propane Gas is used for heating purposes in some airport housing and is supplied by truck to individual storage tanks. Heating in the remaining housing, terminal building, ARFF station, offices, and maintenance buildings is electric.

DEMAND FORECAST

GCN is a very unique airport, probably one of the most unique in the country. This uniqueness stems from several factors as follows:

Service Area

Unlike most airports which serve a local or regional population base, the GCN, because of its unique location and foreign visitorship, has virtually a worldwide service area.

Origin-Destination Relationships

The passenger at GCN is also very unique. The key purpose of most passengers at an airport is to obtain transportation to a distant destination with the aircraft being the primary mode of transportation. At this airport, the purpose of many of the passengers is to use GCN for sightseeing tours and the primary mode of transportation may have been automobile or bus. Rail service is also included as an additional mode of transportation.

Type of Passenger

At most airports two passenger types are common: the business traveller and the pleasure traveller. The business traveller normally constitutes about 50 percent of passengers at most airports. At the GCN the tourist is the primary passenger type and represents over 98 percent of the enplaned passengers. The business traveller represents less than two percent of the enplaned passengers.

Airline Service

Most commercial service at an airport is scheduled passenger service. At GCN the majority of the passenger service is unscheduled.

World Economy Influences

The factors that influence enplanement levels at Grand Canyon National Park are based on the world economy. Many of the passengers are foreign and are attracted to the park based upon marketing strategies and their country's economy as well as the value of the dollar. some passengers, mostly U.S. citizens, arrive by automobile or similar conveyance. Their travel is influenced by gasoline prices and/or the availability of other competitive means of travel (bus, plane, railroad).

TABLE 1
GCN-Historical Airport Activity

YEAR	OPERATIONS [1]	ENPLANEMENTS	BASED AIRCRAFT
1979	89,786	176,000	13
1980	92,770	239,000	13
1981	108,859	230,000	13
1982	93,772	205,000	11
1983	90,305	199,000	11
1984	96,011	186,000 [2]	11
1985	88,688	69,000 [2]	9
1986	94,070	136,000 [2]	8
1987	120,180	424,960 [3]	8
1988	144,701	654,290 [3]	12
1989	151,975	705,660 [3]	15
1990	156,525	760,010 [3]	18
1991	160,891	871,677 [3]	21
1992	173,732	968,726 [3]	25
1993	187,444	1,063,431 [3]	25

Note: Off-airport helicopter operations included in total operations from May 1981 to present.

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[1] AIRPORT TOWER RECORDS.

[2] FAA TERMINAL AREA FORECASTS, 1984-1986.

[3] GCN AIRPORT RECORDS

FUTURE AIRPORT DEVELOPMENT ISSUES

The GCN Master Plan, prepared in January of 1991, identified $61 million in necessary capital improvements (L,B&I) to be developed in three discrete "stages" over a 20 year period, commencing in FY90 and ending in the year 2010.

Stage I (FY91-95) contained 37 projects totaling $22.6 million. To date, 15 of the projects totalling $3.6 million have been completed, mostly relating to the relocation of the heliport. The single largest project included within the Stage I was $7.5 million for the construction of a replacement Scheduled Airline Terminal, which was planned for construction in FY92. This key project has been deferred indefinitely as a direct consequence of a major commercial carrier (America West) cancelling regularly scheduled air service to GCN. Most of the infrastructure (utility stub-outs) is in place in the event the terminal is placed back in a future five-year CIP.

Three projects (high intensity runway lights, removal of approach obstructions, and apron and access road improvements) totalling $2.8 million are scheduled for completion in FY95.

Stage II and Stage III (FY97-99) projects totalling $11.9 million relate to the construction of the parallel runway.

The following table illustrates the five year planned capital improvement program (CIP) for GCN approved in March of 1994 by the Transportation Board for GCN:

TABLE 2
GCN - Capital Improvement Program

Year	Description	Total
94-95	Surface Taxiway and Apron (Pavement Preservation); Fire Protection	$ 3,650,000
95-96	Surface Taxiway and Apron (Pavement Preservation); Design Parallel Runway and Taxiway	$ 2,800,000
96-97	Grade, Drain & Surface Parallel Runway, Taxiway (Phase I)	$ 1,000,000
97-98	Grade, Drain & Surface Parallel Runway and Taxiway (Phase II)	$ 6,400,000
98-99	Grade, Drain & Surface Parallel Runway and Taxiway (Phase III)	$ 5,500,000
	TOTAL	$19,350,000

In summary, ADOT plans to expend $19.3 million on capital improvements through FY99, mostly related to construction of the parallel runway. (Note: The new terminal is not included in the CIP.)

