

National Park Service
Federal Aviation Administration
U.S. Department of the Interior



SPECIAL FLIGHT RULES AREA IN THE VICINITY OF GRAND CANYON NATIONAL PARK

Environmental Impact Statement

Progress Report #1
April 2007

SPECIAL FLIGHT RULES AREA IN THE VICINITY OF GRAND CANYON NATIONAL PARK ENVIRONMENTAL IMPACT STATEMENT

PROGRESS REPORT #1 APRIL 2007

To the many people interested in the Grand Canyon:

The Federal Aviation Administration (FAA) and National Park Service (NPS) are pleased to provide you with a status report on the progress made in developing an environmental impact statement (EIS) related to the management of air tour overflights at Grand Canyon National Park. This study is being prepared under the provisions of the National Environmental Policy Act of 1969 (NEPA) and the National Parks Overflights Act (Public Law 100-91), which calls for the substantial restoration of the natural quiet and experience of Grand Canyon National Park. The study will address environmental and related impacts that may result from the alternatives proposed related to the management of air tour flights over the park.

A "Notice of Intent" to prepare an environmental impact statement was published by the Federal Aviation Administration and National Park Service on January 25, 2006, and public scoping meetings were held in February 2006. Since that time a planning team composed of FAA and NPS staff, and their contractors, has been organized and has been diligently working on preparing a draft document. Although much work still needs to be done, sections of the draft document are taking shape, including the descriptions of the purpose and need and the range of alternatives being considered by the National Park Service and Federal Aviation Administration. A preferred alternative will be identified based on the preliminary analysis that is now underway.

The interagency planning team has also been conducting tribal consultations with affiliated American Indian tribes. Tribal concerns have been incorporated into the range of alternatives, as well as into the analysis of environmental consequences.

This progress report indicates what has been done on the "Purpose and Need," and "Affected Environment" chapters of the document, including the impact topics that will and will not be analyzed by the planning team. These chapters lay the groundwork for the future analysis of the impacts of the proposed alternatives. We also briefly describe the range of preliminary alternatives that will be analyzed in the study. In addition, the progress report includes a summary and technical update on noise modeling, which will be a key element in analyzing the impacts of the alternatives. The progress report concludes with a description of what the planning team will be focusing on during the upcoming months, including opportunities for you to provide input.

We appreciate your interest in the Grand Canyon and the development of this study. We will continue to strive to keep you fully abreast of our progress on this project. If you have questions regarding the study, you can find additional information at the joint FAA/NPS website: <<http://overflights.faa.gov>>.

Sincerely,

/s/
Ken McMullen
NPS Project Co-leader

/s/
Barry Brayer
FAA Project Co-leader

PURPOSE AND NEED FOR THE ENVIRONMENTAL IMPACT STUDY

A draft of “Chapter 1, Purpose of and Need for the Study” has been completed. This chapter sets the framework for the entire document. It describes why the study is being prepared and what needs it must address. The chapter also describes the background of this study, identifies the nature of the federal action and the scope of analysis, points out agency policies and mandates that provide direction for developing the study, and details the public and agency issues and concerns that were raised during the scoping period.

Chapter 1 also identifies which impact topics will and will be not analyzed in detail. The planning team decided which impact topics the analysis should focus on — the resources and people that could be affected by implementing the proposed alternatives. The topics, which are listed below, are based on federal laws, regulations, and orders; on agency policies; and on tribal, public, and other agency concerns identified during scoping. The study will present brief rationales for why each impact topic was or was not selected for analysis.

Impact Topics to Be Analyzed

- Noise and soundscape resources in the park
- Noise in areas outside park boundaries
- Ethnographic resources
- Wildlife
- Threatened and endangered species
- Visitor experiences
- Wilderness values
- Socioeconomic environment
- Indian trust resources
- Environmental justice
- Section 4(f) of the Dept. of Transportation Act

Impact Topics Considered and Dismissed

- Prime and unique agricultural farmlands
- Wild, scenic, and recreational rivers
- Other specially designated areas within the park
- Fish
- Vegetation
- Coastal resources
- Water resources (including wetlands, floodplains, and subsurface water)
- Archeological resources
- Prehistoric/historic buildings and structures
- Cultural landscapes
- Museum collections
- Soils
- Paleontological resources
- Caves
- Energy use and conservation potential
- Hazardous materials, pollution prevention, and solid waste
- Lightscares and light emissions
- Construction Impacts

Impact Topics Still under Consideration for Full Analysis or Dismissal

- Public health and safety
- Park operations
- Consistency with other land use plans
- Air Quality

ALTERNATIVES

Six preliminary alternatives have been identified to be analyzed in the study. These alternatives were developed with input from the Grand Canyon Working Group — an official, federally recognized advisory group that is comprised of stakeholder groups. These alternatives represent the range of reasonable options identified in scoping efforts, Grand Canyon Working Group meetings, and tribal consultation. Each element of each alternative will be analyzed to determine its effect on each of the impact topics. Some alternatives could be removed based on that analysis. However, for now the planning team assumes that all of these alternatives would address the substantial restoration of natural quiet in Grand Canyon National Park. The purpose of the analysis is to ensure that the alternatives regarding any federal action are in compliance with the National Environmental Policy Act.

Definitions

"Substantial restoration of natural quiet"

This phrase has been defined by the National Park Service to mean that 50% or more of the park will achieve natural quiet (i.e., no aircraft audible) for 75% to 100% of the day.

Special Flights Rules Area

For unique and specific situations, the Federal Aviation Administration promulgates Special Federal Aviation Regulations (SFARs). In April 2000 the Federal Aviation Administration revised SFAR 50-2, which contained a modification to the airspace on the eastern end of the Special Flight Rules Area (SFRA). SFAR 50-2 was promulgated by a Final Rule on May 27, 1988, which amended Federal Aviation Regulation, Part 93. The SFRA encompasses Grand Canyon National Park and portions of the surrounding lands. The SFRA airspace extends vertically to 17,999 feet mean sea level (MSL) and includes several flight-free zones with ceilings of 14,500 feet (MSL) on the east, and 8,000 feet (MSL) on the west. Within this area, special operational rules and restrictions apply. SFAR 50-2 established fixed routes and altitudes for air tours; established flight-free zones and reporting requirements; changed airspace and routes for air tours over the park; and set curfews for air tours in the east end of the park.

