

List of Handouts for Grand Canyon Overflights Public Scoping Meetings
As Actually Presented at Meetings Feb. 21-23, 2006:

** Source: FAA/NPS Overflights Website (<http://overflights.faa.gov>)

Handouts Station 1:

**Noise Limitations Rule Federal Register Notice 3-29-05

**Glossary of Terms

**Status of GCNP Recommendations in the 1994 NPS Report to Congress

**Text of Public Law 100-91

**1996 Presidential Memorandum, Earth Day Message

**Statutory, Regulation, and Litigation Background

**Members of the Grand Canyon Working Group

Station 1 NEPA 101 poster

Handouts Station 2:

**Summary of FICAN Report

**Letter from FICAN re: FICAN Report 5-12-05

Station 2 Analysis Results poster

Handouts Station 3:

FAA 1050.1E Impact Categories

Handouts Station 4:

Quiet Technology Final Rule handout

Air Tour Act S804 handout

Handouts Station 5:

Fragmentation handout

Handouts Station 1



Federal Register

**Tuesday,
March 29, 2005**

Part V

Department of Transportation

Federal Aviation Administration

14 CFR Part 93

**Noise Limitations for Aircraft Operations
in the Vicinity of Grand Canyon National
Park; Rule**

DEPARTMENT OF TRANSPORTATION**Federal Aviation Administration****14 CFR Part 93**

[Docket No. FAA-2003-14715; Amendment No. 93-83]

RIN 2120-AG34

Noise Limitations for Aircraft Operations in the Vicinity of Grand Canyon National Park

AGENCY: Federal Aviation Administration (FAA), Department of Transportation (DOT).

ACTION: Final rule.

SUMMARY: This action classifies aircraft used in commercial sightseeing flight operations over Grand Canyon National Park (GCNP) by the noise they produce. This amendment of 14 CFR part 93 is necessary to establish reasonably achievable requirements for aircraft operating in the GCNP to be considered as employing quiet aircraft technology. The FAA now refers to the designation as "GCNP quiet aircraft technology" rather than "quiet technology" to clarify that the scope of this rule is limited to aircraft operating in the GCNP. The FAA and NPS will use the GCNP quiet aircraft technology designation to consider establishing routes and corridors and in future actions to achieve substantial restoration of natural quiet and visitor experience in the GCNP. This rule does not require any action by commercial air tour operators, as it simply identifies which aircraft meet or do not meet the GCNP quiet aircraft technology designation. Further, this rule does not relieve GCNP commercial air tour operators of their operational limitations. Section 804(b) of the National Parks Air Tour Management Act directs the FAA, in consultation with the NPS and the Advisory Group (now known as the National Park Overflights Advisory Group Aviation Rulemaking Committee or NPOAG ARC) to consider establishing the GCNP quiet aircraft technology aircraft routes and corridors consistent with certain requirements.

EFFECTIVE DATE: March 29, 2005.

FOR FURTHER INFORMATION CONTACT: Thomas L. Connor; (AEE-100); Office of Environment and Energy; Federal Aviation Administration, 800 Independence Ave., SW., Washington, DC 20591, (202) 267-8933.

SUPPLEMENTARY INFORMATION:

Availability of Rulemaking Documents

You can get an electronic copy using the Internet by:

(1) Searching the Department of Transportation's electronic Docket Management System (DMS) Web page (<http://dms.dot.gov/search>);

(2) Visiting the Office of Rulemaking Web page at <http://www.faa.gov/avr/arm/index.cfm>; or

(3) Accessing the Government Printing Office's Web page at <http://www.gpoaccess.gov/fr/index.html>.

You can also get a copy by submitting a request to the Federal Aviation Administration, Office of Rulemaking, ARM-1, 800 Independence Ave., SW., Washington, DC 20591, or by calling (202) 267-9680. Make sure to identify the amendment number or docket number of this rulemaking.

Anyone is able to search the electronic form of all comments received into any of our dockets by the name of the individual submitting the comment (or signing the comment, if submitted on behalf of an association, business, labor union, etc.). You may review DOT's complete Privacy Act statement in the **Federal Register** published on April 11, 2000 (Volume 65, Number 70; Pages 19477-78) or you may visit <http://dms.dot.gov>.

Small Business Regulatory Enforcement Fairness Act

The Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996 requires the FAA to comply with small entity requests for information or advice about compliance with statutes and regulations within its jurisdiction. If you are a small entity and have a question regarding this document, you may contact your local FAA official, or the person listed under **FOR FURTHER INFORMATION CONTACT**. You can find out more about SBREFA on the Internet at <http://www.faa.gov/avr/arm/sbrefa.cfm>.

Background

Regulatory History

On December 31, 1996, the FAA published a notice of proposed rulemaking (NPRM) on Noise Limitations for Aircraft Operations in the Vicinity of Grand Canyon National Park (61 FR 69334; Notice 96-15), and a Notice of Availability of Proposed Commercial Air Tour Routes in the **Federal Register** (61 FR 69356). The FAA proposed to establish noise limitations for certain aircraft operating in the vicinity of GCNP. The proposed aircraft noise limitations rule generally would have categorized air tour aircraft according to each aircraft's noise efficiency and mandated a conversion date to aircraft meeting the GCNP quiet aircraft technology designation. Additionally, the FAA proposed an

incentive flight corridor through Grand Canyon for quiet technology/noise efficient aircraft. The NPRM sought to reduce the impact of air tour aircraft noise on GCNP and to make progress in achieving substantial restoration of natural quiet in GCNP. The FAA received many comments in opposition to this NPRM, primarily because of the impact of the mandatory conversion date. After the comment period closed on the 1996 NPRM, the FAA and NPS began reconsidering GCNP quiet aircraft technology requirements and reaching consensus upon other steps that should be initiated to achieve the statutorily mandated goal of substantial restoration of natural quiet and to improve visitor experience in the GCNP. The FAA and NPS agreed to proceed with rulemakings to limit the number of commercial air tours in the GCNP and to modify the airspace and route system in the area. The agencies realized that the achievement of substantial restoration of natural quiet requires a multi-phased regulatory plan to control noise. Implementation of GCNP quiet aircraft technology alone would not suffice.

The agencies concentrated their efforts upon resolving issues presented in comments on the 1996 NPRM and finalizing the GCNP quiet aircraft technology rulemaking, once the FAA issued the airspace and operations limitation final rules in April 2000.

On April 5, 2000, the Wendell H. Ford Aviation Investment and Reform Act for the 21st Century was signed into law as Public Law 106-181. Among other provisions the law enacted the National Parks Air Tour Management Act of 2000 (the Air Tour Act). Section 804(a) of the Air Tour Act directed the FAA Administrator to designate reasonably achievable quiet technology requirements for fixed-wing airplanes and helicopters for purposes of commercial air tour operations over the GCNP. If the FAA determined that it would not be able to make the designation within twelve months of the enactment of the Air Tour Act, then the FAA was required to transmit a report to Congress stating the reasons the FAA would not be able to make such a designation within that period and the expected date of such designation.

Section 804(b) of the Air Tour Act also directed the FAA Administrator, in consultation with the NPS Director and the NPOAG ARC, to establish GCNP quiet aircraft technology routes or corridors for commercial air tour operations at GCNP, provided that such routes or corridors will not negatively impact tribal lands, safety, or the substantial restoration of natural quiet.

Recommendations and requirements for use of GCNP quiet aircraft technology in air tour management plans for national parks other than the GCNP pursuant to other provisions of the Air Tour Act will be subject to separate rulemaking and are not addressed by this final rule for GCNP. For example, Section 805 of the Air Tour Act requires the NPOAG ARC to provide advice, information, and recommendations to the FAA and NPS on commonly accepted quiet aircraft technology for use in commercial air tour operations over a national park or tribal lands, which will receive preferential treatment in air tour management plans. While the NPOAG ARC may consider this final rule in making recommendations on commonly accepted quiet aircraft technology for use at other national parks, pursuant to Section 805 of the Air Tour Act, this final rule is limited to fulfilling the requirements under Section 804 of the Air Tour Act for the GCNP.

In October 2001, the FAA submitted a report to Congress on Quiet Aircraft Technology for the Grand Canyon, as required under Section 804 of the Air Tour Act. The report indicated that, while substantive progress had been made on the GCNP quiet aircraft technology rulemaking, the FAA would not be able to make a designation within the 12 months of enactment of the Air Tour Act because of the need to resolve some key technical issues. These issues included the then-ongoing GCNP Noise Model Validation project, a study regarding the correlation between aircraft certification noise levels and aircraft audibility, and how changes to the GCNP SFRA affected substantial restoration of natural quiet. The report also stated that the FAA planned to issue a supplemental notice of proposed rulemaking (SNPRM) in early 2002. The FAA and the NPS required more time than expected to resolve the technical issues, which delayed the publication of the SNPRM for another year.

On March 24, 2003, the FAA published the SNPRM Notice No. 03-05 entitled "Noise Limitations for Aircraft Operations in the Vicinity of Grand Canyon National Park" (68 FR 14276). The FAA solicited comments on the proposal, which are discussed in the following section. This final rule is based on the SNPRM Notice No. 03-05.

Discussion of Comments

Seventeen commenters responded to the supplemental Notice No. 03-05 regarding the proposed designation for quiet technology aircraft operating in the GCNP (hereinafter GCNP quiet aircraft technology designation). While one commenter believes that the FAA

should scrap the whole project, the other commenters offered a range of opinions and recommendations on the proposal. These comments and the FAA responses are discussed below. The docket also contains 111 comments that had been submitted to the original 1996 NPRM Notice No. 96-15. The FAA responded to these comments on the 1996 NPRM in the 2003 SNPRM.

Noise Efficiency

Lighter than Air Solar International, LLC and an anonymous commenter recommended that the GCNP quiet aircraft technology designation should be based upon an absolute noise limit rather than a noise value as a function of the number of passenger seats. Operators should not be given an "efficiency bonus" for aircraft that are capable of carrying more passengers.

FAA Response

The FAA finds that the noise efficiency concept (larger aircraft with more passenger seats are allowed to generate more noise per aircraft, but less noise per passenger) exhibits all of the desired attributes for the designation of reasonably achievable requirements for aircraft to be considered as employing GCNP quiet aircraft technology for purposes of Section 804(a) of the Air Tour Act. The concept is technically sound, as it takes into account aircraft design, flight configuration, acoustic characteristics, productivity, and economic reasonableness. The FAA believes that this GCNP quiet aircraft technology standard, used in conjunction with other future actions, will contribute towards substantial restoration of natural quiet at GCNP.

Helicopter Noise Annoyance

The Sierra Club contends that helicopter noise is more annoying than noise from fixed-wing aircraft and recommends that such noise effects be considered.

FAA Response

Given that the objective is not to have audible aircraft noise in large areas of the GCNP, the FAA finds the GCNP quiet aircraft technology designation appropriately reflects the audibility of commercial sightseeing operations using the different aircraft types. For example, low frequency pressure pulses created by the spinning motion of the rotor blades characterize helicopter noise. Audibility is the ability of the human observer to detect an acoustic signal in the presence of noise. For the GCNP setting, audibility is quantified by the summation of the signal-to-noise ratios over the entire bandwidth representing

the range of human hearing. Thus, the method used to measure advancement towards the goal of substantial restoration of natural quiet is already very sensitive to the distinctive acoustic characteristics of different aircraft types.

Airships

Lighter than Air Solar International, LLC recommends that the definition for "quiet technology aircraft" be expanded to include airships. An airship is defined in 14 CFR part 1 is "an engine-driven lighter than air aircraft that can be steered." This commenter asks the FAA to afford airship operators the same opportunities as heavier-than-air operators by enacting a more flexible and inclusive definition of GCNP quiet aircraft technology.

FAA Response

The FAA sees no need to expand the definition, since it now simply refers to "aircraft subject to § 93.301", which includes airships. Introducing airships for commercial air tour operations would raise issues related to both noise characterization and operational compatibility.

While there are presently no airship tour operations being conducted over the Grand Canyon, the FAA does not intend to prohibit this category of aircraft from due consideration, provided such operations could be accommodated safely within the SFRA. As a matter of policy, the FAA encourages industry to pursue research and development of newer, innovative technology applications where possible. With regard to this proposal, the FAA acknowledges that the application of certain airship technologies might conceivably contribute toward the goal of restoring natural quiet in the Grand Canyon. Although special operational protocols would have to be developed to integrate airship operations in the GCNP SFRA, it is feasible that such operations could be safely accommodated in much the same manner as in other high-density environments.

The FAA does not have noise certification requirements for airships. Thus, FAA-approved noise data for these aircraft types do not exist. The FAA has provided for this contingency both in the rule and in an Advisory Circular (AC) that will accompany the promulgation of this rule. The draft FAA AC-GCNP-1, "Noise Levels for Aircraft used for Commercial Operations in Grand Canyon National Park Special Flight Rules Areas," states that where noise certification under 14 CFR part 36 was not required due to applicability, the noise level could be provided to the FAA by the operator or

owner and considered to be an estimated noise certification level, as long as the FAA can sufficiently substantiate that the noise level is representative of the subject aircraft.

The scope of this rule does not include issues associated with any potential change to commercial sightseeing flight protocols in the SFRA with the introduction of airships. The FAA would thoroughly investigate those operational issues if and when it receives an application for operational specifications for an airship.

Relationship Between Audibility and Certificated Noise Levels

The NPS recommends that the FAA perform an analysis to ensure that aircraft that the FAA has classified as GCNP quiet aircraft technology based upon certificated noise levels are less audible than aircraft not so classified. The NPS included with its comment a technical memorandum, "Relationship Between Audibility of Tour Aircraft and Certification Data," prepared by the aviation environmental consulting firm, Harris Miller & Hanson, Inc. (HMM&H).

FAA Response

To address the NPS concern, the FAA performed a comprehensive assessment of the subject relationship utilizing the capabilities of the FAA's Integrated Noise Model (INM) Version 6.2. The FAA finds that the designation of reasonably achievable GCNP quiet aircraft technology correlates sufficiently with audibility to assist the FAA and NPS in fulfilling the National Park Overflights Act (Pub. L. 100-91).

INM 6.2 is the latest advancement in the FAA standard tool for the calculation of aircraft noise. The shortcomings of the previous INM version in predicting audibility became the impetus behind its development. These shortcomings were discovered in the joint FAA and NPS GCNP noise model validation study ("Aircraft Noise Validation Study," HMM&H Report No. 295860.29, January 2003). The validation study was described in the SNPRM Notice No. 03-05, and an electronic copy is available through the NPS Web page at <http://www.nps.gov/grca/overflights/documents/anmv/index.htm>. The model improvements include: (1) More aircraft types that are

used in commercial sightseeing operations; (2) spectral-based method for signal detection prediction; and (3) a high-resolution terrain database to better address the effect of terrain features on sound propagation. All of these improvements are intended to improve the accuracy of the audibility calculations.

Audibility is defined as the ability for an attentive listener to hear aircraft noise. Detectability is based on signal detection theory, and depends on both the actual aircraft sound level ("signal") and the ambient sound level (background or "noise"). As such, audibility is based on many factors, including the listening environment one is in. Conversely, detectability is a theoretical formulation based on a significant body of research. For the purposes of INM modeling the terms "audibility" and "detectability" are used interchangeably. The detectability level (d') calculated in INM 6.2 is based on the signal-to-noise ratio within one-third octave-band spectra for both the signal and noise, using a $10\log(d')$ value of 7 dB. There are three parts to the calculation of audibility in INM 6.2: (1) Calculate the detectability level for each one-third octave band of the signal for a single contributing flight path segment; (2) Calculate the detectability level for the overall signal for a single contributing flight path segment; and (3) Calculate absolute or percentage of time a signal is audible for a flight path.

In addition to using the improved INM 6.2, this assessment used the aircraft operations from the aforementioned GCNP aircraft noise model validation study. Time audible predictions were generated for all aircraft types measured during the validation study, using operations and one-third octave band spectral data consistent with the validation study. The aircraft taken from the original validation study include the Aerospatiale AS350, Bell B206B and Bell B206L helicopters, as well as the Cessna C182, Cessna C207, and Vistaliner (DHC-6QP) propeller-driven aircraft. For the purposes of this assessment, operational and acoustic data were added for some GCNP quiet aircraft technology designation helicopters not operating at the time of the model validation study. These include the MD600, MD900 and

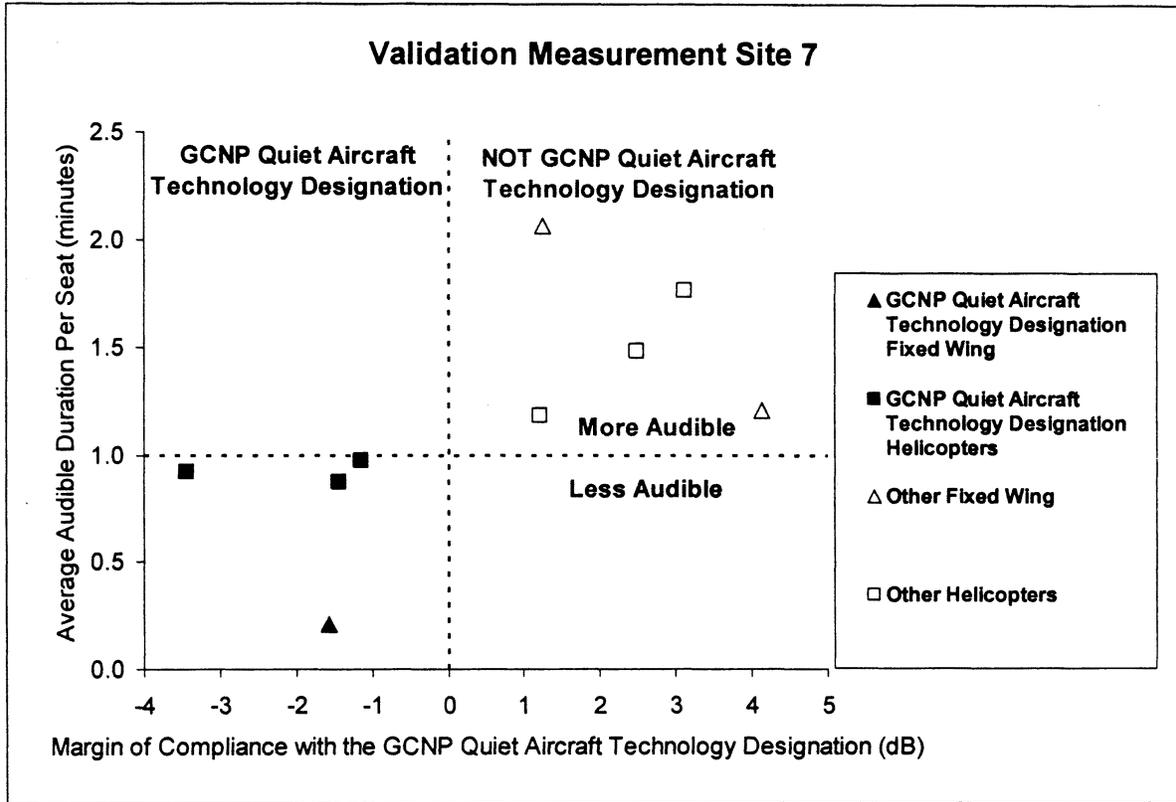
Eurocopter EC-130. Predictions were summarized for all validation study measurement sites and relationships between predicted time audible and noise certification levels derived.