PRINCIPAL FINDING

After 27 years of "stewardship" by the ADOT Aeronautics Division and a capital investment of $13.4 million, excluding infrastructure (runway/taxiways), GCN is, at the present time, a marginal facility in nearly all respects. Interviews with tenants and tourists confirm the fact that the terminal is too small and overcrowded. Other interviews with FAA Air Traffic Control staff validate ADOT's position that an additional parallel runway is needed immediately as the growth in traffic has the existing runway and taxiways functioning at capacity during peak periods. Most major equipment (rolling stock) is rebuilt surplus and/or aged equipment.

The $19.3 million in capital improvements contemplated through FY99 will not begin to bring GCN to an acceptable level standard to serve the international tourist clientele into the next century. (Note: This finding relates to the broad issue of whether the state has succeeded as an airport operator and does not reflect on the current ADOT staff operating the facility who are performing in a satisfactory fashion, considering the resources that have been made available to them.)

POSSIBLE FUTURE OPTIONS

Option 1 - "Empower" GCN with the Appropriate Financial Management Tools

Currently, "excess" revenues over expenditures at GCN are transferred into the Arizona Aviation Fund. The Transportation Board establishes the policies and priorities for distribution of these dollars to all airports in the state. GCN must, in a sense, "compete" with all other airports within the state for its "share" of funding.

TABLE 3
GCN - Revenue and Expenditures by Fiscal Year

Fiscal Year	Revenues	Expenditures	Transfers to AZ Aviation Fund
FY90	808,000	437,000	371,000
FY91	977,000	687,000	290,000
FY92	1,025,000	840,000	149,000
FY93	1,021,000	632,000	389,000
FY94*	1,095,000	635,000	460,000

*Estimated

Page 7-8 of the Master Plan contained the following statement relative to enterprise funds:

> It is recommended that the airport revenue and expenditures be accounted for under an enterprise fund financial management system. This system would allow airport management to more closely monitor revenue and expenses, obtain positive feedback on management programs and the ability to respond quickly to adverse situations. An enterprise fund also provides a more efficient system to track federal grants and expenditures for capital improvement.

That recommendation is more valid today than when the plan was drafted. An enterprise fund would allow GCN to be much more "entrepreneurial" in its approach to doing business. Fund reserves could be created and earmarked for equipment replacement including rolling stock. Reserve accounts could be established for the construction of buildings and other necessary major capital expenditures. The various sources of revenue, including locally generated funds could be "pledged" to secure revenue bond financing to assist in funding the five and ten year CIP in a more expedient fashion.

Without such financial flexibility, it is difficult to predict with certainty, when the necessary and long overdue capital improvements such as a replacement terminal will take place.

In summary, GCN needs to be "empowered" with the same financial tools and access to the private sector capital markets that other publicly owned and operated airports possess, such as the cities of Phoenix and Scottsdale. This is the only way that GCN will be able to control its own destiny and fulfill its mission of becoming a "world class" facility to serve its unique role of gateway to one of the natural wonders of the world. A continuation of the current approach to the development of this strategic state asset will result in a facility that will further erode the image of the State of Arizona in terms of safety and convenience to the international, national and regional tourist.

Option 2 - "Revisit" Privatization

Alternatively, if the necessary financial reforms are deemed to be not feasible, it may be advisable to revisit the issue of privatization of GCN operations.

From 1985 through 1998, GCN was managed and operated by AVCO Management Services Corporation under a lease contract with the ADOT Aeronautics Division. Based upon interviews with current GCN tenants and FAA tower personnel, it was clearly evident that there was a noticeable and precipitous decline in services to the general public during the period the private contract was in force. There appears to be a unanimous consensus on the part of ADOT staff that participated in this three year experiment, that this effort was a failure.

Indeed, according to Coffman Associates, the revenue received by the state during the contract duration was only 20 percent of "typical" revenues when the facility was under the direct control of ADOT. It should be pointed out, however, expenses to the state were negligible, averaging 5 percent during the same contract period. Nevertheless, there were clearly lessons learned from this experience.

There could potentially be several advantages to GCN from the contracting of airport operations. Free access to capital markets is one particular advantage. A contractor could enter into long term debt arrangements with private lenders for the purpose of financing capital improvements. Moreover, a contractor could enter into joint ventures with current GCN tenants. In point of fact, a current tenant has "offered" to participate in such an agreement, however, there is no current "mechanism" in place statutorily that would accommodate such a partnering approach.