Study Area

The size of the study area was determined during the 1996 environmental process. The study area for this project is defined by a 20-mile rectangular area that encompasses the SFRA boundary on the northeast and the park boundary on the west, which lies on the outside of the SFRA (see the 2000 Final Supplemental Environmental Assessment, Figure 1-1). The study area is larger than the Special Flight Rules Area in order to capture noise from flights outside the Special Flight Rules Area that is affecting the park. The Overflights Act only authorizes management of the air traffic in the airspace above Grand Canyon National Park.

The six alternatives, in brief, are as follows:

- ❑ **Alternative A: No Action / Continue Current Management** would maintain all aspects of the current management plan for general aviation and air tour operations within the special flight rules area and serve as the baseline against which to compare the action alternatives.
- ❑ **Alternative B: Unimplemented 2000 Environmental Assessment** includes the actions that were contained in the Federal Aviation Administration’s *Final Supplemental Environmental Assessment, February 2000, Special Flight Rules in the Vicinity of Grand Canyon National Park*. Some elements from the supplemental environmental assessment have been modified for this project’s alternative B to address safety concerns raised in late 1999–2000. There have been no airspace changes since the east-end expansion of the SFAR 50-2 that occurred in 2000. Incentives for quiet technology would be incorporated as mitigation to further reduce noise impacts.
- ❑ **Alternative C: Consolidated Use** would concentrate air tour routes, and allocations on use would be removed. This alternative supports various suggestions by members of the public, including removal of allocations on flights, expansion of flight-free zones, and concentration of use closer to developed areas of the park.
- ❑ **Alternative D: Modified 1994 Report to Congress** is based primarily on the recommendations provided in Chapter 10 of the NPS “Report to Congress: Report on Effects of Aircraft Overflights on the National Park System,” with some modifications based on new data. Under this alternative, two of the four general aviation corridors across the Grand Canyon would be eliminated; the eastern-most flight free zone would be eliminated; the other three existing flight-free zones would be expanded; and air tour flights on the west side of Marble Canyon would be eliminated. The alternative would also include operational changes, such as curfews and quiet technology incentives.
- ❑ **Alternative E: Alternating Seasonal Use** would maximize the area of Grand Canyon National Park within flight-free zones by reducing general aviation corridors and implementing seasonal route closures on two corridors now open to air tours — the Zuni and Dragon corridors.
- ❑ **Alternative F: Modified Current** represents the fewest changes from current practices. Relevant changes include modification of west-end tour routes to alleviate noise at Grand Canyon West, as well as modifications to east-end routes.

Identification of a Preferred Alternative

It must be stressed that a preferred alternative has not been identified. A preferred alternative will be identified after the range of alternatives has been analyzed and discussions with the Grand Canyon Working Group have occurred. Elements that make up the preferred alternative may come from any of the alternatives. The preferred alternative could be one of the alternatives as it is proposed, an alternative that is modified and incorporates elements of another alternative, or an alternative that incorporates elements of several alternatives.

AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

Much of the information needed to describe resources that will be analyzed in the study has been compiled into a first draft of the “Affected Environment” chapter. This chapter presents all information and data that are relevant to analyzing the environmental impacts of the alternatives that will be presented in the “Environmental Consequences” chapter.

A summary of the information that has been collected, and the general organization of the two chapters is as follows:

Natural Soundscape and Noise

To assess percent time audible, NPS staff developed dual noise zones for Grand Canyon National Park. Zone 1 addresses noticeability; Zone 2 addresses audibility. Descriptions of natural sound and human-caused sound in and around the park have been prepared, including definitions and characterization of the natural soundscape and natural ambient sound within the park.

Ethnographic Resources in and adjacent to the Park

Information has been compiled that describes traditional cultural properties, traditional uses, and ethnographic resources. Also prepared is a description of the roles(s) that natural quiet/soundscape play in the ethnographic resources and religious practices of the tribes.

Wildlife and Threatened and Endangered Species

Descriptions of wildlife and threatened and endangered species and the effects that human-caused noise can have on them have been compiled.

Visitor Use and Experience

Visitor numbers and characteristics have been described, including an overview of ground-based and air tour visitors to the park, areas of the park that are visited, the effects of noise on visitors and their experiences, and the effects on and contributions of air tours on visitor experiences.

Wilderness Values

Areas of proposed wilderness that might be affected by the alternatives have been compiled, and descriptions of the relationship of natural quiet and wilderness values have been prepared.

Socioeconomic Environment

— Air tour operations

Information and data are being compiled that will be used to determine the effects that each of the alternatives might have on the air tour industry. This includes changes to operating costs (i.e., changes in flight routes or altitudes); changes to capital costs (i.e., quiet technology); and changes in operating revenue (i.e., changes in passenger volume due to changes in prices, number of tours, or tour routes). Data has been compiled from secondary sources. Interviews with air tour operators are in the process of being scheduled.

— Affected Indian tribes

In addition to describing ethnographic resources that could be affected by air tour operations, secondary information has been gathered to prepare an economic profile of each tribe — employment, income, business activity by sector, demographic characteristics, and economic development plans. Additional consultation meetings are being scheduled with the tribes to gather more information.

— *Regional economy*

Regional economic data has been compiled from the U.S. Bureau of Census, the Bureau of Labor Statistics, the Arizona Departments of Employment, Security and Public Health, and related county government offices. This data will be used to evaluate changes in retail and service sales, leading to potential changes in employment levels and personal income levels. The focus is on economic and population centers outside the park.

Compilation of secondary research is also underway to consider the intrinsic values the public places on Grand Canyon National Park, whether or not one uses the park, and the non-dollar effects of air tours on the park's intrinsic values.

MODELING UPDATE

The U.S. Department of Transportation's John A. Volpe National Transportation Systems Center, Environmental Measurement and Modeling Division (Volpe Center), has been assisting FAA and NPS staff with the development and modeling of preliminary alternatives in support of the study.

Noise Model

The FAA's Integrated Noise Model (INM) Version 6.2a was released in November 2006. A modified version of 6.2a is being used for all analyses. The modification is the inclusion of the new, generic time compression algorithm developed to account for overlapping audible aircraft events. This algorithm was presented and discussed at the Grand Canyon Working Group meetings in September 2006. The Federal Interagency Committee on Aviation Noise has accepted this model as the best-practice modeling methodology currently available for evaluating aircraft noise in national parks.

Noise Metrics

The following metrics are being modeled, as discussed below.