Just as was done by the consultant (HMM&H) for the preparation of the NPS comment to the SNPRM Notice No. 03-05, the FAA evaluated the ranking of aircraft audibility duration per available passenger seat against the ranking of the noise certification level in A-weighted decibels per available passenger seat. The FAA performed this evaluation at the 39 measurement sites in the GCNP noise model validation study (labeled as '1A', '2A', * * * to '9F' in the study). Similar to what the NPS's consultant had done, the FAA generated figures that compare the aircraft's margin of compliance with the GCNP quiet aircraft technology designation to the length of time the aircraft is audible, adjusting for the number of available passenger seats.

The margin of compliance is the difference in decibels between the aircraft's certificated noise level and the GCNP quiet aircraft technology designation noise limit, using the appropriate equation in the proposed rule. A negative margin of compliance means that the certificated noise level is below the noise limit designating that aircraft as GCNP quiet aircraft technology. In this evaluation, the Vistaliner, EC-130, MD600 and MD900 all have negative margins of compliance (GCNP quiet aircraft technology designation); while the C182, C207, AS350, B206B, and B206L all have positive margins of compliance (not GCNP quiet aircraft technology designation).

Figure 1 compares the margins of compliance to the average length of time audible for the sample of aircraft at validation measurement Site 7. While Site 7 has been singled out for display, the findings are comparable to the other validation measurement sites. Site 7 included 6 microphone locations along Tanner Trail in the GCNP. The average audibility duration value at the 6 microphone locations is plotted for each of the aircraft types. The helicopters and fixed wing aircraft that meet the GCNP quiet aircraft technology designation are less audible than those aircraft that do not meet the designation.

Figure 1. Comparison of GCNP Quiet Aircraft Technology Designation with Audibility



The FAA analysis found that the GCNP quiet aircraft technology designation aircraft are less audible at all of the other model validation measurements sites. Table 1 summarizes the findings. The column on the far left of Table 1 contains the identity of the site groups used in the model validation study. That study grouped the 39 microphone locations according to common geographic characteristics that

could lead to common levels of aircraft noise exposure. The remaining columns group the average time audible values by aircraft category (fixed wing or helicopter) and by compliance with the GCNP quiet aircraft technology designation. A range of average audible duration values is given when there is more than one aircraft model in that specific category. For example, this analysis includes 2 fixed wing aircraft

that would not meet the GCNP quiet aircraft technology designation (C182 and C207), 3 helicopters that would not meet the designation (AS350, B206B, and B206L), 3 GCNP quiet aircraft technology designation helicopters (EC130, MD600, and MD900), and one GCNP quiet aircraft technology designation fixed wing aircraft (Vistaliner or DHC6QP).

TABLE 1.—COMPARISON OF AVERAGE TIME AUDIBLE PER SEAT (MINUTES, MINIMUM–MAXIMUM)

Site group	Fixed wing		Helicopters	
	GCNP quiet aircraft technology designation	Other	GCNP quiet aircraft technology designation	Other
1All	No aircraft audible			
2All	No aircraft audible			
3North	0.0	0.5–0.8	0.0–0.0	0.0–0.1
3South	0.0	0.3–0.5	0.0–0.1	0.0–0.2
4North	0.1	0.7–1.4	0.5–0.6	0.6–1.0
4South	0.0	0.6–1.1	0.3–0.4	0.4–1.1
5Rim	0.3	1.9–3.6	1.1–1.4	1.4–2.6
5Interior	0.1	1.0–2.0	0.2–0.5	0.2–1.4
6All	0.2	1.2–2.2	0.9–1.0	1.2–1.6
7All	0.2	1.2–2.1	0.9–1.0	1.2–1.8
8Mtn	0.1	1.3–2.3	0.8–0.9	0.9–1.7
8Ridge	0.2	0.9–1.6	0.6–0.6	0.8–1.3

TABLE 1.—COMPARISON OF AVERAGE TIME AUDIBLE PER SEAT (MINUTES, MINIMUM—MAXIMUM)—Continued

Site group	Fixed wing		Helicopters	
	GCNP quiet aircraft technology designation	Other	GCNP quiet aircraft technology designation	Other
9Far	No aircraft audible			
9Near	0.3	1.8–3.2	1.0–1.2	1.4–2.2

The NPS’s consultant also expressed concern that the A-weighting used for the certification and the GCNP quiet aircraft technology designation may not correlate with time audible. The FAA examination indicates there is some validity to this concern. In particular, the Cessna 182 aircraft (C182), which has a relatively low certification level but a high audible duration, seems to be an exception to the relationships derived between time audible and certification level. This is especially the case when considering the time audible on a per seat basis. A possible reason for this is that the C182 has a lower Blade Passage Frequency (BPF) than the other fixed wing aircraft. The BPF of the C182 is 80 Hz, the BPF of the C207 is 125 Hz, and the BPF of the DHC-6QP is 100 Hz. These low frequency tones have little influence on the A-weighted levels, but propagate through the atmosphere without significant reduction from atmospheric attenuation.

Since the helicopters in this evaluation have dominant main rotor BPF tones even lower in frequency than does the C182, one would expect to find a lack of correlation between the A-weighted noise levels for these helicopters and their values of audibility duration. However this does not seem the case as shown in the linear relationships derived by the NPS’s consultant. The reason is likely the auditory masking of these lower frequency tones by the threshold of human hearing, which slopes up significantly in the lower frequencies. Thus, even though the helicopters generate a substantial amount of energy at the very low frequencies, a large amount of that energy is below the threshold of hearing.

The FAA concludes that while the correlation between ranking of certification noise levels and ranking of audibility duration is inexact, aircraft that meet the GCNP quiet aircraft technology designation are consistently less audible than those that do not. Therefore it is reasonable to expect that replacing non-compliant aircraft with larger, GCNP quiet aircraft technology designation aircraft (e.g., replace a

Cessna 207 with a Vistaliner or replace a B206L with an EC-130) should produce marked improvement toward substantial restoration of natural quiet.

Addressing Selectable Noise Reduction Technologies

The Aerospace Industries Association (AIA) raised concerns that since the FAA first proposed basing the GCNP quiet aircraft technology designation upon noise certification data, manufacturers have introduced new selectable (or automated) helicopter noise reduction technologies. AIA is concerned that exclusive use of only the reference noise conditions will discourage the application of helicopter noise reduction innovations gained through these new selectable technologies.

FAA Response

The FAA envisions that it could accept noise levels derived from selectable noise reduction technologies in the event that the noise certification regulations are amended to accommodate such a concept. The noise certification regulations, 14 CFR part 36, are based on standard reference conditions designed to acquire noise levels representing the noisiest flight configurations. Technical procedures do not currently exist that address selectable noise reduction technologies. A technical working group on aircraft noise under the International Civil Aviation Organization (ICAO) is addressing selectable noise reduction technology. This technical group, which is made up of international regulators, aircraft manufactures and the airline industry, will explore concepts that may lead to changes in the noise certification scheme. The work program for such an activity under ICAO usually takes 3–6 years to bring to fruition.

Economic Consequences to Indirect Entities

AIA and the Helicopter Association International (HAI) expressed a concern that the proposed rule applies to a very narrow application of commercialized air tour operators in the GCNP, but that

it has broader implications upon helicopter manufacturing and operating industries. AIA and HAI claims that local jurisdictions, both domestic and foreign, could attempt to apply the quiet technology designation as criteria for use restriction. Such restrictions could result in significant costs to aircraft operators not linked in any way to the air tour industry. AIA and HAI recommend that the FAA should assess these costs. Alternatively, AIA and HAI recommend that the FAA adopt terminology that specifically narrows the quiet technology designation to that subset of aircraft for which it is intended. Both recommend replacing “quiet technology designation” with “GCNP aircraft quiet air tour designation.” AIA suggests that without this terminology change the potential for economic implications could be “both substantial and adverse to the helicopter manufacturing and operating industries.”

FAA Response

The FAA appreciates the concerns expressed by AIA and HAI, but questions the likelihood that non-airport proprietor State and local governments would assert such authority. It is well settled that the FAA has exclusive sovereignty over and authority to regulate use of the navigable air space. Actions by State and local governments to use their police powers to regulate aircraft overflights would be federally preempted. Nonetheless, to minimize any possible unintended adverse consequences that could result from the proposed “quiet technology designation” terminology the FAA has changed the phrase “quiet technology designation” to “GCNP quiet aircraft technology designation” in all places that it is used in the rule. This terminology change will correctly limit the scope of the rule to air tour aircraft operating over GCNP, in accordance with the plain language of Section 804 of the Air Tour Act, and eliminate any need to analyze the costs of possible unintended adverse consequences. This more precise terminology will also help to emphasize the scope of this final rule

and its relationship to quiet technology requirements at other national parks under other provisions of the Air Tour Act.

Helicopter Quiet Air Tour Designation Correspondence to the Flyover Condition

AIA states that the U.S. helicopter industry is disadvantaged by the exclusive use of the flyover certification condition as the flight profile for gauging the GCNP quiet aircraft technology. AIA claims that U.S. noise research has not concentrated on this flight condition for achieving noise reduction and thus makes this approach inappropriate.

FAA Response

The FAA finds the use of the flyover condition from noise certification best matches the primary flight operation by helicopters in commercial sightseeing operations in the Grand Canyon. The flyover condition is the most basic reference flight profile for helicopters as defined in both 14 CFR part 36 Appendix H and Appendix J (equivalent to ICAO Annex 16 Chapters 8 and 11 helicopter noise certification standards, respectively). Since the establishment of the Appendix J (Chapter 11) noise certification procedures for helicopters under 7000 pounds, numerous helicopters have been certificated at only the flyover condition, including most U.S. manufactured small helicopters. Therefore, the FAA believes it is appropriate that such an openly available and highly reliable noise data source be utilized and incorporated into the GCNP quiet aircraft technology designation helicopter limits.

Definition of "Passenger Seat"

AIA and HAI find that the proposed rule does not define "number of passenger seats." These commenters recommend that FAA define the number of passenger seats to mean the maximum number of passenger seats for which the individual aircraft is certified.

FAA Response

The FAA agrees to define the number of passenger seats as the "number of passenger seats for which an individual aircraft is configured."

Helicopter Weight Scaling

AIA, HAI, and AgustaWestland state that the proposed helicopter noise limit does not appropriately reflect the scaling of noise levels with weight when considering helicopter technology that is reasonably achievable. These commenters recommend that the slope

of 12 log should be incorporated rather than the 10 log to account for higher seating capacity and growth versions of existing helicopter designs.

FAA Response

The FAA finds the proposed GCNP quiet aircraft technology designation for helicopters to be appropriate. It was derived from the generally accepted common scaling with maximum gross weight, such that noise level increases 3 decibels for every doubling of aircraft weight (equating to 10 log slope). For example, the ICAO and FAA helicopter noise certification requirements for the takeoff, flyover, and approach noise conditions all use 3 decibels per doubling of weight to define the noise limits. The commenters' proposal to change it to 12 log seems designed to classify a certain helicopter, which is not currently used for commercial sightseeing, as meeting the GCNP quiet aircraft technology designation. Although the AgustaWestland EH-101 helicopter may have been built with some noise reduction technology, there is no evidence to show that it was built with the aim of meeting the rigorous standard needed to assist in the substantial restoration of natural quiet in GCNP. As such, the FAA rejects the recommendation, as it would weaken the effort towards the restoration of natural quiet.

Noise Limits for Fixed Wing Aircraft

AIA noted that the GCNP quiet aircraft technology limits for fixed wing aircraft do not account for changes to the small propeller-driven airplane noise certification scheme as found in the latest amendments to Appendix F and Appendix G of 14 CFR part 36.

FAA Response

The FAA agrees with AIA to update the appropriate rule language to reflect the technical changes made in 14 CFR part 36 amendment 22 (October 13, 1999). Amendment 22 replaced the 4-foot height microphone with a ground plane installation for small propeller-driven airplane noise certification tests. The change in microphone height affects the signal received. As such, the rule language of Part 93, Appendix A should be revised to account for the part 36 amendment noise level and to read as follows (added text is underlined):

"D. In the event that a flyover noise level is not available in accordance with Appendix F of 14 CFR part 36, the noise limit for propeller-driven airplanes with a takeoff noise level obtained in accordance with the measurement procedures prescribed in Appendix G is 74 dB or 77 dB, depending on the 14

CFR part 36 amendment noise level, for airplanes having two or fewer passenger seats, increasing at 3 dB per doubling of the number of passenger seats for airplanes having three or more passenger seats. The noise limit for propeller-driven airplanes with three or more passenger seats can be calculated by the formula:

$$L_{Amax}(G) = 74 + 10\log(\# \text{ PAX seats}/2) \text{ dB for certifications obtained under 14 CFR part 36 Amendment 21 or earlier;}$$

$$L_{Amax}(G) = 77 + 10\log(\# \text{ PAX seats}/2) \text{ dB for certifications obtained under 14 CFR part 36 Amendment 22 or later.}"$$

Comments on Implementation

Through this action, the FAA designates a standard for GCNP quiet aircraft technology that applies to certain aircraft in commercial air tour operations over GCNP. Under the provisions of Section 804 of the Air Tour Act, the FAA will address the establishment of routes or corridors for commercial air tour operations that employ quiet aircraft technology in subsequent rulemaking in consultation with the NPS and the NPOAG ARC. Since the ultimate objective is to determine the role of the GCNP quiet aircraft technology designation in achieving substantial restoration of natural quiet, the FAA requested specific comments to six questions. This section summarizes the specific comments made in response to each question below. These comments will be considered in subsequent rulemaking in consultation with the NPS and the NPOAG ARC, as provided in Section 804.

1. How reasonable is the noise efficiency approach (larger aircraft with more passenger seats are allowed to generate proportionally more noise) to define quiet technology and how appropriate is the use of certificated noise level as the basis?

The NPS believes that the implementation of noise efficient aircraft alone will not achieve substantial restoration of natural quiet. Achieving the goal will require some type of use restriction. Since audibility is the measure of natural quiet in GCNP, the NPS recommends that the sound levels produced by quiet technology aircraft be analyzed in terms of audibility, rather than certificated noise levels, to ensure that the aircraft is less audible than non-quiet technology aircraft.

Lighter Than Air Solar International, LLC suggests that an absolute noise level be used rather than noise efficiency.

AIA, HAI, and the United States Air Tour Association (USATA) support the proposed noise efficiency approach and the use of certificated noise levels. AIA and HAI also recommended some technical changes to this aspect of the rule. The FAA addressed these technical recommendations in the previous section of this document.

The Sierra Club acknowledges that the noise efficiency approach makes sense, *i.e.* to allow aircraft that give more passengers tour rides to make more noise, as long as larger quieter aircraft lead to fewer flights. The Sierra Club also acknowledges that certificated noise levels are the most readily available substantiated data but questions whether the ranking of certification noise data will give the same results in the rank of audibility.

The Friends of Grand Canyon support the proposed noise efficiency approach only if it will substantially reduce the number of flights.

2. What provisions should be made for changes in technology that result in source noise reduction and/or increased noise efficient aircraft designs?

Lighter Than Air Solar International, LLC suggests that the definition of quiet technology aircraft be expanded to include airships to accommodate for future innovations in both noise reduction technology and noise efficient aircraft designs.

AIA, HAI, and USATA recommend that incentives for research and development into source noise reduction technologies be made available to both manufacturers and others for developing Supplemental Type Certificates (STC). The incentives could take the form of research grants or directed appropriations to the National Aeronautics and Space Administration (NASA). As modifications and STCs are developed that reduce source noise and/or increase noise efficient aircraft designs, operators of the modified aircraft would be allowed increased operations within the GCNP.

The Sierra Club comments that some incentive is appropriate for retrofitting existing aircraft if it does not compromise the restoration of natural quiet.

3. What economic and operational incentives should be considered in order to achieve the transition to quieter aircraft and how should the quiet technology designation be used in the establishment of incentives?

AIA favors direct U.S. government support for research and development of flyover source noise reduction technologies to assist U.S. manufacturers in developing new

helicopters or modifying current helicopters.

