

# GCN Airport Master Plan Update Executive Summary

## Introduction

The Grand Canyon National Park Airport (GCN) Master Plan Update was initiated by the Arizona Department of Transportation (ADOT), Aeronautics Division to devise a long-term, 20-year development concept in an effort to evaluate and recommend capital improvements necessary to accommodate projected aviation and passenger demand at the facility.

The master plan update identified a scheduled implementation plan consistent with Federal Aviation Administration (FAA) design standards and ADOT aviation development policies. The accepted and approved master plan update will enable ADOT Aeronautics to implement improvement projects in a coordinated fashion and apply for Federal Airport Improvement Program (AIP) development grants for eligible capital improvement projects depicted on the updated GCN Airport Layout Plan (ALP) drawings.

The ALP set of drawings, which is the culmination of the master plan process, is a graphic representation of existing and ultimate airport facilities which serves as a public document intended to reflect changes in physical features and land use, as well as depict the physical layout of the facility as it applies to applicable FAA design standards.

Aside from the master plan update, additional studies were conducted concurrently with the master plan including an airport security plan and threat assessment, business development plan, fees, rates and charges study, as well as the development of airport minimum standards.

## Project Background

GCN, owned and operated by ADOT Aeronautics, is a small hub primary commercial service airport located five miles south of the Grand Canyon's South Rim adjacent to the Community of Tusayan. The airport annually enplanes approximately 330,000 passengers, manages nearly 101,000 annual aircraft operations and hosts nearly 50 based fixed wing and rotor wing aircraft.

The primary factors necessitating the completion of an update to the airport's master plan was to determine what terminal area facility needs were required to expand the airport's terminal building in order to accommodate future passenger demand. Projected passenger demand resulted from updating the airport's passenger forecasts based upon market factors such as Grand Canyon National Park visitation and Las Vegas tourism. Secondly, the master plan update was intended to evaluate the airport's demand capacity to ensure that annual and hourly capacity were capable of safely and efficiently accommodating future aircraft activity, as well as ensuring annual and hourly delay were within acceptable operational levels.

# Master Planning Process

The goal of the GCN Master Plan Update was designed to assess the airport's current and future role; provide direction and guidance regarding future airport development priorities; establish guidelines to promote capital development in a financially feasible manner; conduct an inventory of the airport to establish baseline aircraft and passenger activity levels; generate 20-year aircraft operations and passenger enplanement forecasts; determine future airside and landside facility requirements; perform an airport demand capacity analysis; generate alternative airfield and terminal area development concepts; establish a 20-year Capital Improvement Program (CIP); and update the set of Airport Layout Plan (ALP) drawings.

Initiated in 2003, the GCN Master Plan Update involved the appointment of an Airport Planning Advisory Committee (PAC) by ADOT Aeronautics to facilitate planning coordination, public awareness and communication at the local level. The PAC was comprised of various Federal, county, local community and airport constituents representing a broad range of interests unique to the Grand Canyon region. PAC members included representatives from the National Park Service, National Forest Service, FAA, Coconino County, Sierra Club, businesses in the Community of Tusayan, U.S. Air Force, the Navajo Nation, the Grand Canyon Chamber of Commerce, the Grand Canyon Railroad, local air tour operators and ADOT Aeronautics.

Throughout the master plan process, the PAC advised ADOT and provided the consultant team with input regarding the development of the airport's 20-year CIP. A series of five PAC meetings were held, in addition to three technical meetings, in which the PAC was presented with the master plan assumptions, results, recommendations and methodologies. Review comments and questions generated by the PAC were considered during the formulation of the master plan update.