- **Time Audible (%TA)** – The percentage of time during a 12-hour period (7 a.m. to 7 p.m.) that aircraft sounds can be heard by the human ear. This metric will be used to assess the restoration of the park's natural soundscape to natural quiet. In accordance with the NPS 1994 "Report to Congress," substantial restoration of Grand Canyon National Park's natural quiet was defined to mean 50% or more of the park will achieve substantial restoration of natural quiet (i.e., no aircraft audible) for 75% to 100% of the day, each and every day. Thus, natural quiet has not been substantially restored where aircraft sounds are audible for 25% or more of the day in greater than 50% of the park.
- **Equivalent Sound Level (L_{Aeg})** – The logarithmic average of aircraft sound levels in decibels (dBA) over a 12-hour period (7 a.m. to 7 p.m.).
- **Maximum Sound Level (L_{max})** – The loudest sound level in decibels (dBA) generated by an aircraft.

Noise Modeling Scenarios

For each alternative, all aircraft operations are being analyzed in the following three categories:

- All aircraft operations 18,000 feet mean sea level (MSL) and above
- All aircraft operations below 18,000 feet MSL and outside the Special Flight Rules Area.
- All aircraft operations below 18,000 feet MSL and within the Special Flight Rules Area.

The first two categories will be considered as part of the cumulative impact analyses of the alternatives. The third category will be analyzed to determine the extent of restoration of natural quiet achieved by the alternatives and for other potential impacts consistent with considerations of context and intensity as described in the Council on Environmental Quality's NEPA implementing regulations (40 CFR Parts 1500-1508), best available information, and reasonable scientific methods.

As part of the third category, "All aircraft operations below 18,000 feet and within the Special Flight Rules Area," aircraft operations were further broken down into the following scenarios:

- ❑ Air Tour and Air Tour-Related (This is a compilation of all the categories of aircraft operations listed below).
- ❑ Commercial Air Tours – These are the advertised air tour flights and charter flights offered by the park commercial air tour operators. This is the category of air tour operation to which the allocation caps apply.
- ❑ Grand Canyon (GC) West (a.k.a. Hualapai Exempt) – This refers to the helicopter and fixed-wing air tour flights that land at the Hualapai Reservation. The helicopter flights originate in Las Vegas and either land at GC West or descend to landing pads along the Hualapai side of the Colorado River. Most fixed-wing flights also originate in Las Vegas but fly to GC West airport on the reservation.
- ❑ Over the Edge (a.k.a. "Elevator Flights") – This is a helicopter descent from Grand Canyon West airport to helipads on the Hualapai Reservation.
- ❑ Transportation, Repositioning, etc. – This is an aggregate category of all flight operations in support of commercial air tours. Transportation is the non-tour, commercial transportation flights only, which typically occur between Las Vegas and Tusayan airports, but could occur between any two points. Repositioning refers to a non-tour operation by a commercial air tour operator who is repositioning an aircraft for logistical reasons.
- ❑ Brown Routes – These are non-tour routes that are used with enough regularity and consistency that they have been charted for pilot awareness and general safety. Most Brown Route activity is in support of various Native American operations such as traffic in and out of Bar 10, Whitmore Wash, and Havasupai Village.

The following figure and table present a breakdown by altitude of the daytime general aviation (GA), commercial, and military operations that occurred on August 8, 2005 (the date determined to represent the peak day for air tour and air-tour-related operations at Grand Canyon National Park), within the entire study area as captured by the FAA’s Enhanced Traffic Management System (ETMS) and the Performance Data Analysis and Reporting System (PDARS)¹.

Figure 1. Distribution of Daytime General Aviation (GA), Commercial, and Military Operations by Altitude within the Study Area (August 8, 2005)