HAI recommends tax incentive to operators who purchased quiet technology equipment, exemption to all caps and curfews, and route expansions for all quiet technology aircraft. Similarly, USATA and Lighter Than Air Solar International, LLC recommend relief from all caps and curfews, incentive routes, low-cost federal loans, over fee rebates or investment tax credits or elimination of overflight fees altogether.

The Sierra Club opposes opening incentive routes through existing flight free zones. This commenter supports operational incentives that allocate larger numbers of flights to aircraft that have lower noise signatures without increasing the overall number of flights, unless the flights are substantially quieter.

The Grand Canyon National Park Service (GCNPS) opposes any increase in the total number of operations as an incentive for conversion to noise-efficient aircraft. Such an incentive would be counterproductive to the efforts to achieve the mandate of substantial restoration of natural quiet.

4. Should incentives include a "flexible" cap that would permit increasing operations of aircraft based upon the acquisition of leading-edge noise efficient technology by operators?

USATA and Lighter Than Air Solar International, LLC support a "flexible" cap that would include no cap for quiet technology designation aircraft. USATA also suggests that the cap should be raised for operators who use approved noise abatement flight procedures.

The Sierra Club objects to the idea of "flexible" cap that may allow an increase in number of flights with the introduction of quiet technology designation aircraft. This commenter does not believe there is any reason to treat the GCNP overflights differently from other park limits, such as number of rooms, parking places, modes of transportation, access to trails, and boating permits, which are all capped.

The GCNPS endorses noise budgets as one form of "flexible" cap. Under a noise budget, operators would be allocated a quantity of noise ("decibel-minutes") equivalent to the amount and duration of noise each operation created during the 1997-98 base year, which they can use according to their operational needs.

One commenter suggested that rather than phasing out louder aircraft, the FAA should let the operators phase in the quieter ones.

5. Should growth be tied to an incentive system for existing operators

to convert their fleet to quiet technology?

Grand Canyon Trust (The Trust) and Friends of the Grand Canyon do not support the use of incentives, nor do they believe that there should be any allowances for air tour operational growth. The Trust opposes duplicate routes connecting the same two points (with one incentive route and one non-incentive route), as this would spread the noise over a wider area.

Sierra Club supports growth tied to conversion to quiet aircraft as long as aircraft noise continues to fall below the 1975 levels.

HAI and USATA believe that the mechanisms they had suggested in response to Question 4 should provide the affected operators with the necessary incentives to convert to quieter aircraft.

Lighter Than Air Solar International, LLC favors incentives for operators' investment in quiet technology in the form of expanded operational rewards (allocations). The criteria for such rewards should also be based on decreased noise levels and not other, non-related criteria, such as seniority or company size.

The NPS and GCNPS both believe that growth incentives at the expense of substantial restoration of natural quiet are contrary to the mandate. Some limited growth in number of operations might be possible under a system of partial redistribution of reverted allocations.

6. What operational limitations (phase-out, expanded curfews, noise budgets, quota system, etc.) should be considered, and how should the quiet technology designation be used in the setting of the limitations?

The Trust and the Sierra Club support phase-out, expanded curfews, and an added noise cap approach for operational limitations. The Trust recommends that the caps for the number of aircraft should also apply to the number of flights. The Trust suggests that the annual number of flights decline until they are stabilized at the 1975 levels. This could be achieved by a 5% decline in flights per year over the next 15 or 20 years in the Dragon Corridor. The Trust supports the quiet technology designation as the noise standard to be applied to all commercial tour aircraft at the Grand Canyon. The Trust wants it instituted for the east end of the GCNP by 2007 and the entire GCNP by 2010. The Trust seeks to abolish the Dragon Corridor and asks that the Zuni Corridor become "quiet aircraft only." In addition, the Sierra Club suggests a sliding scale

incentive to reward incremental noise reduction efforts.

The Friends of the Grand Canyon seek a cap on the number of passengers to assure the noise benefit and gains from reduced flights materialize. Such visitor caps have existed for 3 decades for ground visitors.

HAI and USATA endorse the elimination of all caps and curfews for quiet technology operators. HAI finds that a phase-out is unnecessary, as other operational incentives will cause an increase in quiet technology aircraft. HAI supports tax relief for the development of noise abatement techniques and low noise operational techniques that can be incorporated into the aircraft flight manual.

Lighter Than Air Solar International, LLC (11) support a "gradual" phase-out and continuing periodic FAA noise reviews.

The NPS and GCNPS have concluded that substantial restoration of natural quiet requires supplemental operational limitations, *i.e.*, reduced flights, quieter equipment for the total passenger carrying capability and accountability for number of flights. The NPS and GCNPS support a market-based flight allocation system for the benefit of natural quiet.

Economic Summary

Proposed changes to Federal regulations must undergo several economic analyses. First, Executive Order 12866 directs that each Federal agency shall propose or adopt a regulation only upon a reasoned determination that the benefits of the intended regulation justify its costs. Second, the Regulatory Flexibility Act of 1980 requires agencies to analyze the economic impact of regulatory changes on small entities. Third, the Trade Agreements Act (19 U.S.C. section 2531–2533) prohibits agencies from setting standards that create unnecessary obstacles to the foreign commerce of the United States. In developing U.S. standards, this Trade Act requires agencies to consider international standards and, where appropriate, that they be the basis of U.S. standards. Fourth, the Unfunded Mandates Reform Act of 1995 requires agencies to prepare a written assessment of the costs, benefits and other effects of proposed or final rules that include a Federal mandate likely to result in the expenditure by State, local or tribal governments, in the aggregate, or by the private sector, of \$100 million or more, in any one year (adjusted for inflation).

In conducting these analyses, FAA has determined that this rule: (1) Has benefits that justify its costs, is not

economically significant under Executive Order 12866, and is significant as defined in DOT's Regulatory Policies and Procedures; (2) will not have a significant economic impact on a substantial number of small entities; (3) will not reduce barriers to international trade; and (4) does not impose an unfunded mandate on State, local, or tribal governments, or on the private sector.

However, for regulations with an expected minimal impact the above-specified analyses are not required. The Department of Transportation Order DOT 2100.5 prescribes policies and procedures for simplification, analysis, and review of regulations. If it is determined that the expected impact is so minimal that the proposal does not warrant a full evaluation, a statement to that effect and the basis for it is included in the regulation.

This final rule does not require any action by operators, as it simply identifies which aircraft meet or do not meet the GCNP quiet aircraft technology designation. Further, this rule does not relieve operators of the currently established operational limitations. The expected outcome is to have a minimal impact.

Comments

Two commenters, AIA and HAI, submitted comments on the economic consequences to the proposal that have been discussed earlier in this final rule.

The FAA agrees with AIA and HAI and has changed the phrase "quiet technology designation" to "GCNP quiet aircraft technology designation" in all places that it is used in the rule. This change will eliminate any need to analyze the costs of possible unintended adverse consequences to entities not subject to this action and clarify how this final rule relates to quiet technology requirements under Section 805 and other sections of the Air Tour Act applicable to national parks other than GCNP.

Regulatory Flexibility Determination

The Regulatory Flexibility Act of 1980 (RFA) establishes "as a principle of regulatory issuance that agencies shall endeavor, consistent with the objective of the rule and of applicable statutes, to fit regulatory and informational requirements to the scale of the business, organizations, and governmental jurisdictions subject to regulation." To achieve that principle, the RFA requires agencies to solicit and consider flexible regulatory proposals and to explain the rationale for their actions. The RFA covers a wide-range of small entities, including small

businesses, not-for-profit organizations and small governmental jurisdictions.

Agencies must perform a review to determine whether a proposed or final rule will have a significant economic impact on a substantial number of small entities. If the determination is that it will, the agency must prepare a regulatory flexibility analysis as described in the RFA.

However, if an agency determines that a proposed or final rule is not expected to have a significant economic impact on a substantial number of small entities, Section 605(b) of the RFA provides that the head of the agency may so certify, and a regulatory flexibility analysis is not required. The certification must include a statement providing the factual basis for this determination, and the reasoning should be clear.

This action merely defines quiet technology designation for aircraft use in GCNP air tour operations but does not impose any requirements. This action does not impose any requirements to use aircraft that meet the GCNP quiet aircraft technology designation. This action does not grant any relief from current GCNP air tour requirements if an operator uses aircraft that meets the designation. Therefore, the FAA does not expect this rule to have any cost impact on small entities that provide GCNP air tours. Consequently, the FAA certifies that the rule will not have a significant economic impact on a substantial number of small entity GCNP air tour operators.

International Trade Impact Analysis

The Trade Agreement Act of 1979 prohibits Federal agencies from engaging in any standards or related activities that create unnecessary obstacles to the foreign commerce of the United States. Legitimate domestic objectives, such as safety, are not considered unnecessary obstacles. The statute also requires consideration of international standards and, where appropriate, that they be the basis for U.S. standards.

In accordance with the above statute, the FAA has determined that this action will have a minimal impact and, therefore, has determined that this rule will not result in any unnecessary obstacles to the foreign commerce of the United States.

Unfunded Mandates Reform Act

The Unfunded Mandates Reform Act of 1995 (the Act), enacted as Public Law 104–4 on March 22, 1995, is intended, among other things, to curb the practice of imposing unfunded Federal mandates

on State, local, and tribal governments. Title II of the Act requires each Federal agency to prepare a written statement assessing the effects of any Federal mandate in a proposed or final agency rule that may result in an expenditure of \$100 million or more (adjusted annually for inflation) in any one year by State, local, and tribal governments, in the aggregate, or by the private sector; such a mandate is deemed to be a "significant regulatory action." The FAA currently uses an inflation-adjusted value of \$120.7 million in lieu of \$100 million.

This action does not contain such a mandate. Therefore, the requirements of Title II of the Unfunded Mandates Reform Act of 1995 do not apply.

Federalism Implications

The regulations herein would not have substantial direct effects on the States, on the relationship between the National Government and the States, or on the distribution of power and responsibilities among the various levels of government. Therefore, in accordance with Executive Order 13132, it is determined that this rule does not have sufficient federalism implications to warrant the preparation of a federalism assessment.

Environmental Review

In accordance with FAA Order 1050.1E, the FAA has determined that this action is categorically excluded from environmental review under section 102(2)(C) of the National Environmental Policy Act (NEPA). This action was categorically excluded under FAA Order 1050.1D, Appendix 4, Paragraph 4.j (now Paragraph 312d in FAA Order 1050.1E), which covers regulations "excluding those which if implemented may cause a significant impact on the human environment." This rule establishes quiet technology designations for aircraft operating in GCNP. It does not impose a phase-out or any alteration of any air tour operator's fleet of aircraft. It does not lift the operations limitation, alter any flight corridors through the park, or make any change to the SFRA. Finally, the FAA notes that this action alone has no impact on substantial restoration of natural quiet in the GCNP. Any environmental and economic impacts will depend on other future actions yet to be defined. Accordingly, this action will not individually or cumulatively have a significant effect on the human environment. In addition, the FAA has determined that there are no "extraordinary circumstances" associated with the proposed action that

would otherwise require the preparation of an EA or EIS.

Consultation With Tribal Governments

Executive Order 13084 provides for consultation and coordination with Indian tribal governments in certain circumstances that are set forth in the executive order. The SNPRM Notice No. 03-05 described consultations with Indian tribal governments about this rule and taken their concerns into account. The FAA determined that additional consultations were not necessary because this action is required by statute and would not impose any substantial direct compliance costs on the communities of Indian tribal governments.

Paperwork Reduction Act

In accordance with the Paperwork Reduction Act of 1995 (Pub. L. 104-13), there are no requirements for information collection associated with this action. An agency may not conduct or sponsor and a person is not required to respond to a collection of information unless it displays a currently valid Office of Management and Budget (OMB) control number.

List of Subjects in 14 CFR Part 93

Air traffic control, Airports, Navigation (Air), Reporting and recordkeeping requirements.

The Amendment

■ For reasons set forth above, the Federal Aviation Administration amends part 93, in chapter I of Title 14, Code of Federal Regulations, as follows:

PART 93—SPECIAL AIR TRAFFIC RULES AND AIRPORT TRAFFIC PATTERNS

■ 1. The authority citation for part 93 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40103, 40106, 40109, 40113, 44502, 44514, 44701, 44719, 46301.

■ 2. Section 93.303 is amended to add the definitions in alphabetical order to read as follows:

§ 93.303 Definitions.

* * * * *

GCNP quiet aircraft technology designation means an aircraft that is subject to § 93.301 and has been shown to comply with the noise limit specified in appendix A of this part.

Number of passenger seats means the number of passenger seats for which an individual aircraft is configured.

* * * * *

■ 3. Appendix A is added to read as follows:

Appendix A to Subpart U of Part 93—GCNP Quiet Aircraft Technology Designation

This appendix contains procedures for determining the GCNP quiet aircraft technology designation status for each aircraft subject to § 93.301 determined during the noise certification process as prescribed under part 36 of this chapter. Where no certificated noise level is available, the Administrator may approve an alternative measurement procedure.

Aircraft Noise Limit for GCNP Quiet Aircraft Technology Designation

A. For helicopters with a flyover noise level obtained in accordance with the measurement procedures prescribed in Appendix H of 14 CFR part 36, the limit is 80 dB for helicopters having a seating configuration of two or fewer passenger seats, increasing at 3 dB per doubling of the number of passenger seats for helicopters having a seating configuration of three or more passenger seats. The noise limit for helicopters with three or more passenger seats can be calculated by the formula:

$$EPNL(H) = 80 + 10 \log(\# \text{ PAX seats}/2) \text{ dB}$$

B. For helicopters with a flyover noise level obtained in accordance with the measurement procedures prescribed in Appendix J of 14 CFR part 36, the limit is 77 dB for helicopters having a seating configuration of two or fewer passenger seats, increasing at 3 dB per doubling of the number of passenger seats for helicopters having a seating configuration of three or more passenger seats. The noise limit for helicopters with three or more passenger seats can be calculated by the formula:

$$SEL(J) = 77 + 10 \log(\# \text{ PAX seats}/2) \text{ dB}$$

C. For propeller-driven airplanes with a measured flyover noise level obtained in accordance with the measurement procedures prescribed in Appendix F of 14 CFR part 36 without the performance correction defined in Sec. F35.201(c), the limit is 69 dB for airplanes having a seating configuration of two or fewer passenger seats, increasing at 3 dB per doubling of the number of passenger seats for airplanes having a seating configuration of three or more passenger seats. The noise limit for propeller-driven airplanes with three or more passenger seats can be calculated by the formula:

$$LA_{max}(F) = 69 + 10 \log(\# \text{ PAX seats}/2) \text{ dB}$$

D. In the event that a flyover noise level is not available in accordance with Appendix F of 14 CFR part 36, the noise limit for propeller-driven airplanes with a takeoff noise level obtained in accordance with the measurement procedures prescribed in Appendix G is 74 dB or 77 dB, depending on 14 CFR part 36 amendment level, for airplanes having a seating configuration of two or fewer passenger seats, increasing at 3 dB per doubling of the number of passenger seats for airplanes having a seating configuration of three or more passenger seats. The noise limit for propeller-driven airplanes with three or more passenger seats can be calculated by the formula:

$L_{Amax}(G) = 74 + 10\log(\# \text{ PAX seats}/2)$ dB for
certifications obtained under 14 CFR part
36, Amendment 21 or earlier;

$L_{Amax}(G) = 77 + 10\log(\# \text{ PAX seats}/2)$ dB for
certifications obtained under 14 CFR part
36, Amendment 22 or later.

Issued in Washington, DC on March 22,
2005.

Marion C. Blakey,
Administrator.

[FR Doc. 05-6074 Filed 3-28-05; 8:45 am]

BILLING CODE 4910-13-P

Grand Canyon Working Group Glossary of Terms/Acronyms

A-Weighting

See “Weighting.”

Acoustics

The science of sound.

Acoustic Zone

Areas with similar vegetation, terrain, animals, and weather likely have similar acoustic characteristics, including sound sources and sound attenuation characteristics. These areas are referred to as “acoustic zones” and may be helpful in describing acoustic conditions in areas with similar characteristics.

Ambient Sound Conditions

Many different soundscapes occur in national parks. In some areas, natural sounds predominate, while in others, both natural and non-natural sounds occur. In order to understand and management soundscapes, ambient conditions for different soundscapes need to be acoustically described. Definitions of common ambient sound conditions are provided below.

Ambient Sound, Existing.

All sounds in a given area (includes all natural and non-natural sounds).

Ambient Sound, Natural.

All natural sounds in a given area, excluding all non-natural sounds. Natural ambient sound is considered synonymous with the term “natural quiet,” although natural ambient sound is more appropriate because nature is often not quiet.

Amplitude

The instantaneous magnitude of an oscillating quantity such as sound pressure. The peak amplitude is the maximum value.

Attenuation

The reduction of sound intensity by various means (e.g., air, humidity and porous materials).

Area of Audibility

The area within which a specific sound or sounds is audible.

Audibility

Audibility is the ability of humans and animals with normal hearing to hear a given sound. Audibility is affected by the hearing ability of the individual, other simultaneous interfering sounds or stimuli, and by the frequency content and amplitude of the sound.

Audiogram

A graph showing hearing acuity as a function of frequency and amplitude.

Commercial Aviation

The commercial sector of the aviation industry that consists of air carriers providing transportation for hire for passengers and cargo in domestic and international service. Commercial aviation includes air carriers that operate large passenger or cargo jets and regional/commuter/charter carriers operating smaller aircraft.

Cooperating Agency

An agency or tribal government that has jurisdiction by law or has special expertise with respect to an environmental issue and cooperatively works with the lead agency to prepare an environmental impact statement.