## Aviation Demand Forecasts

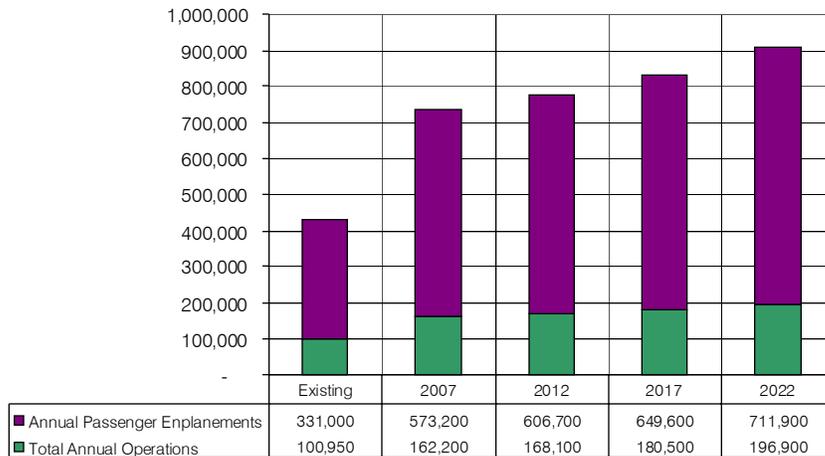
The GCN Master Plan Update forecast element was used as a method to determine the need for possible future capital development, as well as investment in the overall facility. Essential to this determination was the generation of forecasts and projected growth in airport activity. Demand forecasts provided a means for determining the type, extent, size, location, timing, and financial feasibility of capital development. Consequently, demand forecasts influenced virtually all remaining phases of the master planning process.

GCN is currently the third most active commercial service airport in the state, following Phoenix Sky Harbor International Airport and Tucson International Airport. An Economic Impact Study of GCN was conducted by The Economic Outlook Center of the College of Business, Arizona State University and estimated the total combined economic impact attributed to the Airport produced 900 jobs and more than \$50 million dollars in annual economic benefit to the northern Arizona region, Coconino County, as well as the Community of Tusayan.

In spite of trends indicating increasing aviation and economic activity since 2001 (including the improvement in the domestic and international markets), the projections of future aviation activity are constrained by the existing Grand Canyon Special Flight Rules Area (SFAR 50-2) restrictions and air tour competition from other airports/heliports in the vicinity.

The SFAR 50-2 overflight cap is expected to limit the number of fixed wing and rotor wing aircraft flights to 90,200 which translates into a projected maximum number of annual Enplanements totaling approximately 711,900. An increase in the Grand Canyon tour business within the Hualapai Reservation will also affect the future growth of aviation activity at the GCN.

### GCN Enplanement and Operational Forecast Summary



### Aviation Demand Forecast Summary Grand Canyon National Park Airport

	Existing	2007 (5 year)	2012 (10 year)	2017 (15 year)	2022 (20 year)
<b>Total Forecast Based Aircraft</b>					
Single-Engine Aircraft	16	14	16	18	19
Piston Multi-Engine Aircraft	6	5	6	7	7
Turbine Multi-Engine Aircraft	2	2	1	1	2
Business Jet Aircraft	0	0	0	0	0
Helicopters	22	17	17	17	17
<b>Total Based Aircraft</b>	<b>46</b>	<b>38</b>	<b>40</b>	<b>43</b>	<b>45</b>
<b>Forecast Commercial Service Aircraft Fleet Operational Activity</b>					
Single-Engine Aircraft	4,200	11,800	16,200	21,400	27,600
Piston Multi-Engine Aircraft	1,600	3,000	3,000	3,200	3,400
Turbine Multi-Engine Aircraft (15 Seat)	9,400	18,200	17,600	18,000	19,400
Turbine Multi-Engine Aircraft (19 Seat)	28,200	54,600	52,600	53,800	57,600
Turbine/ Jet Aircraft	100	100	400	400	600
Helicopters	51,200	66,400	68,200	72,000	73,800
<b>Forecast Commercial Service Aircraft Fleet Share of Passenger Enplanements</b>					
Single-Engine Aircraft	9,700	26,000	36,500	48,100	61,900
Piston Multi-Engine Aircraft	4,800	8,900	9,100	9,600	10,300
Turbine Multi-Engine Aircraft (15 Seat)	43,500	80,000	82,100	86,600	92,900
Turbine Multi-Engine Aircraft (19 Seat)	164,300	302,200	310,200	327,300	350,800
Turbine/ Jet Aircraft	2,400	4,400	13,700	14,400	20,600
Helicopters	106,300	151,100	155,100	163,600	175,400

<b>Total Forecast Annual Aircraft Operational Activity</b>					
Local Operations	150	400	800	1,100	1,500
Air Carrier Operations	100	100	400	400	600
Air Taxi/ Commuter Operations	94,900	154,100	158,000	168,800	182,400
Military Operations	600	1,300	1,500	1,700	1,900
General Aviation	5,200	6,300	7,400	8,500	10,500
<b>Total Annual Operations</b>	<b>100,950</b>	<b>162,200</b>	<b>168,100</b>	<b>180,500</b>	<b>196,900</b>
<b>Annual Passenger Enplanements</b>	<b>331,000</b>	<b>573,200</b>	<b>606,700</b>	<b>649,600</b>	<b>711,900</b>
<b>Annual Instrument Approaches (AIA)</b>	<b>1,400</b>	<b>2,250</b>	<b>2,350</b>	<b>2,550</b>	<b>2,850</b>

*Source:* BWR, Summary of the Aviation Demand Forecasts, August 2003 (Revised December 2003).