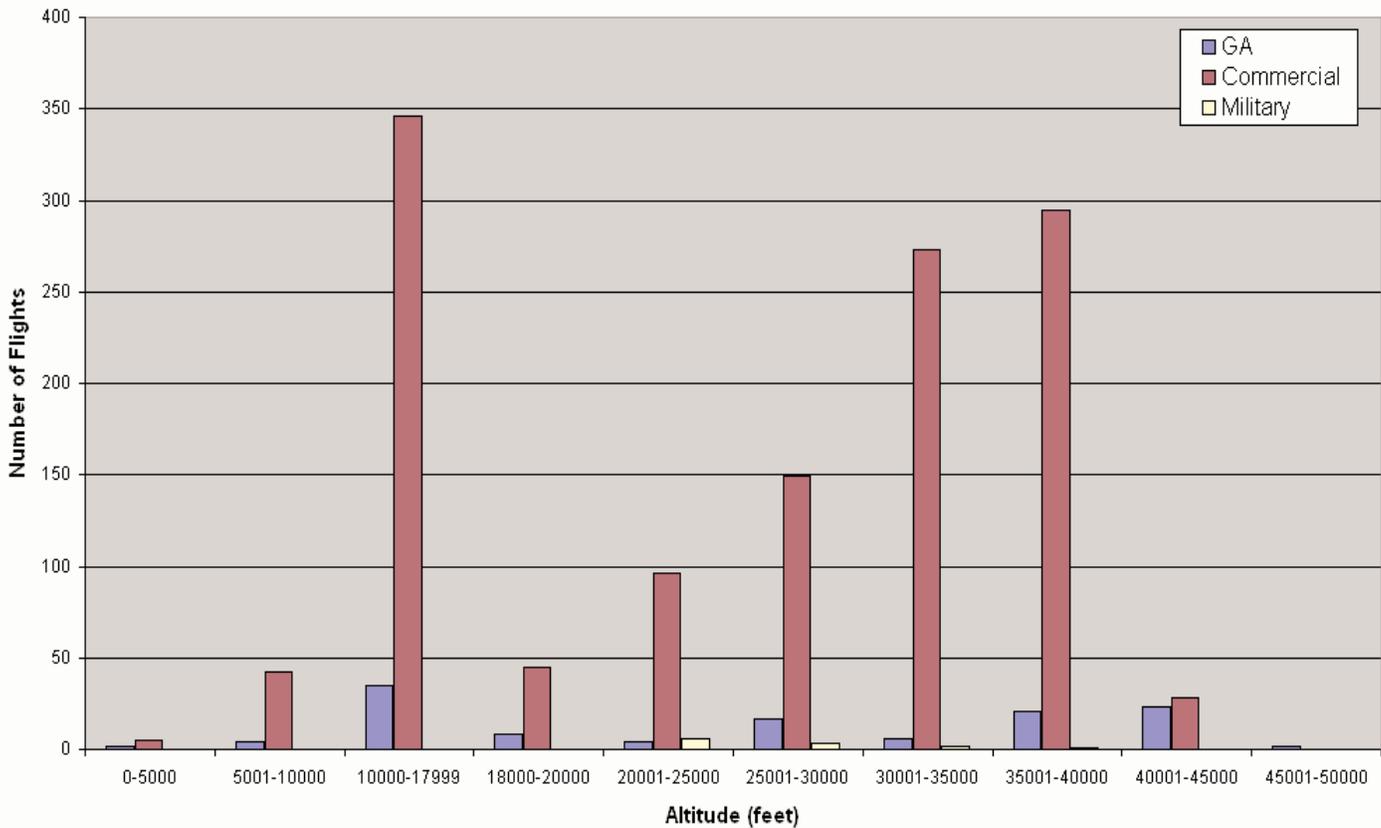


Figure 2. Distribution of Daytime General Aviation (GA), Commercial, and Military Operations by Altitude and within the Special Flight Rules Area

<i>Aircraft Type</i>	Number of Daytime Operations			
	<i>Total</i>	<i>Above 18,000 ft MSL</i>	<i>Below 18,000 ft MSL</i>	<i>Below 18,000 ft MSL and within the SFRA</i>
GA	122	81	41	3
Commercial	1,279	886	393	13
Military	11	11	0	0

¹The ETMS is the system used by FAA traffic management personnel to predict, on national and local scales, traffic surges, gaps, and volume based on current and anticipated airborne aircraft. PDARS is an analysis tool for Air Traffic Control (ATC) radar data developed by the FAA Office of System Capacity and NASA Aviation Safety Program.

The following table presents the list of modeled scenarios for each alternative. Note: Because the operations modeled for the first two scenarios represent aircraft activities outside the Special Flights Rule Area, their sound level contributions are common to all alternatives.

Table 1. List of Modeled Scenarios

Scenario	Aircraft
1	All Aircraft 18,000 ft MSL and above (includes GA, Commercial, and Military)