Decibel (dB)

A logarithmic measure of any measured physical quantity and commonly used in the measurement of sound. The decibel provides the possibility of representing a large span of signal levels in a simple manner as opposed to using the basic unit Pascal. The difference between the sound pressure for silence versus a loud sound is a factor of 1,000,000:1 or more, therefore it is less cumbersome to use a small range of equivalent values: 0 to 130 decibels.

Doubling of Sound Pressure = 6 dB

Doubling of Sound Power = 3 dB

Doubling of Perceived Sound Level = 10 dB (approximately)

Detectability

Noise that can be detected by a human on the ground who is actively listening. This is the measure of whether aircraft noise is audible in backcountry areas of Grand Canyon National Park.

Energy Equivalent Sound Level (L_{eq})

The level of a constant sound over a specific time period that has the same sound energy as the actual (unsteady) sound over the same period.

Environmental Impact Statement (EIS)

A detailed written analysis of the potential environmental impacts of a proposed Federal action or decision that would significantly affect the environment, consistent with the requirements of the National Environmental Policy Act of 1969.

Events per Hour

The number of times a non-natural sound source is heard, on average, in one hour (this may be specific to a particular human-caused sound or to all human-caused sounds).

Federal Interagency Committee on Aviation Noise (FICAN)

A committee formed in 1993 to provide forums for discussion of public and private sector proposals on aviation noise and to identify and encourage needed research. All Federal agencies concerned with aviation noise are represented on the committee, including the Department of Defense (Air Force, Army, Navy), Department of Interior (NPS), Department of Transportation (FAA), Environmental Protection Agency, National Aeronautics and Space Administration, and Department of Housing and Urban Development.

Frequency

The number of times per second that the sine wave of sound repeats itself. It can be expressed in cycles per second, or Hertz (Hz). Frequency equals Speed of Sound / Wavelength.

GCNP Quiet Aircraft Technology

Reasonably achievable noise requirements for commercial air tour aircraft operating in Grand Canyon National Park to be considered as employing quiet technology. These requirements and the identification of aircraft that meet them are in a final rule published by FAA in the Federal Register on March 29, 2005.

General Aviation

The private sector of the aviation industry that consists of privately owned and operated aircraft that are not for hire. Aircraft size and range vary widely from small single engine aircraft to large jet aircraft.

Hearing Range (human)

An average healthy young person can hear frequencies from approximately 20 Hz to 20000 Hz, and sound pressure levels from 0 dB to 130 dB or more (threshold of pain).

Human-caused Sound

Any sound that is attributable to a human source. This term may be used interchangeably with “non-natural,” “human-made,” “man-caused,” or “man-made” sound.

Infrasound

Frequencies below 20 Hz. Humans perceive frequencies below about 20 Hz as pressure rather than sound.

Instrument Flight Rules (IFR)

Rules governing the conduct of flight using instruments and air traffic services to avoid obstacles, terrain, and other air traffic.

Integrated Noise Model Version 6.2 (INM 6.2)

FAA’s computer model for calculating aircraft noise. Version 6.2 of INM includes the capability to calculate aircraft audibility.

Intensity

The sound energy flow through a unit area in a unit time.

Joint Lead Agency

An agency that jointly supervises the preparation of an environmental impact statement with another agency.

Loudness

The subjective judgment of intensity of a sound by humans. Loudness depends upon the sound pressure and frequency of the stimulus.

Masking

The process by which the threshold of audibility for a sound is raised by the presence of another (masking) sound. A masking sound is one that renders inaudible or unintelligible another sound that is also present.

National Environmental Policy Act (NEPA)

Legislation that establishes a national policy for the environment and that requires the preparation of an environmental impact statement for major Federal actions significantly affecting the environment.

National Parks Overflights Advisory Group (NPOAG)

An advisory group of representatives of FAA, NPS, general aviation, air tour operators, environmental concerns, and Indian tribes established by the Air Tour Management Act of 2000 to provide continuing advice and counsel with respect to commercial air tour operations over and near national parks.

Natural Quiet

All natural sounds in a given area, excluding all non-natural sounds. See Ambient Sound, Natural.

Noise

Traditionally, noise has been defined as unwanted, undesired, or unpleasant sound. This makes noise a subjective term. Sounds that may be unwanted and undesired by some may be wanted and desirable by others. The appropriateness of any sound in a given area of a park will depend on a variety of factors, including the management objectives of that area.

Noise Contours

Continuous lines on a map connecting all points of the same noise exposure level.

Noise Floor

The lowest amplitude measurable by sound monitoring equipment. Most commercially available sound level meters and microphones can detect sound levels down to about 15 to 20 dBA; however, there are microphones capable of measuring sound levels below 0 dBA.

Noise-Free Interval

The length of time during which only natural sounds are audible.

Notice of Proposed Rulemaking (NPRM)

A draft of a proposed rule for public input and comment. Under the Administrative Procedures Act, in most cases before a Federal agency may adopt a final rule, the agency must publish in the Federal Register a draft rule and seek public comment. An NPRM contains a preamble that describes the rule and its purpose, commenting information and deadlines, and the text of the proposed rule.

Noticeability

Noise that can be noticed by a human on the ground who is not necessarily actively listening. This is the measure of whether aircraft noise is audible in developed areas of Grand Canyon National Park.

Octave Band, One-Third

A frequency band whose cutoff frequencies have a ratio of 2 to the one-third (approximately 1.26). One-third octave bands reflect reasonably the ability of humans to differentiate tones.

Peak Day

The day of the highest amount of aircraft activity. Modeling aircraft noise based on the peak day of activity should assure that substantial restoration of natural quiet is achieved on any given day.

Percent Exceedence (L_x)

These metrics are the sound levels (L), in decibels, exceeded x percent of the time. The L_{50} value represents the sound level exceeded 50 percent of the measurement period. L_{50} is the same as the median. The L_{90} value represents the sound level exceeded 90 percent of the time during the measurement period.

Signal-to-Noise Ratio (SNR)

The ratio between the amplitude of a signal (meaningful information) and the amplitude of background noise. Because many signals have a very wide dynamic range, SNRs are often expressed in terms of the logarithmic decibel scale.

Sound

A wave motion in air, water, or other media. It is the rapid oscillatory compressional changes in a medium that propagate to distant points. It is characterized by changes in density, pressure, motion, and temperature as well as other physical properties. Not all rapid changes in the medium are sound (wind distortion on a microphone diaphragm).

Soundscape

Soundscape refers to the total acoustic environment associated with a given area. In a national park setting, soundscapes can be composed primarily of natural sounds, or they can be composed of both natural and non-natural sounds.

Sound Exposure Level (SEL)

The total sound energy of an actual sound calculated for a specific time period. SEL is usually expressed using a time period of one second. This metric is useful in comparing two sounds that differ in amplitude and duration. A very long, very low level sound may have the same 1-second SEL as a very short, very loud sound.

Sound Level

Generally, sound level refers to the *weighted* sound pressure level obtained by frequency weighting, usually A- or C-weighted.

Sound Pressure

Fluctuations in air pressure caused by the presence of sound waves. Sound pressure is the instantaneous difference between the actual pressure produced by a sound wave and the average barometric pressure at a given point in space. Sound pressure is measured in Pascals (Pa), Newtons per square meter, which is the metric equivalent of pounds per square inch.

Sound Pressure Level (SPL)

The logarithmic form of sound pressure. It is also expressed by attachment of the word decibel to the number.

Sound Speed

The speed of sound in air is about 344 m/sec (1,130 ft/sec or 770 mph) at 70° F at sea level. It substantially varies depending on temperature and type of medium.

Special Federal Aviation Regulation (SFAR)

A regulation adopted by FAA for unique and specific situations. SFARS generally have expiration dates that can be extended. SFAR 50-2 is the rule which created a Special Flight Rules Area (SFRA) over the Grand Canyon.

Special Flight Rules Area (SFRA)

A portion of airspace, with both vertical and lateral dimensions, wherein special operational rules and restrictions apply. The Grand Canyon SFRA overlies Grand Canyon National Park and surrounding lands. It extends vertically to 18,000 feet above sea level.

Spectrum (Frequency Spectrum)

The amplitude of sound at various frequencies. It is given by a set of numbers that describe the amplitude at each frequency or band of frequencies.

Substantial Restoration of Natural Quiet

A legislatively mandated requirement associated with recommendations by the Secretary of the Interior with respect to aircraft noise at Grand Canyon National Park. Substantial restoration of natural quiet has been further clarified by NPS as the achievement of natural quiet (i.e., no aircraft audible) in 50 percent or more of the park for 75-100 percent of any given day.

Time Above Natural Ambient

The amount of time that sound levels from non-natural sounds are greater than sound levels of natural sound levels.

Time Audible

The amount of time that various sound sources are audible to animals, including humans, with normal hearing (hearing ability varies among animals).

Ultrasound

Sounds of a frequency higher than 20,000 Hz.

Visual Flight Rules (VFR)

Rules pilots may operate under in appropriate airspace when weather meets certain criteria allowing ample visual ability to see and avoid other aircraft, obstacles, and terrain.

Wavelength

Wavelength is the distance a wave travels in the time it takes to complete one cycle. A wavelength can be measured between successive peaks or between any two corresponding points on the cycle. $\text{Wavelength (ft)} = \text{Speed of Sound (ft)} / \text{Frequency (Hz)}$.

Weighting

Adjustment of sound level data to achieve a desired measurement. A-Weighting is used to account for changes in human hearing sensitivity as a function of frequency. The A-weighting network de-emphasizes the high (6.3 kHz and above) and low (below 1 kHz) frequencies, and emphasizes the frequencies between 1 kHz and 6.3 kHz, in an effort to simulate the relative response of human hearing. C-Weighting is linear over the mid frequency range from 200 Hz to 1.6 kHz, and de-emphasizes the low (below 200 Hz) and high (above 1.6 kHz) frequencies.

Windscreen

A porous device used to cover the microphone of a sound level measurement system. Windscreens are designed to minimize the effects of wind disturbance on the sound levels being measured while minimizing the attenuation (<0.5 dB) of the signal. When using windscreens that attenuate sound levels >0.5 dB, the amount of attenuation for each one-third octave band must be known and corrections applied.

Acronyms

dB	decibel
EIS	Environmental Impact Statement
FICAN	Federal Interagency Committee on Aviation Noise
INM 6.2	Integrated Noise Model Version 6.2
IFR	Instrument Flight Rules
NEPA	National Environmental Policy Act
NPOAG	National Parks Overflights Advisory Group
NPRM	Notice of Proposed Rulemaking
SFAR	Special Federal Aviation Regulation
SFRA	Special Flight Rules Area
VFR	Visual Flight Rules

Status of GCNP Recommendations in the 1994 Report to Congress

NPS recommends:

Airspace Structure

General

1.
 - The SFRA boundary be modified near the southeast corner of the Bright Angel Flight-Free Zone and the far western edge of the SFRA near the Grand Wash Cliffs to ensure almost all of GCNP lies within the SFRA. **Implemented**
 - The FAA may have to modify the boundary elsewhere to guarantee that all commercial aircraft remain within the SFRA while conducting tours. **Not Implemented**
 - The NPS also recommends that the SFRA boundary be realigned as originally proposed by NPS in 1987 near the Grand Canyon West Airport and that traffic utilizing this airport have the same caveat (“Landing/Take-off operations below 3,000’ AGL within 3 NM of the airport are authorized by the SFAR”) as other airports located under or adjacent to the SFRA. **Not Implemented. Contained in ’96 Final Rule. {FAA established that the present airspace structure around the GCN airport provides the minimum safety margins acceptable to the FAA.}**
2. FAA study the air traffic in the range of 14,499 feet Mean Sea Level (MSL) to 17,999 MSL so that a determination can be made as to whether there is merit in an upward adjustment of the SFRA ceiling. **Implemented**
3. “Minimum Altitude Sector” boundaries (for the five sectors within the GCNP SFRA) remain unchanged. The minimum altitudes within these boundaries are proposed to remain unchanged for general aviation aircraft, but will change for air tour aircraft as specified under “Routes” below. **Implemented, although two sectors were merged. Part 93 changed minimum altitudes.**
4. A new regulation superseding SFAR 50-2 should be considered a permanent Federal Aviation Regulation without an expiration date. **Implemented**

Flight-Free Zones

5. Flight-free zones be expanded, in some cases beyond the boundary of GCNP:
 - Bright Angel and Shinumo FFZs be combined and increased in area to the north (to the SFRA boundary); **Not Implemented – alternative implemented**
 - Desert View FFZ be expanded to the north and south (and to the east to the SFRA boundary); **{Partially Implemented}**

- Toroweap/Thunder River FFZ be expanded to the west and south (and to the north to the SFRA boundary). **Toroweap/Shinumo created/Partially implemented**
 - A new FFZ, the Sanup FFZ, be created in western Grand Canyon. **Implemented**
6. The resulting four FFZs be identified as follows (from east to west): Desert View, Bright Angel, Toroweap/Thunder River, and Sanup. These four zones would encompass approximately 987,200 acres or almost 82 percent of the total park area. **{Partially implemented}**
 7. FAA study air traffic over the FFZs in the range of 14,499 MSL to 17,999 MSL to evaluate the merit of raising the FFZ ceilings. **Partially Implemented. Implemented for Sanup FFZ. 8,000 MSL to 14,500 MSL is the range of ceilings.**

Flight Corridors

8. Dragon Flight Corridor. On the effective date of a new regulation superseding SFAR 50-2, the Dragon Flight Corridor would be abolished. Black 1 Alpha (airplane) and Green 1 Alpha (helicopter) one-way only commercial tour routes (as designated in SFAR 50-2) would remain accessible for use by quiet commercial aircraft only. Five years after the effective date of the new regulation, these routes would be eliminated. **Not Implemented**
9. Fossil Canyon Flight Corridor.
 - Five years after the effective date of a new regulation superseding SFAR 50-2, the commercial tour routes within the Fossil Canyon Flight Corridor would be accessible only to quiet commercial aircraft. **Not Implemented**
 - Effective immediately upon implementation of the new regulation, the dimensions of the corridor would be changed to conform with the structure of the Zuni Point Flight Corridor (2 NM wide for commercial tour and 4 NM wide for general aviation). The general aviation portion of the corridor would be centered directly over the commercial tour portion. **Implemented. Commercial tour portion eliminated.**
 - Two-way traffic within the Fossil Canyon Flight Corridor by commercial tour aircraft would be prohibited. **Commercial tours eliminated**
 - Two-way traffic by general aviation would be permitted. **Implemented**
10. Zuni Point Flight Corridor.
 - Ten years after the effective date of a new regulation superseding SFAR 50-2, the commercial air tour routes within the Zuni Point Flight Corridor would be accessible only to quiet commercial aircraft. **Not Implemented**
 - Two-way traffic within the Zuni Point Flight Corridor by commercial tour aircraft would be prohibited. **Not implemented**

- Two-way traffic by general aviation would be permitted. **Implemented**
11. Tuckup Flight Corridor.
- Continue to be accessible only to general aviation aircraft. **Implemented**
 - Minimum altitude would be lowered from 10,500 feet MSL to 9,500 feet MSL. **Not Implemented**
 - Two-way traffic by general aviation would be permitted. **Implemented**

GCNP SFRA

12. Fifteen years after the effective date of the new regulation superseding SFAR 50-2, commercial tour routes within the GCNP SFRA would be accessible only to quiet commercial aircraft. Non-quiet commercial tour aircraft (including NPS aircraft) would have their access phased out. Access by general aviation and military aircraft would continue unless results from acoustic monitoring programs indicate a need for change. **Not Implemented**

Routes

13. Routes and route segments available to the Grand Canyon air tour industry under SFAR 50-2 be simplified and reduced. **{Partially implemented}**
14. One-way traffic on commercial air tour routes outside of flight corridors be instituted as much as possible. Two-way traffic within flight corridors by commercial air tour aircraft would be prohibited. **Partially implemented**
15. Whitmore Canyon/Wash helicopter routes be treated the same as all other commercial air tour routes within the GCNP SFRA (i.e., numbered, described, etc.), and procedures be identified in the FAA's and operator's Operations Specifications manuals. Noise abatement procedures would be instituted by the FAA after consultations with NPS. **{Not implemented. Handled by 7711 waivers. Noise abatement not implemented.}**
16. Quiet aircraft would be allowed to fly at lower altitudes than non-quiet aircraft where feasible. That is, where the option exists, only quiet aircraft would be allowed to fly at the minimum altitudes specified for tour aircraft in SFAR 50-2. This may require FAA to adjust commercial air tour route altitudes specified for non-tour aircraft upward to meet necessary separation standards. This recommendation can be phased in over a short period of time (not to exceed 2 years) or instituted immediately if there are sufficient quiet aircraft already in service. **Not Implemented**
17. Tour flight route altitudes be adjusted to prohibit flight below the elevation of any canyon rim or feature within one mile (horizontally) of the route. **{Implemented}**

Aircraft Equipment Recommendations

18. FAA and NPS work cooperatively to develop a noise-based definition of “quiet aircraft” and identify the list of fixed-wing and rotorcraft (current technology) that would qualify for use in the Special Flight Rules Area. The definition should also be such that retrofitted aircraft are able to be added to the “quiet aircraft” category. **Implemented**
19. The development and implementation of incentives related to quiet aircraft be an important component of any proposed changes to the SFAR. **Not implemented, but proposed.**

Aircraft Operations Recommendations

20. FAA and NPS work together to develop a process that would be initiated when “action triggers” are met as determined through the NPS acoustic monitoring program. This action must be complete within six months of meeting or exceeding trigger. Limits on operation or noise, particularly in flight corridors, would be among the measures considered. The FAA would then develop an appropriate mechanism (noise budget, co-permitting, or other) that would implement this limitation after it has been triggered. **Not implemented**
21. A temporal restriction (a curfew or “no-fly” time period) for commercial air tour aircraft be implemented on the effective date of a new regulation superseding SFAR 50-2. NPS recommends a “no fly” time from 6pm – 8am each day. **Implemented for the east end: Summer 6p-8a; Winter 5p-9a**
22. APIMS (Aircraft Position Information Monitoring System”) or similar tracking system be required on Part 135 tour aircraft operating in the SFRA for the purpose of tracking compliance, numbers of flights per route by time period, and so forth, to develop a data base which might be used to develop more effective noise abatement techniques. **Variation Implemented – reporting requirements**

Flights Outside the SFRA

23. Due to the frequent deviations of high altitude jets from normal routes for sight-seeing purposes, it is recommended that FAA not authorize any deviations from normal flight plans and cruising altitudes for aircraft on high altitude jet routes over the Grand Canyon area for any reasons other than safety. An FAA study is recommended on high-altitude jet routes that may also have impacts on natural quiet in the park. **On-going**

Miscellaneous Recommendations

24. In those instances where the FAA allows commercial tour aircraft to land and take off on lands adjacent to GCNP, the NPS recommends the FAA require those

aircraft to be at the minimum sector altitude prior to crossing over park lands.
Not Implemented. Generally, aviation operating during critical phases of flight (landing or take off) will always be exempt from adjacent restrictions for safety reasons.