Finally, assuming that the contractor has relevant experience in managing "like" facilities at other locations, it would seem that the state could benefit from innovative management methods and techniques and new technology that could be "transferred into" GCN operations that would improve service to customers.

In summary, all of these conclusions are predicated on the assumption that ADOT now has or could acquire basic competency in performance contracting methods and techniques including the ability to monitor and encourage full performance from a private contractor. Additionally, an existing deed covenant requires FAA approval to grant a private firm "the exclusive right for the conduct of any aeronautical activity" at GCN. Because of this reserved right, the FAA would have final say in this matter.

Option 3 - "Divest" Operations of GCN

Another alternative would be to completely divest operations at GCN. A business case could be put forth that the State of Arizona lacks the capacity or the means to manage a facility of the magnitude of GCN.

Additionally, in the purest sense, GCN represents an unfunded (excluding entitlements) federal mandate that the taxpayers of the state can ill afford. This is particularly true when you consider the fact that the state receives minimal positive fiscal impact in the form of excise taxes generated at the Grand Canyon Village ($1.3 million) as a contribution to overall state revenues. Moreover, GCN staff estimates that 70% of all flights originate at McCarran Airport in Las Vegas. From an aviation standpoint, Nevada is the Grand Canyon State and benefits directly from capital expenditures paid for by citizens of Arizona.

Finally, when GCN was contemplated in the late 1950s and early 1960s, tourist traffic in and around the Grand Canyon was not a problem. At that time, it made sense from a public policy standpoint to encourage an aviation "gateway" to the Canyon. However, in the intervening years, overflights in and around the Canyon have become a very heated issue with very complex public policy overtones. It may no longer be a rational policy decision to continue to invest scarce state resources in a facility that contributes to the alleged degradation of the environment and has little positive impact on the state or local economy.

In summary, ADOT could "walk away" from the operations of GCN. A deed restriction would revert the property to the federal government in the event the property would "cease to be used for airport purposes for a period of six months" as determined by the FAA. This would, of course, mitigate any future fiscal impacts on the Arizona Aviation Fund, with the exception of entitlement grants, which would continue to flow to any subsequent operator of GCN, assuming operations continued.

RECOMMENDATION

Appoint a Grand Canyon Airport Commission

To address the principal finding; that after 27 years of "stewardship" by the ADOT Aeronautics Division and a capital investment of $13.4 million or more, excluding infrastructure (runway/taxiways), the facilities at GCN, at the present time, are marginal in nearly all respects. This finding does not reflect on the current ADOT staff operating the facility who are performing in a satisfactory fashion, considering the resources that have been made available to them. The state (or a private contractor) needs either to (1) invest in the asset in amounts much greater than the planned levels to serve the international/national tourist clientele into the next century or (2) divest itself from this operation based on a "business case" model that says the State of Arizona should not be in the airport management business.

Furthermore, recent federal actions concerning "over flights" in the Grand Canyon National Park beg the question; Is an airport located this close to the Grand Canyon an environmentally appropriate venture?

Due to the ramifications of the above mentioned policy-management options, the Office for Excellence in Government recommends that Governor Symington, through ADOT, appoint a high level regional Commission for the purpose of reviewing the options discussed within the body of this report and making a consensus written report to the Governor in a timely fashion.

Membership on the Commission could be comprised of stakeholders that have an interest in the future of GCN. Suggested appointees representing significant segments of the communities within Northern Arizona could include, but are not limited to, the following:

Government:

- US Department of the Interior/Park Service (Grand Canyon Park Superintendent)
- Arizona Office of the Governor
- Arizona Department of Transportation
- Arizona Department of Commerce
- Arizona Office of Tourism
- Coconino County Board of Supervisors
- Cities of Flagstaff, Page and Williams

Non-Government:

- The Grand Canyon Trust
- Chambers of Commerce & the Greater Flagstaff Economic Development Council
- Grand Canyon Village/Tusayan Business Community

Moreover, due to the importance of this issue, the OEG recommends that an executive order be drafted promulgating the Commission. Staff support to the Commission would be provided by OEG, as required.