2	All Aircraft below 18,000 ft MSL and outside the Special Flight Rules Area (includes GA, Commercial, and Military)
3	All Aircraft below 18,000 ft MSL and within the Special Flight Rules Area (includes GA, Commercial, Military, Air Tour, and Air- Tour Related)
4	All Air Tour and Air-Tour Related
5	Commercial Air Tours
6	GC West (a.k.a. “Hualapai Exempt”)
7	Transportation, Repositioning, etc.
8	Over the Edge (a.k.a. “Elevator Flights”)
9	Brown Routes

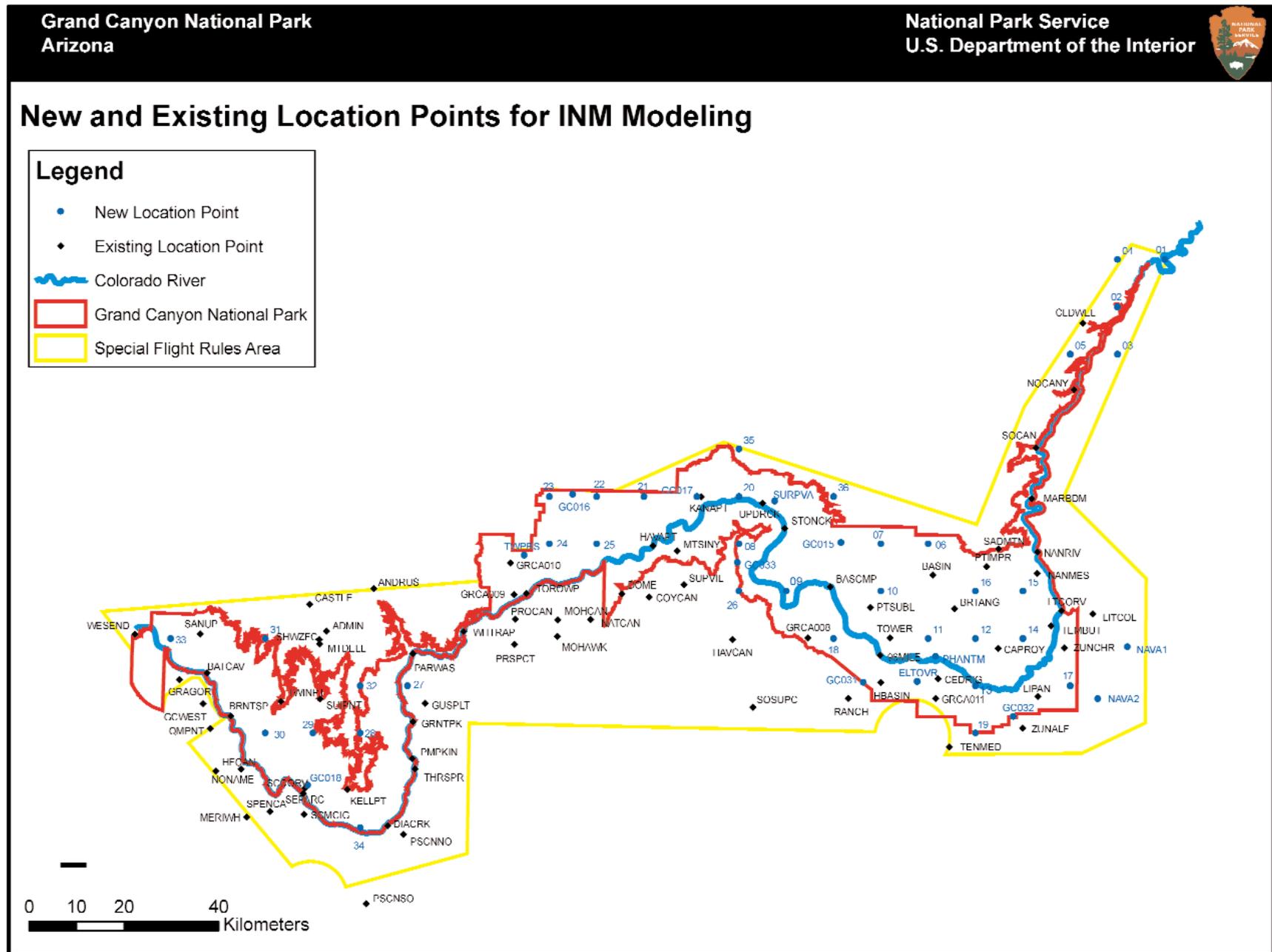
Model Output

Two types of analyses are being performed with the INM — a contour analysis and a representative location point analysis. A total of 125 individual points (76 existing and 49 new) were provided by the NPS staff for consideration in the analysis as representative of noise-sensitive areas within the study area. The representative locations are presented in the following figure. Locations GC008 through GC033 correspond to measurement sites where acoustic data have been collected by NPS personnel. Locations GRID01 through GRID36 correspond to regularly spaced points (based on a 10-km grid) added to the analysis for spatial coverage of the park.