25. The FAA, in consultation with the NPS, should revise the “Grand Canyon Visual Flight Rules (VFR) Aeronautical Chart” (1st Edition, April 4, 1991) at the appropriate time to reflect any changes to the SFRA resulting from the previously described recommendations. **Implemented. Should occur on a regular cycle basis.**
26. The NPS shall establish an interpretive message, exhibit, or display in key locations of the park to describe overflights to visitors, and to tell them where they can expect natural quiet and where they can expect to hear aircraft. **Not Implemented.**
27. In recognition of a need for continued cooperation between both the FAA and NPS, a formal process (e.g., a MOU) will need to be established for accommodating requests from air tour operators for route changes or other matters of interest. **{Partially Implemented; Procedures in GCNP SFRA Procedures Manual; On-going development of process to address 7711 waiver requests.}**
28. Acknowledging a continuing need to communication between all interested parties, NPS and FAA should be amenable to holding public meetings as needed. **Ongoing**

The National Parks Overflight Act of 1987
Public Law 100-91

SECTION 1. STUDY OF PARK OVERFLIGHTS.

(a) Study by Park Service.—The Secretary of the Interior (hereinafter referred to as the 'Secretary'), acting through the Director of the National Park Service, shall conduct a study to determine the proper minimum altitude which should be maintained by aircraft when flying over units of the National Park System. The Secretary of Transportation, acting through the Administrator of the Federal Aviation Administration (hereinafter referred to as the 'Administrator'), shall provide technical assistance to the Secretary in carrying out the study.

(b) General Requirements of Study.—The study shall identify any problems associated with overflight by aircraft of units of the National Park System and shall provide information regarding the types of overflight which may be impacting on park unit resources. The study shall distinguish between the impacts caused by sightseeing aircraft, military aircraft, commercial aviation, general aviation, and other forms of aircraft which affect such units. The study shall identify those park system units, and portions thereof, in which the most serious adverse impacts from aircraft overflights exist.

(c) Specific Requirements.—The study under this section shall include research at the following units of the National Park System: Cumberland Island National Seashore, Yosemite National Park, Hawai'i Volcanoes National Park, Haleakala National Park, Glacier National Park, and Mount Rushmore National Memorial, and at no less than four additional units of the National Park System, excluding all National Park System units in the State of Alaska. The research at each such unit shall provide information and an evaluation regarding each of the following:

- (1) the impacts of aircraft noise on the safety of the park system users, including hikers, rock-climbers, and boaters;
- (2) the impairment of visitor enjoyment associated with flights over such units of the National Park System;
- (3) other injurious effects of overflights on the natural, historical, and cultural resources for which such units were established; and
- (4) the values associated with aircraft flights over such units of the National Park System in terms of visitor enjoyment, the protection of persons or property, search and rescue operations and firefighting.

Such research shall evaluate the impact of overflights by both fixed-wing aircraft and helicopters. The research shall include an evaluation of the differences in noise levels within such units of the National Park System which are associated with flight by commonly used aircraft at different altitudes. The research shall apply only to overflights and shall not apply to landing fields within, or adjacent to, such units.

(d) Report to Congress.—The Secretary shall submit a report to the Congress within 3 years after the enactment of this Act [Aug. 18, 1987] containing the results of the study carried out under this section. Such report shall also contain

recommendations for legislative and regulatory action which could be taken regarding the information gathered pursuant to paragraphs (1) through (4) of subsection (c). Before submission to the Congress, the Secretary shall provide a draft of the report and recommendations to the Administrator for review. The Administrator shall review such report and recommendations and notify the Secretary of any adverse effects which the implementation of such recommendations would have on the safety of aircraft operations. The Administrator shall consult with the Secretary to resolve issues relating to such adverse effects. The final report shall include a finding by the Administrator that implementation of the recommendations of the Secretary will not have adverse effects on the safety of aircraft operations, or if the Administrator is unable to make such finding, a statement by the Administrator of the reasons he believes the Secretary's recommendations will have an adverse effect on the safety of aircraft operations.

(e) FAA Review of Rules.—The Administrator shall review current rules and regulations pertaining to flights of aircraft over units of the National Park System at which research is conducted under subsection (c) and over any other such units at which such a review is determined necessary by the Administrator or is requested by the Secretary. In the review under this subsection, the Administrator shall determine whether changes are needed in such rules and regulations on the basis of aviation safety. Not later than 180 days after the identification of the units of the National Park System for which research is to be conducted under subsection (c), the Administrator shall submit a report to Congress containing the results of the review along with recommendations for legislative and regulatory action which are needed to implement any such changes.

(f) Authorization.—There are authorized to be appropriated such sums as may be necessary to carry out the studies and review under this section.

SEC. 2. FLIGHTS OVER YOSEMITE AND HALEAKALA DURING STUDY AND REVIEW.

(a) Yosemite National Park.—During the study and review periods provided in subsection (c), it shall be unlawful for any fixed wing aircraft or helicopter flying under visual flight rules to fly at an altitude of less than 2,000 feet over the surface of Yosemite National Park. For purposes of this subsection, the term 'surface' refers to the highest terrain within the park which is within 2,000 feet laterally of the route of flight and with respect to Yosemite Valley such term refers to the upper-most rim of the valley.

(b) Haleakala National Park.—During the study and review periods provided in subsection (c), it shall be unlawful for any fixed wing aircraft or helicopter flying under visual flight rules to fly at an altitude below 9,500 feet above mean sea level over the surface of any of the following areas in Haleakala National Park: Haleakala Crater, Crater Cabins, the Scientific Research Reserve, Halemauu Trail, Kaupo Gap Trail, or any designated tourist viewpoint.

(c) Study and Review Periods.—For purposes of subsections (a) and (b), the study period shall be the period of the time after the date of enactment of this Act [Aug. 18, 1987] and prior to the submission of the report under section 1. The review period shall comprise a 2-year period for Congressional review after the submission of the report to Congress.

(d) Exceptions.—The prohibitions contained in subsections (a) and (b) shall not apply to any of the following:

- (1) emergency situations involving the protection of persons or property, including aircraft;
- (2) search and rescue operations;
- (3) flights for purposes of firefighting or for required administrative purposes; and
- (4) compliance with instructions of an air traffic controller.

(e) Enforcement.—For purposes of enforcement, the prohibitions contained in subsections (a) and (b) shall be treated as requirements established pursuant to section 307 of the Federal Aviation Act of 1958 [see 49 U.S.C. 40103 (b)]. To provide information to pilots regarding the restrictions established under this Act, the Administrator shall provide public notice of such restrictions in appropriate Federal Aviation Administration publications as soon as practicable after the enactment of this Act [Aug. 18, 1987].

SEC. 3. GRAND CANYON NATIONAL PARK.

(a) Noise associated with aircraft overflights at the Grand Canyon National Park is causing a significant adverse effect on the natural quiet and experience of the park and current aircraft operations at the Grand Canyon National Park have raised serious concerns regarding public safety, including concerns regarding the safety of park users.

(b) Recommendations.—

(1) Submission.—Within 30 days after the enactment of this Act [Aug. 18, 1987], the Secretary shall submit to the Administrator recommendations regarding actions necessary for the protection of resources in the Grand Canyon from adverse impacts associated with aircraft overflights. The recommendations shall provide for substantial restoration of the natural quiet and experience of the park and protection of public health and safety from adverse effects associated with aircraft overflight. Except as provided in subsection (c), the recommendations shall contain provisions prohibiting the flight of aircraft below the rim of the Canyon, and shall designate flight free zones. Such zones shall be flight free except for purposes of administration and for emergency operations, including those required for the transportation of persons and supplies to and from Supai Village and the lands of the Havasupai Indian Tribe of Arizona. The Administrator, after consultation with the Secretary, shall define the rim of the Canyon in a manner consistent with the purposes of this paragraph.

(2) Implementation.—Not later than 90 days after receipt of the recommendations under paragraph (1) and after notice and opportunity for hearing, the Administrator shall prepare and issue a final plan for the management of air traffic in the air space above the Grand Canyon. The plan shall, by appropriate regulation, implement the recommendations of the Secretary without change unless the Administrator determines that implementing the recommendations would adversely affect aviation safety. If

the Administrator determines that implementing the recommendations would adversely affect aviation safety, he shall, not later than 60 days after making such determination, in consultation with the Secretary and after notice and opportunity for hearing, review the recommendations consistent with the requirements of paragraph (1) to eliminate the adverse effects on aviation safety and issue regulations implementing the revised recommendations in the plan. In addition to the Administrator's authority to implement such regulations under the Federal Aviation Act of 1958 [see 49 U.S.C. 40101 et seq.], the Secretary may enforce the appropriate requirements of the plan under such rules and regulations applicable to the units of the National Park System as he deems appropriate.

(3) Report.—Within 2 years after the effective date of the plan required by subsection (b)(2), the Secretary shall submit to the Congress a report discussing—

(A) whether the plan has succeeded in substantially restoring the natural quiet in the park; and

(B) such other matters, including possible revisions in the plan, as may be of interest.

The report shall include comments by the Administrator regarding the effect of the plan's implementation on aircraft safety.

(c) Helicopter Flights of River Runners.—Subsection (b) shall not prohibit the flight of helicopters—

(1) which fly a direct route between a point on the north rim outside of the Grand Canyon National Park and locations on the Hualapai Indian Reservation (as designated by the Tribe); and

(2) whose sole purpose is transporting individuals to or from boat trips on the Colorado River and any guide of such a trip.

SEC. 4. BOUNDARY WATERS CANOE AREA WILDERNESS.

The Administrator shall conduct surveillance of aircraft flights over the Boundary Waters Canoe Area Wilderness as authorized by the Act of October 21, 1978 (92 Stat. 1649–1659) for a period of not less than 180 days beginning within 60 days of enactment of this Act [Aug. 18, 1987]. In addition to any actions the Administrator may take as a result of such surveillance, he shall provide a report to the Committee on Interior and Insular Affairs and the Committee on Public Works and Transportation of the United States House of Representatives and to the Committee on Energy and Natural Resources and the Committee on Commerce, Science, and Transportation of the United States Senate. Such report is to be submitted within 30 days of completion of the surveillance activities. Such report shall include but not necessarily be limited to information on the type and frequency of aircraft using the airspace over the Boundary Waters Canoe Area Wilderness.

SEC. 5. ASSESSMENT OF NATIONAL FOREST SYSTEM WILDERNESS OVERFLIGHTS.

(a) Assessment by Forest Service.—The Chief of the Forest Service (hereinafter referred to as the 'Chief') shall conduct an assessment to determine what, if any, adverse impacts to wilderness resources are associated with overflights of National Forest System wilderness areas. The Administrator of the Federal Aviation Administration shall provide technical assistance to the Chief in carrying out the assessment. Such assessment shall apply only to overflight of wilderness areas and shall not apply to aircraft flights or landings adjacent to National Forest System wilderness units. The assessment shall not apply to any National Forest System wilderness units in the State of Alaska.

(b) Report to Congress.—The Chief shall submit a report to Congress within 2 years after enactment of this Act [Aug. 18, 1987] containing the results of the assessments carried out under this section.

(c) Authorization.—Effective October 1, 1987, there are authorized to be appropriated such sums as may be necessary to carry out the assessment under this section.

SEC. 6. CONSULTATION WITH FEDERAL AGENCIES.

In conducting the study and the assessment required by this Act, the Secretary of the Interior and the Chief of the Forest Service shall consult with other Federal agencies that are engaged in an analysis of the impacts of aircraft overflights over federally-owned land."

Presidential Documents

Title 3—

The President

Memorandum of April 22, 1996

Additional Transportation Planning To Address Impacts of Transportation on National Parks

Memorandum for the Heads of Executive Departments and Agencies

Transportation in national parks—including ground transportation of visitors into the parks and airplane flights over the parks—has a significant impact on a visitor's experience of the park and on park management. The Secretary of Transportation has both valuable expertise and regulatory authority to address certain of these issues, and has been working on them with the Secretary of the Interior and others.

Aircraft flying at low altitudes over national parks can, if not properly managed, mar the natural beauty of the parks and create significant noise problems as well. The intrusion of such aircraft can interfere with wildlife (including threatened and endangered species), cultural resources and ceremonies, and visitors' enjoyment of parks, including the ability to experience natural sounds without interruption from mechanical noise. Several parks face overflight problems, including Grand Canyon National Park where substantial restoration of natural quiet is mandated by law, and several others identified by the National Park Service (NPS). It is important to the future of parks to address these problems quickly and in a fair and reasonable manner.

In addition, the National Park System contains thousands of miles of roads. All too often in peak visitor periods roads are so crowded with cars that the congestion and competition for space diminish the quality of the public's experience. Parks are not too full of people, but the roads and parking areas often are jammed. With modern technology and alternative transportation systems, the parks can continue to be accessible to all, and can be more enjoyable places to experience and learn about nature and history.

Therefore, to the extent permitted by law, I hereby direct the Secretary of Transportation in consultation with the heads of relevant departments and agencies to continue the ongoing development of rules as set out below to address overflights of the National Parks:

1. For Grand Canyon National Park,

(a) issue proposed regulations within 90 days to place appropriate limits on sightseeing aircraft over the Grand Canyon National Park to reduce the noise immediately and make further substantial progress toward restoration of natural quiet, as defined by the Secretary of the Interior, while maintaining aviation safety in accordance with the Overflights Act (Public Law 100-91). Action on this rulemaking to accomplish these purposes should be completed by the end of 1996; and

(b) should any final rulemaking determine that issuance of a further management plan is necessary to substantially restore natural quiet in the Grand Canyon National Park, complete within 5 years a plan that addresses how the Federal Aviation Administration and NPS will complete the "substantial restoration and maintenance of natural quiet," as defined by the Secretary of the Interior in accordance with the Overflights Act. Any such plan shall ensure that the restoration of natural quiet required by the Overflights Act shall be completed in the park not more than 12 years from the date of issuance of this directive as recommended in NPS's 1994 "Report on Effects of Aircraft Overflights on the National Park System."

2. For Rocky Mountain National Park, complete and issue, if appropriate within 90 days, a notice of proposed rulemaking to address the potential adverse impact on the park and its visitors of overflights by sightseeing aircraft, keeping in mind the value of natural quiet and the natural experience in the park, as well as protection of public health and safety.

3. Issue by the end of 1996 a notice of proposed rulemaking for the management of sightseeing aircraft in those National Parks where it is deemed necessary to reduce or prevent the adverse effects of such aircraft. The regulation should, at a minimum, establish a framework for managing aircraft traffic over those park units identified in the 1994 NPS study, as a priority for (1) resolution of airspace issues and (2) maintaining or restoring natural quiet.

4. Develop appropriate educational and other materials for the public at large and all aviation interests that describe the importance of natural quiet to park visitors and the need for cooperation from the aviation community. This guidance shall also recognize that, in some parks, air tours provide important access to approved areas in those parks, especially with regard to the disabled communities.

In addition, with respect to ground transportation in the parks, the Secretary of the Interior, in consultation with the Secretary of Transportation, is directed as follows:

To develop a plan for a comprehensive effort to improve public transportation in the national parks. This plan should include:

- 1. design of pilot programs for improved public transportation in the Grand Canyon, Zion, and Yosemite National Parks;
- 2. plans to work with relevant State, local, and tribal governments on this effort;
- 3. options to increase access to the parks by rebuilding infrastructure in the parks; and
- 4. recommendations to enhance resource protection and the quality of visitor experience through innovative transportation planning including, where possible and appropriate, the use of alternative fuel vehicles.

This memorandum shall be published in the Federal Register.

William Clinton

THE WHITE HOUSE,
Washington, April 22, 1996.

[FR Doc. 96-10369

Filed 4-24-96; 8:45 am]

Billing code 3195-01-P

Presidential Documents

Title 3--
The President

[[Page 18229]]

Memorandum of April 22, 1996

Additional Transportation Planning To Address
Impacts of Transportation on National Parks

Memorandum for the Heads of Executive Departments and
Agencies

Transportation in national parks--including ground transportation of visitors into the parks and airplane flights over the parks--has a significant impact on a visitor's experience of the park and on park management. The Secretary of Transportation has both valuable expertise and regulatory authority to address certain of these issues, and has been working on them with the Secretary of the Interior and others.

Aircraft flying at low altitudes over national parks can, if not properly managed, mar the natural beauty of the parks and create significant noise problems as well. The intrusion of such aircraft can interfere with wildlife (including threatened and endangered species), cultural resources and ceremonies, and visitors' enjoyment of parks, including the ability to experience natural sounds without interruption from mechanical noise. Several parks face overflight problems, including Grand Canyon National Park where substantial restoration of natural quiet is mandated by law, and several others identified by the National Park Service (NPS). It is important to the future of parks to address these problems quickly and in a fair and reasonable manner.