II. GRAND CANYON AIRPORT OPERATIONS ISSUES

The team recommends that a formal, facilitated partnering session be conducted between Aeronautics and ADOT management and Aeronautics line staff at the Airport. The session should be held at the Airport, and should be directed toward formulating a plan, using Total Quality Management Principles, which addresses the following issues:

STRUCTURE/ALIGNMENT

- Develop expertise in contract negotiation and management at GCN
- Have only one shift supervisor, utilizing lead man concept on each shift
- Develop Airport Technicians as building maintenance/equipment repair people who have at least one of two other specialties: public safety/security or EMT/fire fighting
- Develop plan to address gap between GCN mission statement and current situation

LEADERSHIP/MORALE

- Address policy and management style differences between the two airport technician shifts
- Upgrade Airport Technician series positions to reflect responsibilities

PRODUCTIVITY ENHANCEMENTS/PROCESS IMPROVEMENTS

- Provide trailer-based bathroom facility for south ramp
- Provide strategically located portable toilets
- Partner with Office of Tourism, Dept. of Commerce, and Az. Highways Magazine management to maximize PR and economic development potential of Airport
- Commence peer reviews, subordinate reviews of supervisors, and customer input as part of EPAS process

EXTERNAL ENVIRONMENT

- Job description and advertising for Airport Technician positions needs to be changed to reflect that 90% of job is building maintenance/equipment repair - not fire fighting and EMT
- Collect fuel flowage fee (at approximately five cents per gallon)
- Determine feasibility of applying to FAA to enact a passenger facility charge (at approx. $3/passenger)
- Re-design and build new terminal
- Facilitate building of new runway
- Pursue FAA approved radar and new tower

AIRPORT HOUSING AND SAFETY

An additional issue the OEG team wishes to highlight is that of employee housing. Currently, ADOT employees are housed at the Airport facility itself. For years, this has been a quality of life and a safety issue for both employees and management. This situation will be exacerbated in the Summer of 1995 when the new heliport is expected to become operational.

It should be noted that the housing situation is probably the most significant problem faced by business and government entities in the Grand Canyon south rim area. Each employer must subsidize housing to some degree in order to maintain even minimal staffing levels. This is due primarily to the remote location and the lack of available private housing and land.

To date, the most promising prospect for moving ADOT housing from the airport is with the proposed Canyon Forest Village development. This housing and commercial area would be located southeast of the airport along Highway 180. It would involve a land exchange with the U.S. Forest Service. The exchange is currently in the first stages of the National Environmental Protection Act (NEPA) process.

It is recommended that ADOT support the development of alternate sites for employee housing, negotiate adequate space at a new site for current and projected employee levels, and move ADOT employees to the new location as soon as possible.

III. PHOENIX OPERATIONS ISSUES

The Team is also recommending that a formal, facilitated partnering session be held to address the operations issues identified in the Phoenix headquarter operation of the division. This partnering effort should devise a plan to address the following issues:

STRUCTURE/ALIGNMENT

- Move aviation field representative position to Division Director's Office
- Restructure revenue collection process

LEADERSHIP/MORALE

- Allow staff to use side stairwell
- Change mail distribution procedure to meet group needs
- Change phone system to meet group needs
- Ensure that administrative/clerical support is equally available to all
- Improve travel procedures
- Develop a plan for building Division into a high performance TQ team

PRODUCTIVITY ENHANCEMENTS/PROCESS IMPROVEMENTS

- Log aircraft "N" numbers during 5010 (or other) airport visits
- Establish a TQ Project Team work environment
- Commence peer reviews, subordinate reviews of supervisors, and customer input as part of EPAS process
- Streamline aircraft registration process
- Streamline airport development process
- Improve coordination between state and federal aviation planning
- Discontinue low value-added advertising

EXTERNAL ENVIRONMENT

- Develop plan to enhance the level of partnering with the FAA
- Evaluate the effectiveness of the 5010 program and Pavement Management System (PMS)
- Stimulate interaction between aeronautics and the other ADOT Divisions - to develop partnerships in planning, pavement management, aircraft registration, revenue collection, etc.

APPENDICES

Appendix A
GCN-Existing Airfield

Facility [4]	Material	Width	Length
Runway 03-21	AC	150 ft.	9,000 ft.
Taxiway 03-21	AC	75 ft.	9,000 ft.
Taxiway A	AC	75 ft.	300 ft.
Taxiway B	AC	75 ft.	400 ft.
Taxiway C	AC	75 ft.	400 ft.
Taxiway D	AC	75 ft.	400 ft.
Taxiway E	AC	75 ft.	400 ft.
Taxiway F	AC	75 ft.	400 ft.
Taxiway G	AC	75 ft.	400 ft.