Modeling of Preliminary Alternatives

Modeling of alternative A (Current Condition) is close to completion. Most of the input data needed for the remaining alternatives (B-F) has been gathered with the assistance of various stakeholders (e.g., detailed operator input for implementing new/modified air tour routes). Modeling for alternatives B through F is anticipated to begin in summer 2007.

Location points Modeled in INM for Grand Canyon National park



NEXT STEPS

The planning team and their contractors expect to complete the following tasks in the upcoming months:

- **Meet with Tribes**
Meet with tribes and provide an update of the progress on the study, confirm that information gathered to date is relevant, gather socioeconomic information, solicit new input, and respond to concerns.
- **Conduct Interviews with Air Tour Operators**
Meet with air tour operators to confirm flight route data, gather facts related to quiet technology, and obtain operating cost and revenue data that will be analyzed in the study.
- **Participate in Working Group Meeting**
An update on the status of the study will be provided at the next working group meeting.
- **Identify Preferred Alternative**
Apply value analysis to identify a preferred alternative. After receipt of the noise data, the working group will provide a recommendation(s) on which alternative or elements of alternatives they would prefer to achieve the substantial restoration of natural quiet. With this working group input, NPS staff will identify a preferred alternative, subject to FAA safety review.
- **Complete Noise Impacts Modeling**
Noise modeling will take place in summer 2007.
- **Write and Revise the Study**
Chapters of the study, including “Purpose and Need,” “Alternatives,” “Affected Environment,” and “Environmental Consequences,” will continue to be written, revised, and analyzed.
- **Issue Draft Study**
The current target date for issuing the draft document for public review is winter 2007.
- **Define Quiet Technology Assumptions**
All alternatives will be modeled with and without quiet technology as currently defined. The agencies are finalizing some key definitions and assumptions so modeling can begin. Some issues still being discussed are as follows: how routes will be populated in modeling runs, future growth rates, and base year determinations. Arrangements are being made to solicit information from the air tour industry to determine route use and anticipated growth rates.

- **Make Policy Decisions on Noise Metrics**

The following metrics are under consideration for inclusion in the study analysis. A final determination has not been made on applicability and appropriateness of these metrics for this project.

- **Noise-Free Interval** – This interval is the time between aircraft noise events, for understanding the duration of natural quiet one can expect to experience in various areas of the park. The National Park Service regards this as an important metric for characterizing effects on visitor experience and cultural resources.
- **Listening Area Reduction** – Listening area reduction is associated with the “time above” metric for backcountry areas using the natural ambient, and time above “existing” ambient for the more developed zones of the park. The National Park Service regards this as an important metric for characterizing effects on visitor experience, wildlife, and cultural resources.

- **Finalize Impact Topics for Inclusion in the Study**

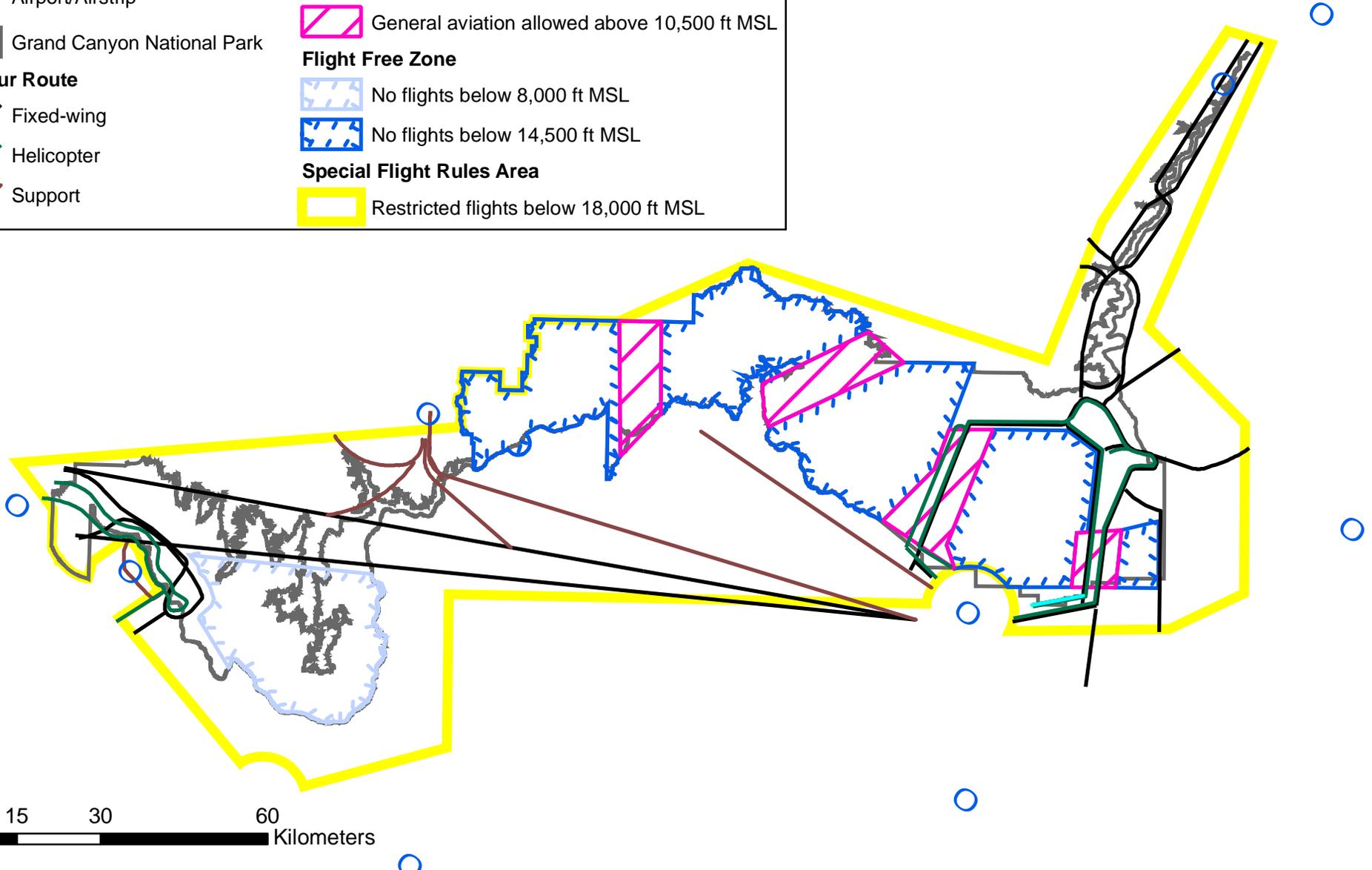
The impact topics of park operations, public health and safety for ground-based visitors, air quality and consistency with land use plans will be further analyzed and discussed to determine how they may be incorporated into the document.