In addition, the National Park System contains thousands of miles of roads. All too often in peak visitor periods roads are so crowded with cars that the congestion and competition for space diminish the quality of the public's experience. Parks are not too full of people, but the roads and parking areas often are jammed. With modern technology and alternative transportation systems, the parks can continue to be

Presidential Memorandum – April 22, 1996
accessible to all, and can be more enjoyable places to
experience and learn about nature and history.

Therefore, to the extent permitted by law, I hereby
direct the Secretary of Transportation in consultation
with the heads of relevant departments and agencies to
continue the ongoing development of rules as set out
below to address overflights of the National Parks:

1. For Grand Canyon National Park,
 - (a) issue proposed regulations within 90 days to
place appropriate limits on sightseeing aircraft over
the Grand Canyon National Park to reduce the noise
immediately and make further substantial progress
toward restoration of natural quiet, as defined by the
Secretary of the Interior, while maintaining aviation
safety in accordance with the Overflights Act (Public
Law 100-91). Action on this rulemaking to accomplish
these purposes should be completed by the end of 1996;
and
 - (b) should any final rulemaking determine that
issuance of a further management plan is necessary to
substantially restore natural quiet in the Grand Canyon
National Park, complete within 5 years a plan that
addresses how the Federal Aviation Administration and
NPS will complete the "substantial restoration and
maintenance of natural quiet," as defined by the
Secretary of the Interior in accordance with the
Overflights Act. Any such plan shall ensure that the
restoration of natural quiet required by the
Overflights Act shall be completed in the park not more
than 12 years from the date of issuance of this
directive as recommended in NPS's 1994 "Report on
Effects of Aircraft Overflights on the National Park
System."

[[Page 18230]]

2. For Rocky Mountain National Park, complete and
issue, if appropriate, within 90 days, a notice of
proposed rulemaking to address the potential adverse
impact on the park and its visitors of overflights by
sightseeing aircraft, keeping in mind the value of
natural quiet and the natural experience in the park,
as well as protection of public health and safety.
3. Issue by the end of 1996 a notice of proposed
rulemaking for the management of sightseeing aircraft
in those National Parks where it is deemed necessary to
reduce or prevent the adverse effects of such aircraft.
The regulation should, at a minimum, establish a
framework for managing air traffic over those park
units identified in the 1994 NPS study, as priorities
for (1) resolution of airspace issues and (2)
maintaining or restoring natural quiet.
4. Develop appropriate educational and other
materials for the public at large and all aviation
interests that describe the importance of natural quiet
to park visitors and the need for cooperation from the
aviation community. This guidance shall also recognize
that, in some parks, air tours provide important access
to approved areas in those parks, especially with
regard to the disabled communities.

Presidential Memorandum – April 22, 1996

In addition, with respect to ground transportation in the parks, the Secretary of the Interior, in consultation with the Secretary of Transportation, is directed as follows:

To develop a plan for a comprehensive effort to improve public transportation in the national parks. This plan should include:

1. design of pilot programs for improved public transportation in the Grand Canyon, Zion, and Yosemite National Parks;
2. plans to work with relevant State, local, and tribal governments on this effort;
3. options to increase access to the parks by rebuilding infrastructure in the parks; and
4. recommendations to enhance resource protection and the quality of visitor experience through innovative transportation planning including, where possible and appropriate, the use of alternative fuel vehicles.

This memorandum shall be published in the Federal Register.

(Presidential Sig.)<Clinton1><Clinton2>

THE WHITE HOUSE,

Washington, April 22, 1996.

[FR Doc. 96-10369
Filed 4-24-96; 8:45 am]
Billing code 3195-01-P

Grand Canyon Overflights Statutory, Regulatory and Litigation Background

History

DATE	EVENT
January 1975	The <i>Grand Canyon National Park Enlargement Act</i> required the National Park Service (NPS) to determine whether aircraft overflights were causing a “significant adverse effect on the natural quiet and experience of the park.” A public review process of overflights related research convinced NPS that overflights activity was causing a significant adverse effect on natural quiet and was likely to cause injury to the health, welfare, or safety of park visitors.
June 1986	A mid-air collision between two air tour aircraft resulted in 25 fatalities and focused widespread attention on the issue.
March 1987	FAA established Special Federal Aviation Regulation 50 (SFAR 50) for the Grand Canyon airspace.
June 1987	FAA modified SFAR 50 by raising the ceiling to 9,000 feet MSL in SFAR 50-1.
August 1987	Research findings combined with the mid-air collision led, in part, to passage of the <i>National Parks Overflights Act</i> .
May 27, 1988 	FAA established <i>SFAR 50-2</i> , pursuant to Section 3 of the Overflights Act and Dept of the Interior (DOI) recommendations. SFAR 50-2 created flight-free zones and specific flight corridors to accommodate air tour routes and general aviation flights. It also established minimum altitude restrictions on all types of flights including air tours, general aviation, high altitude commercial and military aircraft.
March 1994	FAA and NPS jointly issue advanced notice of proposed rulemaking on quiet technology and incentives. 
Sept. 12, 1994	NPS submitted a “Report on Effects of Aircraft Overflights on the National Park System” to Congress. The report was required by the Overflights Act to discuss whether initial measures under the Act had succeeded in substantially restoring the natural quiet in Grand Canyon National Park and, if not, possible revisions. The report recommend many revisions to SFAR 50-2.
June 15, 1995	FAA published a Final Rule that extended the provisions of SFAR 50-2 to June 15, 1997, pending implementation of the Final Rule adopting NPS recommendations for overflights at Grand Canyon.

Apr. 22, 1996	President Clinton issued a <i>Presidential Memorandum</i> directing the Secretary of Transportation, in consultation with the Secretary of Interior and Director of NPS, to issue proposed regulations within 90 days to place appropriate limits on sightseeing aircraft over GCNP to reduce noise immediately and make further substantial progress toward restoration of natural quiet. This memo also required the development of a plan to complete the restoration and maintenance of natural quiet if the final rule did not accomplish the goal.
Dec. 31, 1996	FAA published a Final Rule (<i>'96 Rule</i>) that 1) modified the dimensions of the GCNP Special flight rules area (SFRA); 2) established new and modified existing flight corridors; 3) established reporting requirements for operators; 4) established flight free periods (curfews) for air tour operations in the eastern Canyon; 5) and capped the number of air tour aircraft operating in the SFRA. The Final Rule was to become effective May 1, 1997.
Dec. 31, 1996	FAA also published a proposed rule on Quiet Technology.
January 1997	Four groups (the Air Tour Coalition, the Quiet Canyon Coalition, the Hualapai Tribe and Clark County Dept. of Aviation) challenged the '96 Rule in the Court of Appeals for the D.C. Circuit.
January 1997	The Air Tour Coalition, AOPA, and Clark County filed petitions for reconsideration of the '96 Rule with the FAA raising safety concerns.
Feb. 21, 1997	FAA delayed the effective date for the majority of provisions in the '96 Rule due to safety concerns raised by the operators. This action did not delay the implementation of the curfew, aircraft cap, or the reporting requirements. SFAR 50-2 airspace structure and routes remained in effect until future action.
May 15, 1997	FAA published a proposed rule to amend two of the flight free zones to establish two quiet technology incentive corridors (Bright Angel FFZ and National Canyon).
Oct. 31, 1997	FAA published a Notice of Clarification and reevaluation of the final Environmental Assessment regarding the '96 Rule aircraft cap. The environmental assessment accompanying the '96 Rule used an incorrect number of 136 aircraft in the analysis. Later data showed that 260 aircraft was the correct number that should have been analyzed.
Jul. 15, 1998	After reviewing public comments and consulting with NPS, the FAA decided not to proceed with the quiet technology incentive corridors and withdrew the proposed rule.

Sept. 4, 1998	The D.C. Circuit denied the petitioners' challenges to the '96 Rule and upheld the portions of the rule in effect, as well as NPS's definition of "substantial restoration of natural quiet."
Jan. 26, 1999	NPS publishes a notice of agency policy, "Evaluation Methodology for Air Tour Operations Over Grand Canyon National Park," proposing a two-zone acoustic system for evaluating achievement of the natural quiet standard.
Apr. 4, 2000	FAA published a final rule (<i>Air Tour Limitation Rule</i>) to replace the aircraft cap provision of the '96 rule with a provision limiting the number of commercial air tour operations that may be conducted in the GCNP SFRA. The total number of allocations was set at 90,000, the number of air tour operations reported by operators for the base year period May 1, 1997 to April 31, 1998. The effective date of this rule was May 4, 2000.
Apr. 4, 2000	FAA also published a final rule modifying the SFRA and flight free zones (<i>2000 Rule</i>). The rule was to become effective Dec. 1, 2000.
May 2000	The U.S. Air Tour Association, other air tour operators, the Grand Canyon Trust and other environmental groups challenged the Air Tour Limitation Rule.
Mar. 12, 2001	FAA and NPS jointly issue a notice establishing the National Parks Overflights Advisory Group (NPOAG) pursuant to the National Parks Air Tour Management Act of 2000.
Aug. 16, 2002	The D.C. Circuit denied the U.S. Air Tour Association's challenge to the Air Tour Limitation Rule. The court granted the Grand Canyon's petition and ruled that FAA's use of an annual average day for measuring substantial restoration of natural quiet appeared inconsistent with NPS's definition. The court also held that FAA must account for noise from aircraft other than air tours when analyzing environmental impacts.
Nov. 20, 2000	FAA delayed the effective date of the 2000 Rule.
Apr. 19, 2001	New routes and airspace were adopted for the west end of the GCNP SFRA. The SFAR 50-2 route structure is retained on the east end.
Feb. 27, 2003	FAA delayed the remaining portions of the 2000 Rule to Feb. 2006.
Mar. 29, 2005	FAA published the Noise Limitations for Aircraft Operations in the Vicinity of Grand Canyon National Park Final Rule.
Mar. 30, 2005	FAA and NPS issue notice for Membership in the Grand Canyon Working Group of the National Parks Overflights Advisory Group Aviation Rulemaking Committee.

Statutes

- Grand Canyon National Park Enlargement Act, Pub. L. No. 93-620 (1975) (codified at 16 U.S.C. § 228g (2000)).
- National Parks Overflights Act, Pub. L. No. 100-91 (1987) (set out at 16 U.S.C. § 1a-1 note (2000)).

Regulations

1996 Grand Canyon Rulemaking - On Dec. 31, 1996, the FAA published three concurrent actions in the Fed. Register (61 FR 69301) as part of an overall strategy to reduce further the impact of aircraft noise on the Grand Canyon National Park environment and to assist the NPS achieve its statutory mandate imposed by Public Law 100-91.

1. **Final Rule, Grand Canyon Special Flight Rules**, 61 FR 69302 (**Status = partially implemented**)
 - 12/31/96 Published in Fed. Register - Modifies Grand Canyon Special Flight Rules Area; establishes new and modifies existing flight corridors; establishes reporting requirements, curfews and caps for commercial air tour operations. Effective date of May 1, 1997.
 - 2/26/97 Amendment published, 62 FR 8862 - Delayed effective date of new route and airspace implementation to permit further discussions with DOI on proposed new routes and further consultation with Native American tribes bordering the Park.
 - 5/1/97 Implementation of caps, curfews, reporting requirements.
2. **NPRM, Grand Canyon Noise Limitations**, 61 FR 69334 (**Status = implemented**)
 - 12/31/96 Published in Fed. Register - Establishes noise limitations for certain aircraft operating in vicinity of Grand Canyon.
 - 3/31/97 Comment period closed.
 - 12/14/01 Draft Supplemental NPRM published, 66 FR 64778
 - 3/24/03 Supplemental NPRM published, 68 FR 14276
 - 3/29/05 Final Rule published, 70 FR 16084
3. **NPRM, National Canyon and Bright Angel Routes**, 62 FR 26902 (**Status = Withdrawn on 7/15/98**)
 - 5/15/97 Proposed publication in Fed. Register - Revised routes in flight free zones based on comments by and consultations with interested parties.
 - 6/16/97 Comment period ends.
 - 1/31/98 Proposed implementation of routes to coincide with implementation of Final Rule routes.

2000 Rulemaking - On April 4, 2000, the FAA published a new set of regulations. The final rules limited commercial air tour operations, and modified the flight free zones and routes.

1. **Final Rule, Commercial Air Tour Limitation in the GCN**, 65 FR 17708 (**Status = Implemented**)
 - 4/4/00 Limits the number of commercial air tours that may be conducted in the GCNP SFRA.
 - 5/4/00 Effective date
2. **Final Rule, Modification of the Dimensions of the Grand Canyon SFRA and FFZs**, 65 FR 17736
 - 4/4/00 Amends special operating rules and airspace. (**Status = partially implemented**)
 - 12/1/00 Proposed effective date

11/20/00	Effective date delayed to 12/28/00
12/28/00	Effective date delayed to 4/1/01
3/26/01	Partial implementation of West End routes effective 4/19/01
12/01	East end airspace modification delayed to 2/03
2/27/03	East end airspace modification delayed to 2/06

Litigation

Judicial Challenges to '96 Final Rule

Four petitioners brought challenges to the '96 Final Rule. The cases were consolidated and the opinion is at Grand Canyon Air Tour Coalition v. FAA, 154 F.3d 455 (D.C. Cir. 1998).

1. Air Tour Coalition v. FAA (DC Cir No. 97-1003) Filed 1/3/97.

Issues:

- FAA and NPS improperly interpreted the statutory phrase “substantial restoration of natural quiet.”
- FAA failed to rationally justify the rule, and refused to respond to comments in violation of the Administrative Procedures Act (APA).

2. Grand Canyon Trust, et al. v. FAA (DC Cir No. 97-1014) Filed 1/9/97.

Issues:

- Agencies failed to substantially restore natural quiet within a reasonable time frame.

3. Hualapai Tribe v. FAA (DC Cir No. 97-1112) Filed 2/27/97.

Issues:

- FAA violated trust obligations by placing unfair burden of flights on tribal lands.
- FAA violated intent of Overflights Act and GC Enlargement Act.
- FAA violated the National Environmental Policy Act (NEPA).
- FAA failed to consult in a government-to-government relationship.
- FAA violated the National Historic Preservation Act and the Religious Freedom Restoration Act.

4. Clark County Dept. of Aviation v. FAA (DC Cir No. 97-1104) Filed 2/24/97.

Issues:

- FAA violated the APA and NEPA by failing to consider reasonable alternatives.

Outcome: The DC Circuit court denied all of petitioners' challenges. However, several challenges were deemed unripe for review since the interrelationship of the Final Rule's flight free zones, flight corridors and routes were not certain due to the

delay of their full implementation. Those challenges may be raised again when the corridors and routes are finally promulgated.

The court specifically upheld the agencies' interpretation of the statutory phrase "substantial restoration of natural quiet."

Judicial Challenges to the Air Tour Limitations Rule

Two petitioners brought challenges to the Air Tour Limitations Rule. The cases were consolidated and the opinion is at United States Air Tour Coalition v. FAA, 298 F.3d 997 (D.C. Cir. 2002).

1. United States Air Tour Association, et al., v. FAA, et al., (DC Cir No. 00-1201).

Issues:

- Agencies acted arbitrarily and capriciously, in violation of the APA.
- Agencies violated the Regulatory Flexibility Act.
- The exemption for the Hualapai tribe violated the Fifth Amendment of the U.S. Constitution.

2. Grand Canyon Trust, et al. v. FAA, et al., (DC Cir No. 00-1212).

Issues:

- FAA unlawfully altered NPS's definition of substantial restoration of natural quiet.
- FAA's noise methodology was flawed because it only accounts for noise from commercial air tours and ignores noise from other types of aircraft.

Outcome: The court rejected the Air Tour Association challenge that a change in the definition of "natural quiet" was unlawful and the acoustic methodology used by NPS was flawed. The court noted that the Park Service's explanation for its change in methodology was reasonable and that the agencies' experts presented a satisfactory analytic defense of their model.

The court determined that FAA should not have used "average annual day" and remanded the issues raised by the Grand Canyon Trust involving FAA's interpretation of NPS's meaning of "the day" in the definition of substantial restoration of natural quiet. The court also held that FAA's methodology should be revisited to account for additional types of aircraft noise.