Passenger enplanements at GCN are expected to increase approximately 1.15 percent per year totaling an additional 380,900 enplanements annually at the conclusion of the 20-year planning period (2022). Aircraft operations will gradually increase at 0.9 percent annually and yield an additional 95,900 operations totaling 196,900 annual operations in 2022.

## Capital Improvement Program

The facility requirements chapter illustrated the Airport's shortfall in meeting the forecast demand. This CIP chapter presents projects and arranges them in a schedule to meet the demand throughout the 20-year planning period. The capital improvement program for GCN is based on short (0-5 year), intermediate (6-10 year) and long term (11-20 year) development requirements. The CIP cost estimates for all three phases of development at GCN are based on the current dollar value without consideration being given to inflation. It is important to emphasize that although projects are arranged in specific time frames, the entire CIP program is demand-based. If the demand levels are more or less than forecast, then adjustments are made to the CIP in subsequent years.

The most notable capital improvement projects to take place during Phase I (2003-2007) of airport development include the following items:

- Rehabilitate Runway 3-21
- Construct ARFF/ SRE/ Maintenance/ Operations Facility
- Construct Phase I Terminal Building and Auto Parking Area Improvements
- Replace and Acquire Multiple SRE, Operations and Maintenance Vehicle
- Conduct Terminal Area Plan, Wildlife Attractant Study, and Environmental Study for Runway Extension

The most notable capital improvement projects to take place during Phase II (2008-2012) of airport development include the following items:

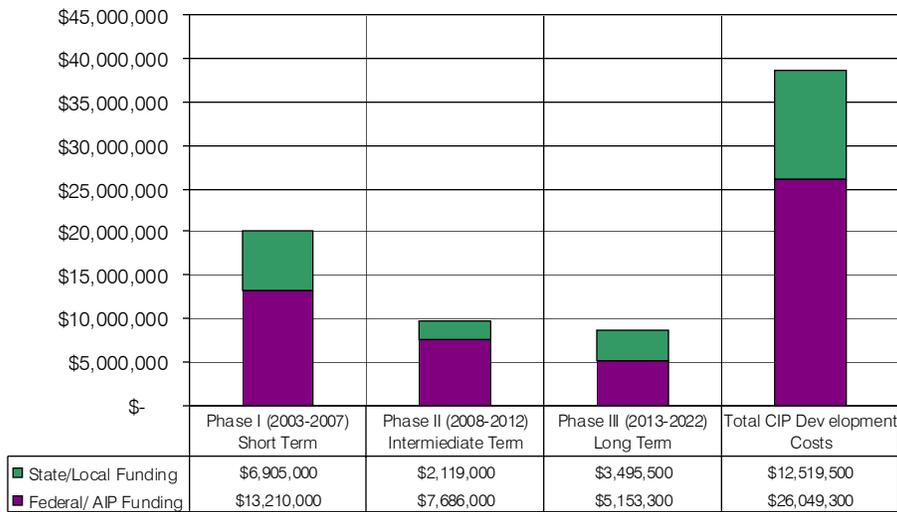
- Construct Runway 3-21 1,001 foot Extension to 10,000 feet
- Rehabilitate Taxiway System
- Rehabilitate Airport Apron
- Construct Phase II Terminal Building and Auto Parking Area Improvements
- Rehabilitate Terminal Area Access Road
- Update Master Plan

The most notable capital improvement projects to take place during Phase III (2013-2022) of airport development include the following items:

- Overlay Runway 3-21 and Taxiway System
- Rehabilitate Airport Apron and Terminal Area Access Road
- Construct Phase III Terminal Building and Auto Parking Area Improvements
- Conduct Fuel Facility Improvements
- Conduct Water System and Electrical System Improvements

The following illustration presents the total expected capital expenditures during the short, intermediate and long term planning periods which include the recommended financing method (i.e. Federal AIP, state and /or local funding).

### Capital Improvement Expenditure Summary



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