Alternative A: No Action/Current Condition

Legend

- Airport/Airstrip
- Grand Canyon National Park
- Air Tour Route**
 - Fixed-wing
 - Helicopter
 - Support
- General Aviation Corridor**
 - General aviation allowed above 10,500 ft MSL
- Flight Free Zone**
 - No flights below 8,000 ft MSL
 - No flights below 14,500 ft MSL
- Special Flight Rules Area**
 - Restricted flights below 18,000 ft MSL





Alternative B: Unimplemented 2000 EA (Modified to incorporate safety and airspace changes)

Legend

○ Airport/Airstrip

□ Grand Canyon National Park

Air Tour Route

— Fixed-wing

- - Fixed-wing, proposed

— Helicopter

- - Helicopter, proposed

— Support

General Aviation Corridor

▨ General aviation allowed above 10,500 ft MSL

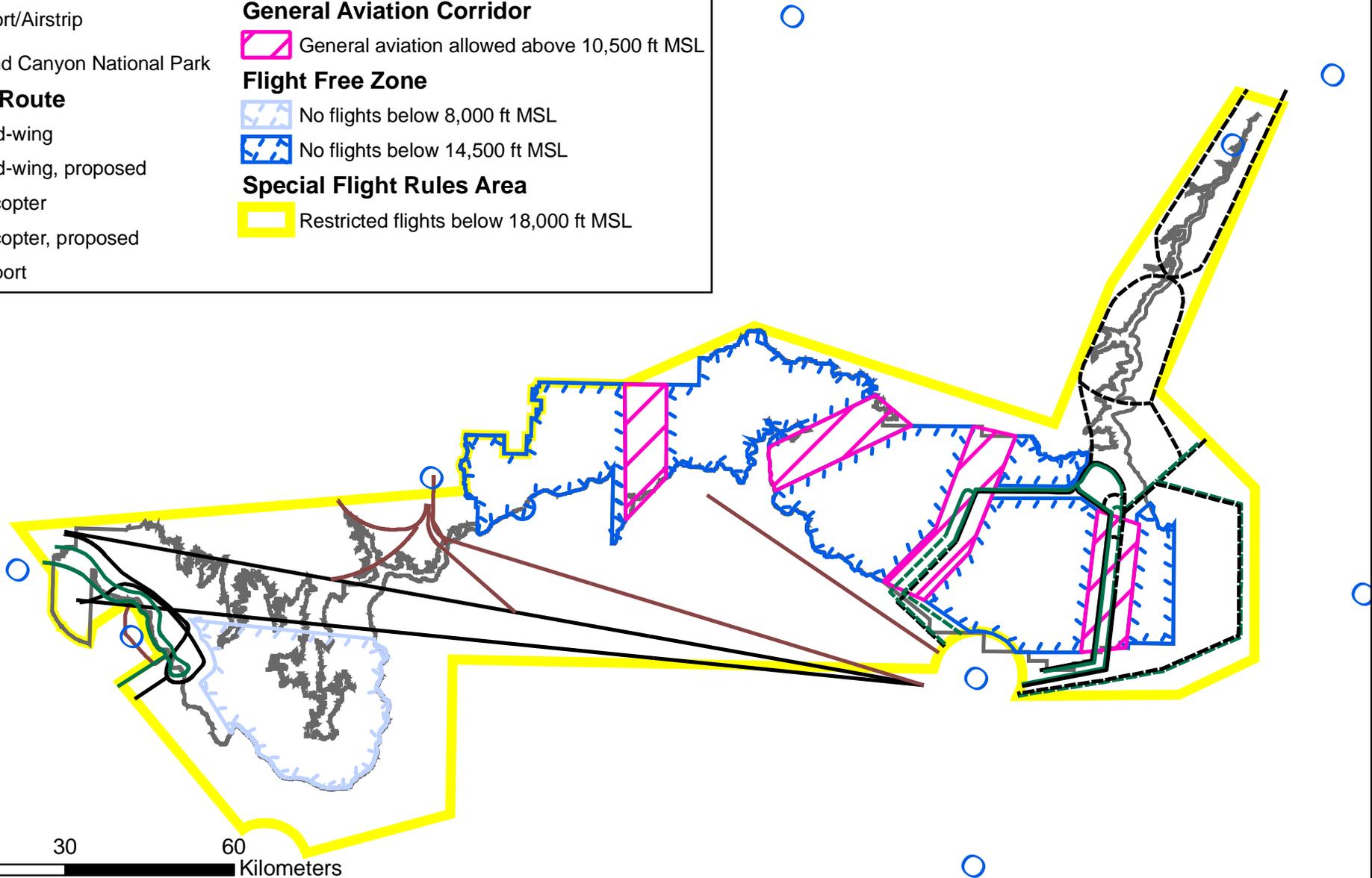
Flight Free Zone

▨ No flights below 8,000 ft MSL

▨ No flights below 14,500 ft MSL

Special Flight Rules Area

▨ Restricted flights below 18,000 ft MSL

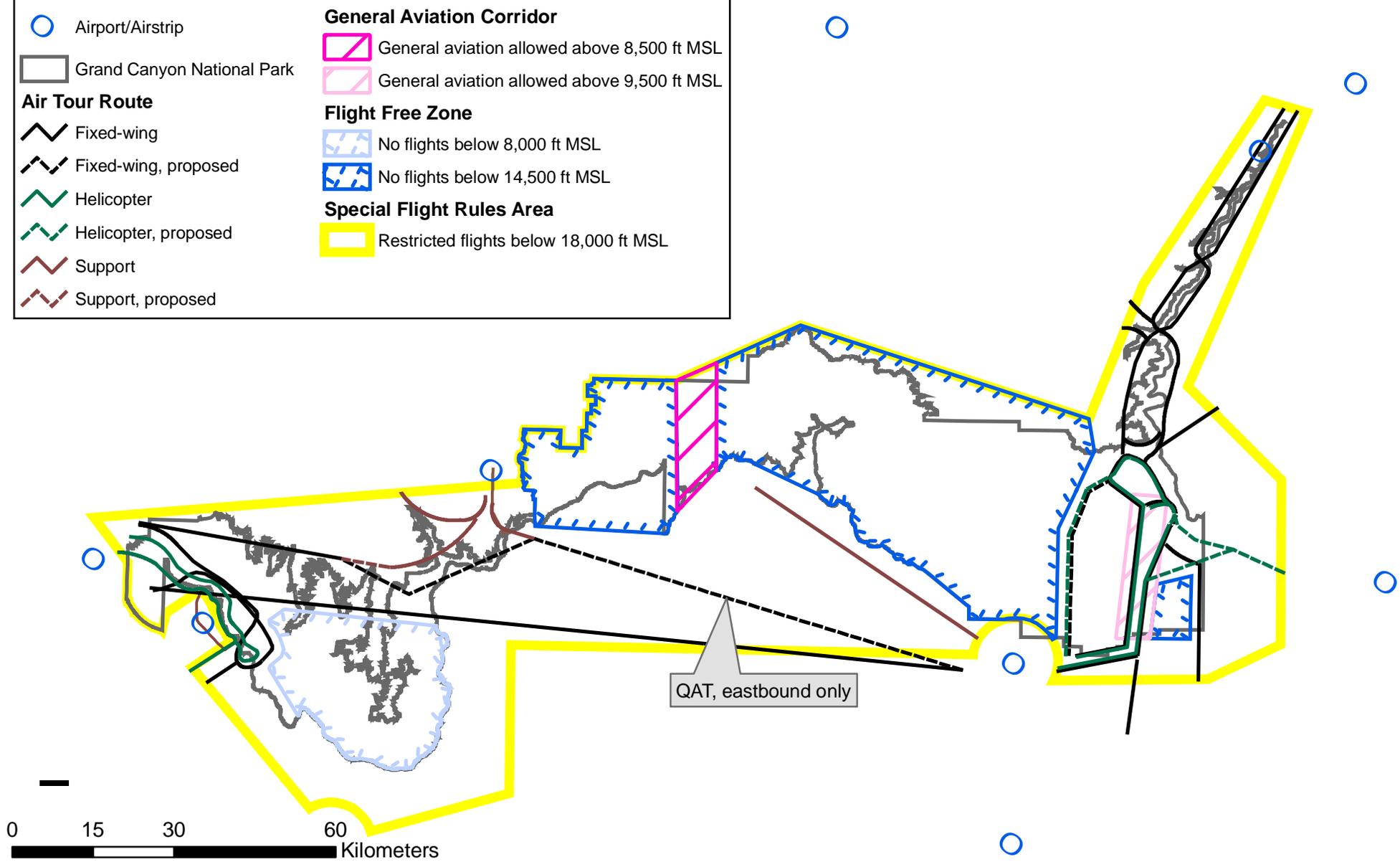




Alternative C: Consolidated Use

Legend

- Airport/Airstrip
- Grand Canyon National Park
- Air Tour Route**
 - Fixed-wing
 - Fixed-wing, proposed
 - Helicopter
 - Helicopter, proposed
 - Support
 - Support, proposed
- General Aviation Corridor**
 - General aviation allowed above 8,500 ft MSL
 - General aviation allowed above 9,500 ft MSL
- Flight Free Zone**
 - No flights below 8,000 ft MSL
 - No flights below 14,500 ft MSL
- Special Flight Rules Area**
 - Restricted flights below 18,000 ft MSL