GRAND CANYON WORKING GROUP

Members and Alternates (as of July 2005)

Katherine Andrus <i>John Timmons</i>	Air Transportation Association <i>The Cormac Group</i>
Bill Austin <i>Shaula Hedwall</i>	U.S. Fish and Wildlife Service <i>US Fish and Wildlife Service</i>
Alan Downer <i>Marklyn Chee</i>	Navajo Nation <i>Navajo Nation</i>
Mark Grisham <i>Brian Merrill</i>	Grand Canyon River Outfitters Association <i>Western River Expeditions</i>
Elling Halvorson <i>Brenda Halvorson</i>	Papillon Airways, Inc. <i>Papillon Airways, Inc., dba Grand Canyon Helicopters</i>
Dick Hingson <i>Roger Clark</i>	Grand Canyon Trust and National Parks Conservation Association <i>Grand Canyon Trust and NPCA</i>
Leigh Kuwanwisiwma <i>Michael Yeatts</i>	Hopi Tribe <i>Northern Arizona University/Hopi Cultural Preservation Office</i>
Cliff Langness <i>Craig Sanderson</i>	King Airlines, Inc. and Westwind Aviation <i>Grand Canyon Airlines, Inc.</i>
Roland Manakaja <i>Rex Tilousi</i>	Havasupai Tribe <i>Havasupai Tribe</i>
Jim McCarthy <i>Roxane George</i>	Sierra Club-Grand Canyon Chapter <i>Sierra Club-Grand Canyon Chapter</i>
Doug Nering <i>Tom Martin</i>	Grand Canyon Hikers and Backpackers Association <i>Grand Canyon Hikers and Backpackers Association</i>
Lynne Pickard* <i>Barry Brayer</i>	Federal Aviation Administration Office of Environment and Energy <i>Air Tour Management Program (ATMP), FAA</i>
Alan Stephen <i>John Dillon</i>	Grand Canyon Airlines, Inc. <i>Grand Canyon Airlines, Inc.</i>
John Sullivan <i>Rick Eisenreich</i>	Sundance Helicopters, Inc. <i>Sundance Helicopters, Inc.</i>
Karen Treviño* <i>Jeff Cross</i>	National Park Service Natural Sounds Program <i>Grand Canyon National Park Science Center</i>
Charlie Vaughn <i>Sheri Yellowhawk</i>	Hualapai Tribe <i>Grand Canyon Resort Corporation</i>
Heidi Williams <i>Stacy Howard</i>	Aircraft Owners and Pilots Association <i>Aircraft Owners and Pilots Association</i>
David Yeamans <i>Richard Martin</i>	Grand Canyon Private Boaters Association <i>Grand Canyon Private Boaters Association</i>
Alan Zusman <i>Bob Henderson</i>	Department of Defense, US Navy, and Federal Interagency Committee on Aviation Noise (FICAN) <i>Naval Facilities Engineering Command Southwest</i>

* Grand Canyon Working Group Co-Chairs

Superintendent's Chair

Joe Alston Superintendent, Grand Canyon National Park

Facilitation Team

Lucy Moore Lucy Moore Associates

Ed Moreno Ed Moreno Consulting

Tahnee Robertson Resources for Environment and Community

Note: The members named above total 19 to fill the 20-member Working Group because the Grand Canyon Trust and the National Parks Conservation Association have each been selected for membership, but have initially proposed to share a representative. A 20th person will be added to the Working Group, allowing each member organization an individual representative, if this sharing arrangement changes.



Federal Aviation Administration

Grand Canyon

U.S. Department of the Interior
National Park Service



Introduction to NEPA

What is NEPA?

The National Environmental Policy Act of 1969 (NEPA) is the policy for American environmental protection. It sets forth policy and goals and a means for carrying out its principles. NEPA ensures that federal agencies act in good faith during federal undertakings. Details of NEPA are found in 40 CFR 1500-1508.

Public Scoping and Comment

How Long is the Scoping Process?

The scoping process for this EIS will include three public meetings and a ninety-day comment period for interested agencies and parties to submit oral and/or written comments representing the concerns and issues they believe should be addressed. Comments for the Overflights Plan will be accepted until April 27th, over 90 days after the release of the Notice of Availability.



Comments can be submitted the following ways:

✓ Mail comments to:
Docket Management System
Doc No. FAA-2005-23402
U.S. Department of Transportation
Room Plaza 401, 400 Seventh Street, SW.
Washington, DC 20590-0001

✓ Public Meetings
✓ Internet: <http://dms.dot.gov>

Please include your name, email address, and mailing address with all comments.

For more information check out these websites for information on NEPA and Overflights at Grand Canyon National Park.

- <http://www.nps.gov/grca/overflights/index.htm>
- <http://overflights.faa.gov/>
- <http://planning.den.nps.gov/tools.cfm>
- <http://www.whitehouse.gov/ceq/>
- <http://www.epa.gov/epahome/laws.htm>
- <http://www4.law.cornell.edu/uscode/index.html>
- <http://dms.gov/>

Still Have Questions? Contact:

Mr. Barry Brayer, Federal Aviation Administration
(310) 725-3800, or

Ms. Mary Killeen, Grand Canyon National Park
(928) 638-7885



Why NEPA?

When a Federal action is planned, the interested public and affected agencies have the opportunity to provide input, identify issues, and to offer solutions early in the NEPA process. This is accomplished through:

- Scoping
- Formal Public Review of Draft Environmental Impact Statement



Notice of Intent to Public: January 20, 2006



Public Open Houses: Phoenix (February 21), Flagstaff (February 22), Las Vegas (February 23).
Public Scoping through April 27, 2006



Review of Public Scoping Comments.
Develop and Analyze Range of Alternatives
Identify Preferred Alternative



Draft Environmental Impact Statement to Public:
Public Review and Comment Period



Final Environmental Impact Statement to Public



Record of Decision
and Final Rulemaking

NEPA In Action

How Does NEPA Relate to the Overflights Plan?

- The Overflights Plan is a plan to address the substantial restoration of natural quiet within Grand Canyon National Park,
- The EIS will be a detailed environmental document that analyzes the impacts of the various management alternatives.
- The EIS is a joint effort between the Federal Aviation Administration and the National Park Service
- The EIS will help the FAA and the NPS determine the preferred management alternative, providing the basis for the Overflights Plan.

Handouts Station 2

Federal Interagency Committee on Aviation Noise

FICAN Findings and Recommendations on Tools for Modeling Aircraft Noise in National Parks

February 2005

In a letter dated September 2, 2003, the Federal Aviation Administration (FAA) and the U.S. Department of Interior (DOI) jointly requested that FICAN “provide advice on some matters related to the measurement and assessment of the effects of aircraft noise due to overflights of units of the National Park System.” FICAN enlisted the assistance of the U.S. Department of Transportation’s Volpe Center (Volpe) and Wyle Laboratories (Wyle) to assist with the study. Volpe is responsible for the development of the core acoustics module within the FAA’s Integrated Noise Model (INM) and Wyle is responsible for the development of the Department of Defense’s (DOD) NoiseMap SIMulation model (NMSim). Volpe and Wyle jointly produced the report, “Assessment of Tools for Modeling Aircraft Noise in the National Parks” (the report). The FICAN recommendations are based upon the analyses and findings presented in the report.

The assessment contained in the report evaluated two models that embrace distinct aircraft noise modeling approaches. INM, like DOD’s NoiseMap, is a segmentation model in which the time integrated sound level of the aircraft event is calculated by summing the noise received from a sufficient number of contiguous straight line segments representing the flight trajectory and associated performance. NMSim is a simulation model in which the flight path of an aircraft is represented by a series of closely spaced discrete points. The level-time-history at any specific observer location is then constructed by calculating the sound radiated towards it from each flight path point. The segmentation approach is widely used around the world to model aircraft noise in the vicinity of airports. The simulation approach is considered to have greater potential and it is only a shortage of the comprehensive aircraft acoustic data required, and the higher demands on computing capacity, that presently limit this approach to special applications or augmentation of the more traditional integrated modeling approach.

In complying with the FAA and DOI joint terms of reference, FICAN agreed to assess the two models on the basis of accuracy, reliability, practicality, and usability, all of which are covered in-depth in the report. One section of the report is devoted to the comparison of the output of the two models to the measured time audible data collected in the Grand Canyon National Park Model Validation Study (GCNP MVS)¹ – the so-called “gold standard” dataset for assessing model performance. Assessing accuracy was extremely difficult due to the complexity of the audibility metric. FICAN agreed that no model will ever be able to predict with absolute certainty the audibility of any particular aircraft event at any specific location. The problem lies in predicting with certainty all three key elements of audibility: ambient sound environment, source noise level, and detectability threshold of the observer (human or animal). Extensive long-term

¹ Miller, N.P., et. al., Aircraft Noise Model Validation Study, HMMH Report No. 295860.29, Harris Miller Miller and Hanson, Burlington, MA, January 2003.

monitoring could substantially reduce uncertainty in the ambient sound levels. Even more extensive long-term measurement programs with detailed aircraft performance and position information may be able to substantially reduce uncertainty in predicted received aircraft sound levels. However, sound propagation over long distances through a complex atmosphere (wind, temperature, turbulence) will always be subject to considerable variability. Furthermore, observer reaction can never be predicted with absolute certainty. Uncertainty often exists to some degree in any type of modeling. Despite this uncertainty and given that the primary use of the noise assessment tool is for planning and decision-making purposes, FICAN concluded that the accuracy of the two models could be assessed. FICAN agreed with the conclusion of the authors of the report that INM Version 6.2 and NMSim perform equally well, on average, when compared with the “gold standard” audibility data measured in the GCNP MVS.

FICAN concluded that NMSim is a valuable tool and its continued evolution should be widely supported. FICAN noted that the ability to generate color animations of moving sources, as demonstrated by NMSIM, could be useful in explaining complex technical issues and building public confidence in aviation acoustic modeling. However, FICAN agreed that NMSim is not yet a mature technology as it currently lacks fundamental processes and extensive aircraft source databases that are necessary to make it a viable tool for general use in environmental impact analysis under the National Environmental Policy Act (NEPA). FICAN concluded that INM, with its long history of development and enhancements, extensive aircraft source database, and widely available user support, is currently a superior tool for general usage. Given that the authors of the report jointly found that both models perform equally well compared with the gold standard (GCNP MVS), and considering the many factors listed above in this document and the report, FICAN recommends INM 6.2 as the best practice modeling methodology currently available to evaluate aircraft noise in national parks.



Federal Interagency Committee on Aviation Noise

Mr. Alan F. Zusman, Chairman
Department of Navy
Washington Navy Yard
1322 Patterson Ave. SE
Washington, DC 20374-5065
Alan.Zusman@navy.mil

May 12, 2005

Mr. Paul Hoffman
Deputy Assistant Secretary
Fish and Wildlife and Parks
Department of Interior
1849 C Street, N.W.
MS 3156
Washington, DC 20240

Dear Mr. Hoffman:

Re: FICAN Findings and Recommendations for Modeling Aircraft Noise in National Parks

In a letter dated September 2, 2003, the Federal Aviation Administration (FAA) and the U.S. Department of Interior (DOI) jointly requested that FICAN “provide advice on some matters related to the measurement and assessment of the effects of aircraft noise due to overflights of units of the National Park System.” FICAN enlisted the assistance of the U.S. Department of Transportation’s Volpe Center (Volpe) and Wyle Laboratories (Wyle) to assist with the study. Volpe is responsible for the development of the core acoustics module within the FAA’s Integrated Noise Model (INM) and Wyle is responsible for the development of the Department of Defense’s (DoD) NoiseMap SIMulation model (NMSim). Volpe and Wyle jointly produced the report, “Assessment of Tools for Modeling Aircraft Noise in the National Parks” (the report). The FICAN recommendations are based upon the analyses and findings presented in the report.

The assessment contained in the report evaluated two models that embrace distinct aircraft noise modeling approaches. INM, like DOD’s NoiseMap, is a segmentation model in which the time integrated sound level of the aircraft event is calculated by summing the noise received from a sufficient number of contiguous straight-line segments representing the flight trajectory and associated performance. NMSim is a simulation model in which the flight path of an aircraft is represented by a series of closely spaced discrete points. The level-time-history at any specific observer location is then constructed by calculating the sound radiated towards it from each flight path point. The segmentation approach is widely used around the world to model aircraft noise in the vicinity of airports. The simulation approach is considered to have greater potential and it is only a shortage of the comprehensive aircraft acoustic data required, and the higher demands on computing capacity, that presently limit this approach to special applications or augmentation of the more traditional integrated modeling approach.

In complying with the FAA and DOI joint terms of reference, FICAN agreed to assess the two models on the basis of accuracy, reliability, practicality, and usability, all of which are covered in-depth in the report. One section of the report is devoted to the comparison of the output of the



Department of Defense • Department of Interior • Department of Transportation • Environmental Protection Agency •
National Aeronautics and Space Administration • Department of Housing and Urban Development

www.fican.org



Federal Interagency Committee on Aviation Noise

Mr. Alan F. Zusman, Chairman
Department of Navy
Washington Navy Yard
1322 Patterson Ave. SE
Washington, DC 20374-5065
Alan.Zusman@navy.mil

two models to the measured time audible data collected in the Grand Canyon National Park Model Validation Study (GCNP MVS)¹ – the so-called “gold standard” dataset for assessing model performance. Assessing accuracy was extremely difficult due to the complexity of the audibility metric. FICAN agreed that no model would ever be able to predict with absolute certainty the audibility of any particular aircraft event at any specific location. The problem lies in predicting with certainty all three key elements of audibility: ambient sound environment, source noise level, and detectability threshold of the observer (human or animal). Extensive long-term monitoring could substantially reduce uncertainty in the ambient sound levels. Even more extensive long-term measurement programs with detailed aircraft performance and position information may be able to substantially reduce uncertainty in predicted received aircraft sound levels. However, sound propagation over long distances through a complex atmosphere (wind, temperature, turbulence) will always be subject to considerable variability. Furthermore, observer reaction can never be predicted with absolute certainty. Uncertainty often exists to some degree in any type of modeling. Despite this uncertainty and given that the primary use of the noise assessment tool is for planning and decision-making purposes, FICAN concluded that the accuracy of the two models could be assessed. FICAN agreed with the conclusion of the authors of the report that INM Version 6.2 and NMSim perform equally well, on average, when compared with the “gold standard” audibility data measured in the GCNP MVS.

FICAN concluded that NMSim is a valuable tool and its continued evolution should be widely supported. FICAN noted that the ability to generate color animations of moving sources, as demonstrated by NMSIM, could be useful in explaining complex technical issues and building public confidence in aviation acoustic modeling. However, FICAN agreed that NMSim is not yet a mature technology as it currently lacks fundamental processes and extensive aircraft source databases that are necessary to make it a viable tool for general use in environmental impact analysis under the National Environmental Policy Act (NEPA). FICAN concluded that INM, with its long history of development and enhancements, extensive aircraft source database, and widely available user support is currently a superior tool for general usage. Given that the authors of the report jointly found that both models perform equally well compared with the gold standard (GCNP MVS), and considering the many factors listed above in this document and the report, FICAN recommends INM 6.2 as the best practice modeling methodology currently available to evaluate aircraft noise in national parks.

Sincerely,


ALAN F. ZUSMAN, AICP
Chairman

¹ Miller, N.P., et. al., Aircraft Noise Model Validation Study, HMMH Report No. 295860.29, Harris Miller Miller and Hanson, Burlington, MA, January 2003.





Federal Interagency Committee on Aviation Noise

Mr. Alan F. Zusman, Chairman
Department of Navy
Washington Navy Yard
1322 Patterson Ave. SE
Washington, DC 20374-5065
Alan.Zusman@navy.mil

May 12, 2005

Ms. Sharon L. Pinkerton
Assistant Administrator for Aviation Policy,
Planning, and Environment
Federal Aviation Administration (AEP-1)
800 Independence Ave., SW
Washington, DC 20591

Dear Ms. Pinkerton:

Re: FICAN Findings and Recommendations for Modeling Aircraft Noise in National Parks

In a letter dated September 2, 2003, the Federal Aviation Administration (FAA) and the U.S. Department of Interior (DOI) jointly requested that FICAN “provide advice on some matters related to the measurement and assessment of the effects of aircraft noise due to overflights of units of the National Park System.” FICAN enlisted the assistance of the U.S. Department of Transportation’s Volpe Center (Volpe) and Wyle Laboratories (Wyle) to assist with the study. Volpe is responsible for the development of the core acoustics module within the FAA’s Integrated Noise Model (INM) and Wyle is responsible for the development of the Department of Defense’s (DoD) NoiseMap SIMulation model (NMSim). Volpe and Wyle jointly produced the report, “Assessment of Tools for Modeling Aircraft Noise in the National Parks” (the report). The FICAN recommendations are based upon the analyses and findings presented in the report.

The assessment contained in the report evaluated two models that embrace distinct aircraft noise modeling approaches. INM, like DOD’s NoiseMap, is a segmentation model in which the time integrated sound level of the aircraft event is calculated by summing the noise received from a sufficient number of contiguous straight-line segments representing the flight trajectory and associated performance. NMSim is a simulation model in which the flight path of an aircraft is represented by a series of closely spaced discrete points. The level-time-history at any specific observer location is then constructed by calculating the sound radiated towards it from each flight path point. The segmentation approach is widely used around the world to model aircraft noise in the vicinity of airports. The simulation approach is considered to have greater potential and it is only a shortage of the comprehensive aircraft acoustic data required, and the higher demands on computing capacity, that presently limit this approach to special applications or augmentation of the more traditional integrated modeling approach.

In complying with the FAA and DOI joint terms of reference, FICAN agreed to assess the two models on the basis of accuracy, reliability, practicality, and usability, all of which are covered in-depth in the report. One section of the report is devoted to the comparison of the output of the two models to the measured time audible data collected in the Grand Canyon National Park



Department of Defense • Department of Interior • Department of Transportation • Environmental Protection Agency •
National Aeronautics and Space Administration • Department of Housing and Urban Development

www.fican.org



Federal Interagency Committee on Aviation Noise

Mr. Alan F. Zusman, Chairman
Department of Navy
Washington Navy Yard
1322 Patterson Ave. SE
Washington, DC 20374-5065
Alan.Zusman@navy.mil

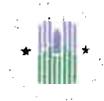
Model Validation Study (GCNP MVS)¹ – the so-called “gold standard” dataset for assessing model performance. Assessing accuracy was extremely difficult due to the complexity of the audibility metric. FICAN agreed that no model would ever be able to predict with absolute certainty the audibility of any particular aircraft event at any specific location. The problem lies in predicting with certainty all three key elements of audibility: ambient sound environment, source noise level, and detectability threshold of the observer (human or animal). Extensive long-term monitoring could substantially reduce uncertainty in the ambient sound levels. Even more extensive long-term measurement programs with detailed aircraft performance and position information may be able to substantially reduce uncertainty in predicted received aircraft sound levels. However, sound propagation over long distances through a complex atmosphere (wind, temperature, turbulence) will always be subject to considerable variability. Furthermore, observer reaction can never be predicted with absolute certainty. Uncertainty often exists to some degree in any type of modeling. Despite this uncertainty and given that the primary use of the noise assessment tool is for planning and decision-making purposes, FICAN concluded that the accuracy of the two models could be assessed. FICAN agreed with the conclusion of the authors of the report that INM Version 6.2 and NMSim perform equally well, on average, when compared with the “gold standard” audibility data measured in the GCNP MVS.