[4] ALL RUNWAY/TAXIWAY PAVEMENT WILL SUPPORT 88,000 POUND SWL, 108,000 POUNDS DWL, AND 160,000 POUNDS DTW. SV = ASPHALTIC CONCRETE, NA = NOT APPLICABLE

Appendix B
GCN-Navigational Aids

NAVAID				
Description	**Enroute/ Terminal**	**Frequency/ Channel**	**Approach To Runway**	**Location**
Grand Canyon VOR/DME	Both	113.1/78	03,21	0.16 nm west of airport
ILS	Terminal	108.9	03	Runway 03
Middle Marker	Terminal	NA	03	0.5 nm South of Runway 03
VASI	Terminal	NA	21	on airport

NA = Not applicable
nm = Nautical miles
Rwy = Runway

Appendix C
GCN-Lighting and Marking

	Runway 03	**Runway 21**
Medium Intensity Rwy Lights (MIRL)	Yes	Yes
Threshold Lighting	Yes	Yes
Runway End Identifier Lights (REIL)	No	Yes
Approach Lighting - MALSR	Yes	No
Precision Instrument Marking	Yes	No
Non-Precision Instrument Marking	No	Yes

Appendix D
GCN-Apron And Tiedown Area

Number of Aircraft Positions				
Apron	**Size (s.y.)**	**Airline**	**Commuter**	**General Aviation**
General Aviation	14,600	NA	3	27
Air Carrier	30,000	2	12	40
South Apron	61,000	NA	0	60
TOTAL	95,600	2	15	127

Gen. Aviation = Single and twin engine aircraft, 12,500 lbs or less
Commuter = DeHavilland Dash 6
Airline = Boeing 737 or DeHavilland Dash 8
NA = Not Applicable

Appendix E
GCN-Fuel Storage Facilities

Tank	Size (gal)	Installed	Last Inspection	Fuel Stored
1	8,000	1967	1993	Auto Fuel
2	12,000	1967	1993	Jet A
3	12,000	1967	1993	Jet A
4	12,000	1967	1993	Jet A
6	6,000	1972	1993	100 LL
7	12,000	1972	Closed	None
8	12,000	1972	1993	100 LL

*The underground fuel is stored in an area that is within the Part 77 primary surface.

Appendix F
Glossary of Aviation Terms

AIR CARRIER: An air carrier holding a Certificate of Public Convenience and Necessity issued by the Department of Transportation to conduct scheduled services over specified routes and a limited amount of nonscheduled operations.

AIR TAXI: An air taxi operator which: (1) performs at least five round trips per week between two or more points and publishes flight schedules which specify the times, days of the week and places between which such flights are performed; or (2) transports mail by air pursuant to a current contract with the U.S. Postal Service.

AIR TRAFFIC: Aircraft operating in the air or on airport surface, exclusive of loading ramps and parking areas.

AIRPORT OPERATIONS: The number of arrivals and departures from the airport at which the airport traffic control tower is located. There are two types of operations: local and itinerant. (Chapter II).

1. Local operations are performed by aircraft which:
   (a) Operate in the local traffic pattern or within sight of the airport,
   (b) Are known to be departing for, or arriving from flight in local practice areas located within a 20-mile radius of the airport;
   (c) Execute simulated instrument approaches or low passes at the airport.

2. Itinerant operation are all aircraft operations other than local operations.

AIRPORT TRAFFIC CONTROL TOWER (ATCT): A terminal facility which, through the use of air/ground communications, visual signaling, and other devices, provides ATC services to airborne aircraft operating in the vicinity of an airport and to aircraft operating on the movement area. There are five types of ATCTs: radar, limited radar, nonradar, VFR, and contracted towers.

FAA: Federal Aviation Administration.

GENERAL AVIATION OPERATIONS: Takeoffs and landings of all civil aircraft, except those classified as air carriers or air taxis. (See also Airport Operations).

INSTRUMENT FLIGHT RULES (IFR): Rules governing the procedures for conducting instrument flight.

INSTRUMENT OPERATION: Arrivals or departures of an aircraft in accordance with an IRF flight plan or special VFR procedures or an operation where IFR separation between aircraft is provided by a terminal control facility. There are three kinds of instrument operations:

1. Primary Instrument Operations: arrivals and departures at the primary airport which is normally the airport at which the approach control facility is located.

2. Secondary Instrument Operations: arrivals and departures at all the secondary airports combined.

3. Overflights: operations in which an aircraft transits the area without intent to land.

ITINERANT OPERATIONS: See Airport Operations.

LOCAL OPERATIONS: See Airport Operations.

NONRADAR ATCT: An airport traffic control tower providing approach control service without the use of radar.

VFR TOWER: An airport traffic control tower providing takeoff and landing services only.

VISUAL FLIGHT RULES (VFR): Rules that govern the procedures for conducting flight under visual conditions. The term (VFR) is also used in the U.S. to indicate weather conditions that are equal to or greater than minimum VFR requirements. In addition, it is used by pilots and controllers to indicate type of flight plan.