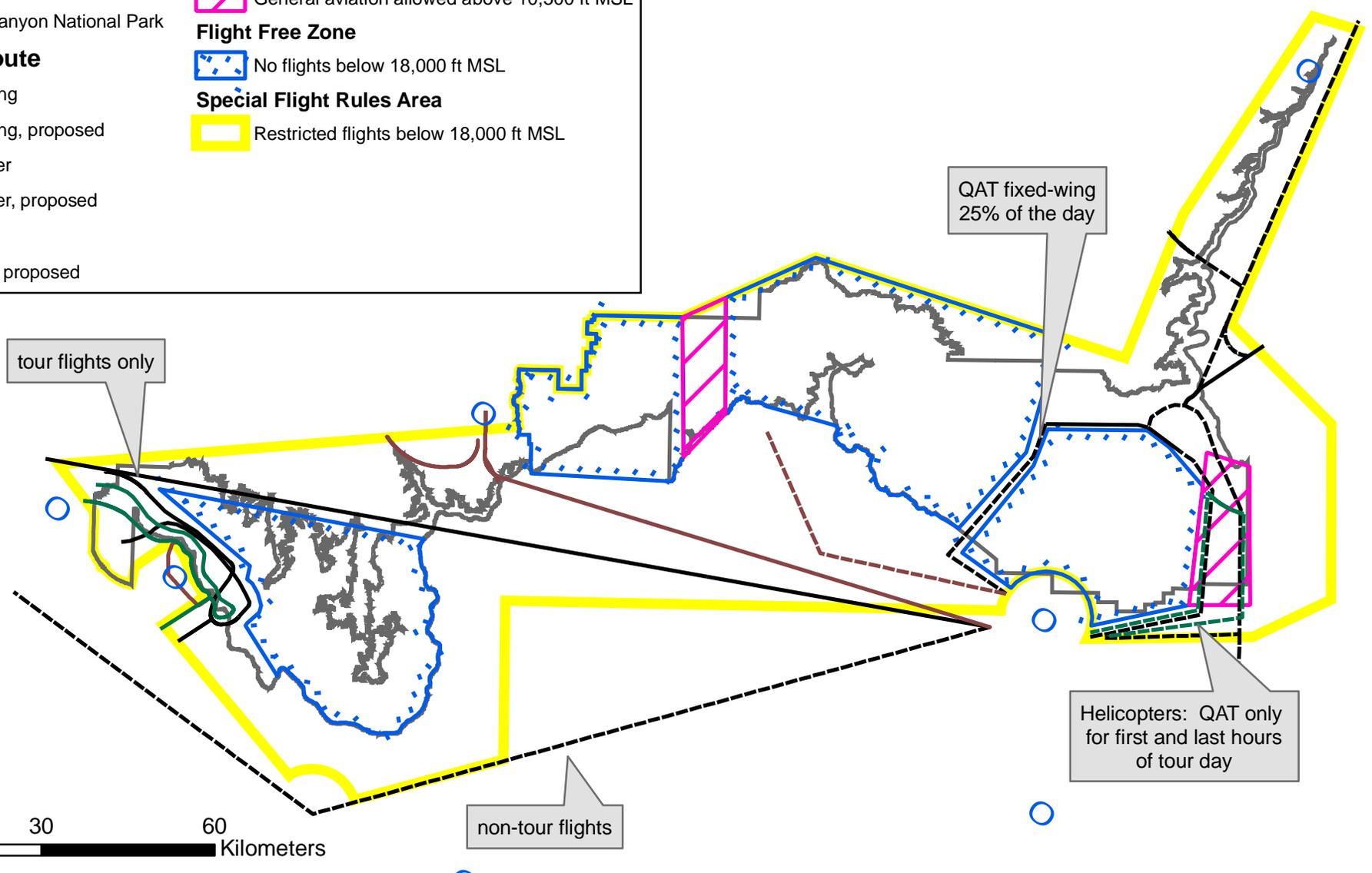




Alternative D: Modified 1994 Report to Congress

Legend

- Airport/Airstrip
- Grand Canyon National Park
- Air Tour Route**
 - Fixed-wing
 - Fixed-wing, proposed
 - Helicopter
 - Helicopter, proposed
 - Support
 - Support, proposed
- General Aviation Corridor**
 - General aviation allowed above 10,500 ft MSL
- Flight Free Zone**
 - No flights below 18,000 ft MSL
- Special Flight Rules Area**
 - Restricted flights below 18,000 ft MSL

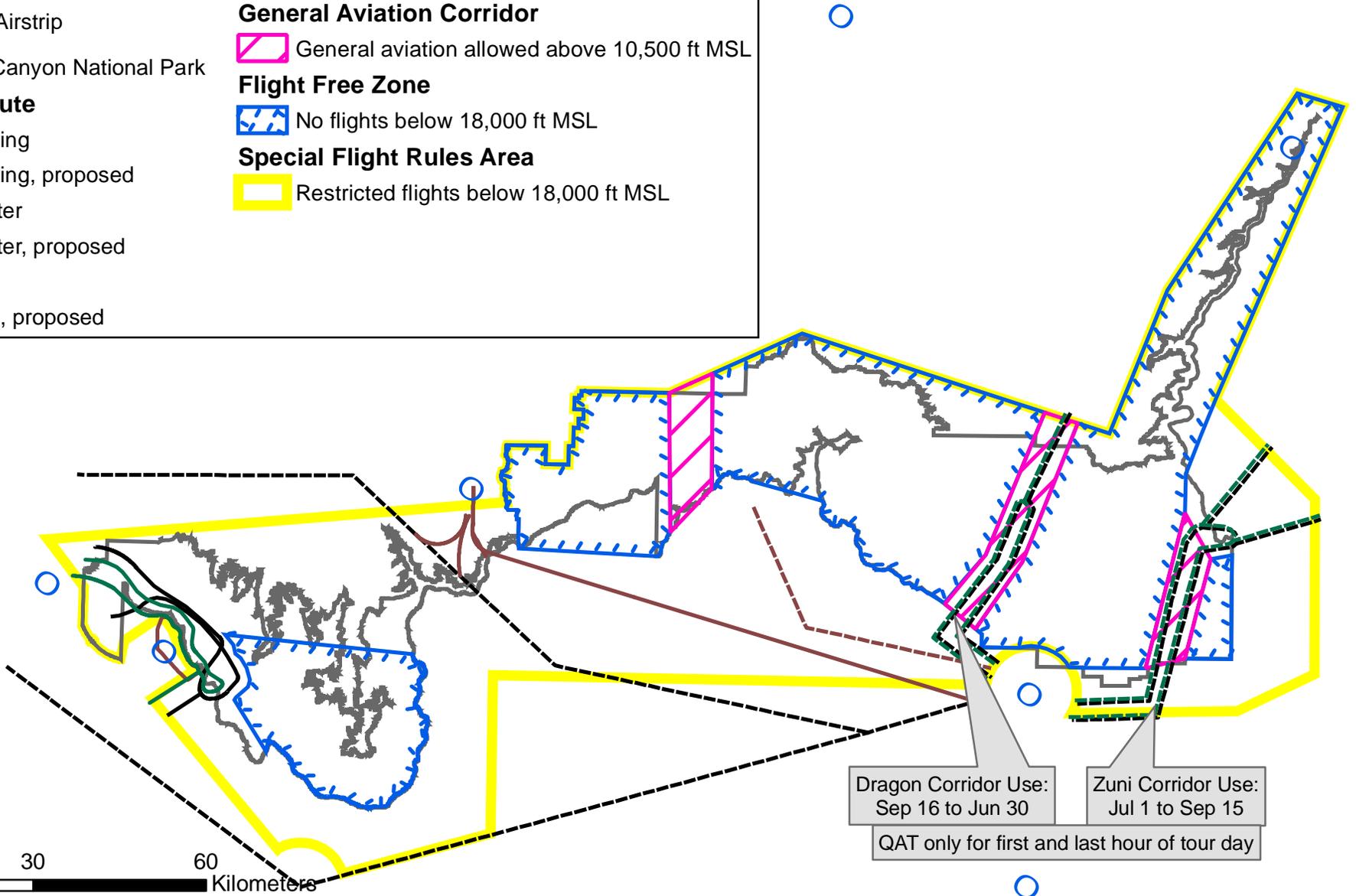




Alternative E: Alternating Seasonal Use

Legend

- Airport/Airstrip
- Grand Canyon National Park
- Air Tour Route**
 - Fixed-wing
 - Fixed-wing, proposed
 - Helicopter
 - Helicopter, proposed
 - Support
 - Support, proposed
- General Aviation Corridor**
 - General aviation allowed above 10,500 ft MSL
- Flight Free Zone**
 - No flights below 18,000 ft MSL
- Special Flight Rules Area**
 - Restricted flights below 18,000 ft MSL





Alternative F: Modified Current