FICAN concluded that NMSim is a valuable tool and its continued evolution should be widely supported. FICAN noted that the ability to generate color animations of moving sources, as demonstrated by NMSIM, could be useful in explaining complex technical issues and building public confidence in aviation acoustic modeling. However, FICAN agreed that NMSim is not yet a mature technology as it currently lacks fundamental processes and extensive aircraft source databases that are necessary to make it a viable tool for general use in environmental impact analysis under the National Environmental Policy Act (NEPA). FICAN concluded that INM, with its long history of development and enhancements, extensive aircraft source database, and widely available user support is currently a superior tool for general usage. Given that the authors of the report jointly found that both models perform equally well compared with the gold standard (GCNP MVS), and considering the many factors listed above in this document and the report, FICAN recommends INM 6.2 as the best practice modeling methodology currently available to evaluate aircraft noise in national parks.

Sincerely,


ALAN F. ZUSMAN, AICP
Chairman

¹ Miller, N.P., et. al., Aircraft Noise Model Validation Study, HMMH Report No. 295860.29, Harris Miller Miller and Hanson. Burlington, MA. January 2003.





Federal Aviation Administration

Grand Canyon

U.S. Department of the Interior
National Park Service

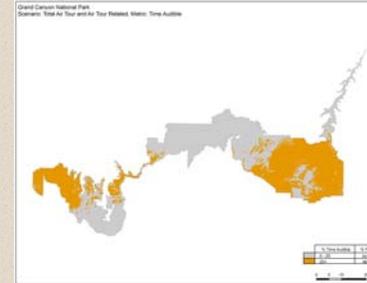


Preliminary Noise Analysis Results

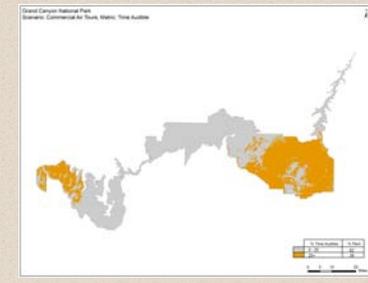
Summary of Noise Analysis

These noise maps show the current status of substantial restoration of natural quiet by various aircraft groupings. Some maps show cumulative combinations of aircraft groupings (for example, Total General Aviation/Military /Air Tour). Natural quiet has not been restore within the yellow shaded areas covered by the 25 percent or greater time audible contour. Below each map is the percentage of the park within each contour.

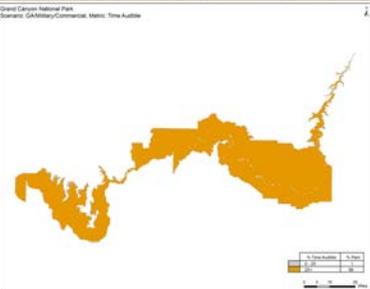
Substantial restoration of natural quiet means 50 percent or more of Grand Canyon National Park will achieve natural quiet (no aircraft audible) for 75 to 100 percent of the day. To achieve this goal, the total percentage of the park within the 25 percent or greater time audible contour from all aircraft operations needs to be less than 50 percent.



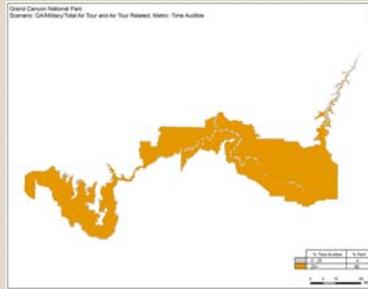
Total Air Tour and Air Tour Related
25-100% TAud = 46% of Park



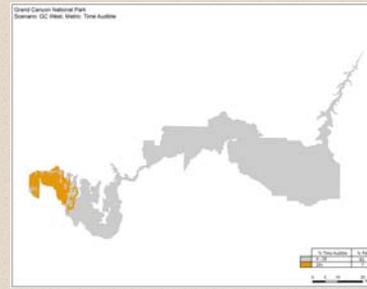
Air Tours
25-100% TAud = 38% of Park



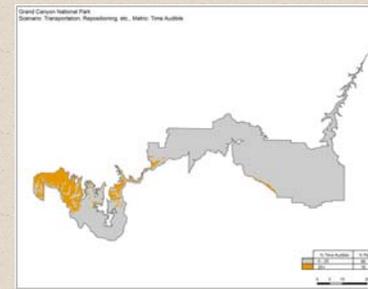
GA, Military, and High Altitude - daytime operations
25-100% TAud = 99% of Park



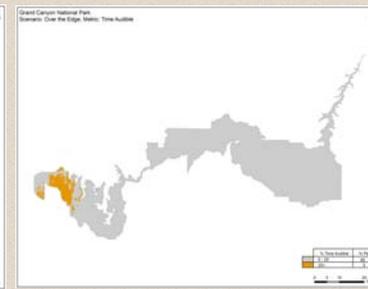
GA, Military, Air Tour and Air Tour Related - daytime operations
25-100% TAud = 96% of Park



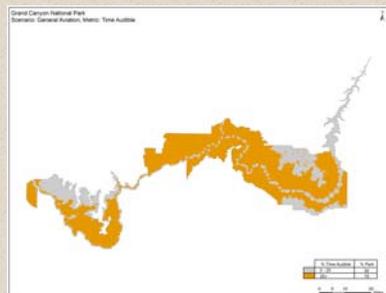
GC West
25-100% TAud = 7% of Park



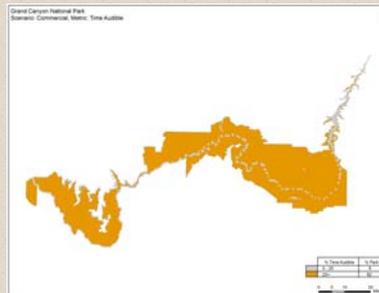
Transportation, Repositioning, etc
25-100% TAud = 10% of Park



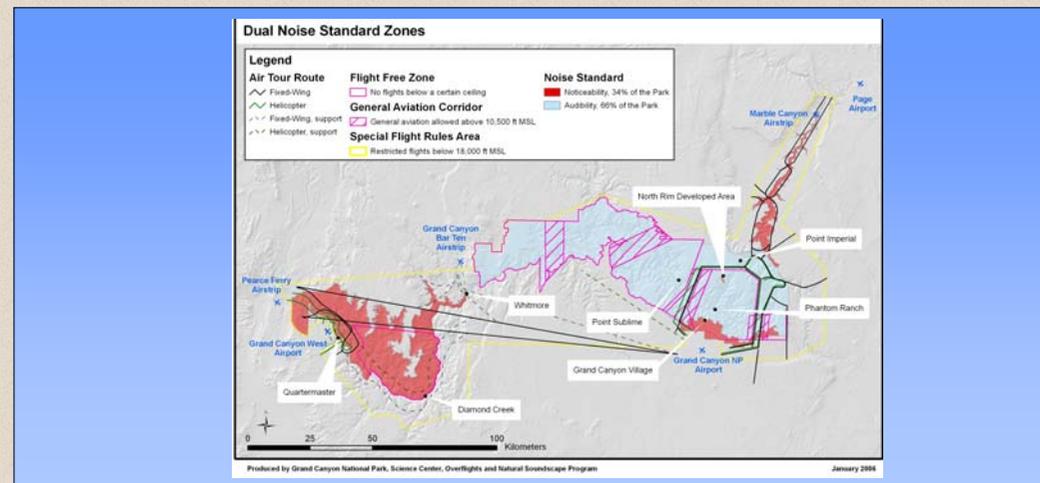
Over the Edge
25-100% TAud = 5% of Park



GA - daytime operations
25-100% TAud = 70% of Park



High Altitude - daytime operations
25-100% TAud = 92% of Park



Handouts Station 3

APPENDIX A. ANALYSIS OF ENVIRONMENTAL IMPACT CATEGORIES

SECTION 1. BACKGROUND AND HOW TO USE THIS APPENDIX

1.1 This appendix summarizes the requirements and procedures to be used in environmental impact analysis according to resource impact category. Executive Orders, FAA and DOT Orders, and Memoranda & Guidance documents described in Appendix C may also contain requirements that apply.

1.2 The potential impact categories, presented in sections, are as follows:

<i>section</i>	<i>Impact Categories</i>	<i>page</i>
2	<i>Air Quality</i>	A-3
3	<i>Coastal Resources</i>	A-10
4	<i>Compatible Land Use</i>	A-13
5	<i>Construction Impacts</i>	A-18
6	<i>Department of Transportation Act: Sec. 4(f)</i>	A-19
7	<i>Farmlands</i>	A-23
8	<i>Fish, Wildlife, and Plants</i>	A-25
9	<i>Floodplains</i>	A-32
10	<i>Hazardous Materials, Pollution Prevention, and Solid Waste</i>	A-35
11	<i>Historical, Architectural, Archeological, and Cultural Resources</i>	A-41
12	<i>Light Emissions and Visual Impacts</i>	A-56
13	<i>Natural Resources and Energy Supply</i>	A-58
14	<i>Noise</i>	A-60
15	<i>Secondary (Induced) Impacts</i>	A-68
16	<i>Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks</i>	A-69
17	<i>Water Quality</i>	A-74
18	<i>Wetlands</i>	A-77
19	<i>Wild and Scenic Rivers</i>	A-81

1.3 To effectively use this appendix, first become familiar with the material contained in each impact area. Within each impact area, the overview box highlights major applicable Federal statute(s), regulations, executive orders, and guidance and the oversight agencies. Executive Order (E.O.) 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, is addressed in this appendix in section 16 and in Appendix C. Since environmental justice is defined as any disproportionately high and adverse impact on minority populations and low-income populations, this E.O. applies to other impact categories where appropriate. Similarly, Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks, is addressed in this appendix in section 16 and applies to other impact categories where appropriate. Executive Order 13148 of April 21, 2000

Handouts Station 4

Department of Transportation - Federal Aviation Administration
14 CFR Part 93, [Docket No. FAA -2003-14715; Amendment No. 93-83]

Action: **Final Rule**

Noise Limitations for Aircraft Operations in the Vicinity of Grand Canyon National Park.

“This action classifies aircraft used in commercial sightseeing flight operations over Grand Canyon National Park (GCNP) by the noise they produce...The FAA now refers to the designation as “GCNP quiet aircraft technology” rather than “quiet technology” to clarify the scope of this rule is limited to aircraft operating in the GCNP.”

“This rule...simply identifies which aircraft meet or do not meet the GCNP quiet aircraft technology designation. Further, this rule does not relieve GCNP commercial air tour operators of their operational limitations. Section 804 (b) of the National Parks Air Tour Management Act directs the FAA, in consultation with the NPS and the Advisory Group (now known as the National Park Overflights Advisory Group Aviation Rulemaking Committee (**NPOAG** ARC) to consider establishing the GCNP quiet aircraft technology aircraft routes and corridors consistent with certain requirements.”

In the FAA response on “Noise Efficiency” (pg. 16085), it is stated “The FAA finds that the noise efficiency concept (larger aircraft with more passenger seats are allowed to generate more noise per aircraft, but less noise per passenger) exhibits all of the desired attributes for the designation of reasonably achievable requirements for aircraft to be considered as employing GCNP quiet aircraft technology for purposes of Section 804 (a) of the Air Tour Act.”

Part 93—Special Air Traffic Rules and Airport Traffic Patterns

- The final rule amended part 93, in chapter 1 of Title 14, Code of Federal Regulations.
- The rule also cited **Appendix A to Subpart U of Part 93—GCNP Quiet Aircraft Technology Designation**. Appendix A “contains procedures for determining the GCNP quiet aircraft technology designation status for each aircraft subject to § 93.301 determined during the noise certification process.”

National Parks Air Tour Management Act of 2000

"Section 804. Quiet Aircraft Technology for Grand Canyon"

“(a) Within 12 months of the enactment of this Act, the Administrator shall designate reasonably achievable requirements for fixed wing and helicopter aircraft necessary for such aircraft to be considered as employing quiet aircraft technology for purposes of this section...”

(b) **Routes or Corridors.**- ...the Administrator shall establish, by rule, routes or corridors for commercial air tour operations...by fixed-wing and helicopter aircraft that employ quiet aircraft technology for-

- (1) tours of the Grand Canyon originating in Clark County, Nevada; and
- (2) “local loop” tours originating at the Grand Canyon National Park Airport, in Tusayan, Arizona, provided that such routes or corridors can be located in areas that will not negatively impact the substantial restoration of natural quiet, tribal lands, or safety.”

(c) **Operational Caps.**- Commercial air tour operations by any fixed-wing or helicopter aircraft that employs quiet aircraft technology and that replaces an existing aircraft shall not be subject to the operational flight allocations that apply to other commercial air tour operations of the Grand Canyon, provided that the cumulative impact of such operations does not increase noise at the Grand Canyon.

(d) **Modification of Existing Aircraft to Meet Standards.**- A commercial air tour operation by a fixed-wing or helicopter aircraft in a commercial air tour operator’s fleet...that meets the requirements designated under subsection (a), or is subsequently modified to meet the requirements designated under subsection (a), may be used for commercial air tour operations under the same terms and conditions as a replacement aircraft under subsection (c) without regard to whether it replaces an existing aircraft.

(e) **Mandate To Restore Natural Quiet.**- Nothing in this Act shall be construed to relieve or diminish -

(1) the statutory mandate imposed upon the Secretary of the Interior and the Administrator of the Federal Aviation Administration under Public Law 100-91 (16 U.S. C. 1a-1 note) to achieve the substantial restoration of the natural quiet and experience at the Grand Canyon National Park; and

(2) the obligations of the Secretary and the Administrator to promulgate forthwith regulations to achieve the substantial restoration of the natural quiet and experience at the Grand Canyon National Park.

Handouts Station 5

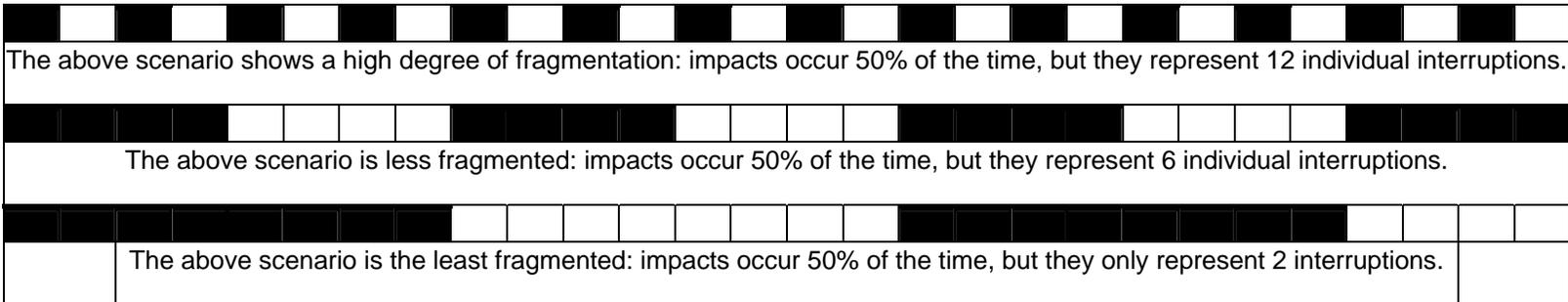
The Concept of Fragmentation

National Park Service Natural Sounds Program and Grand Canyon National Park

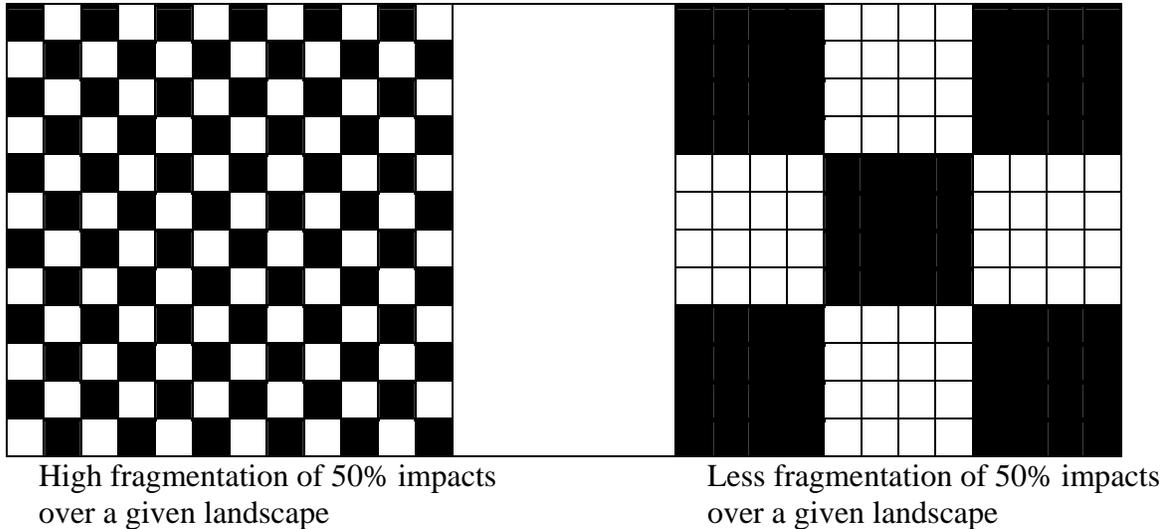
The concept of fragmentation has been suggested to the NPS and FAA as a potential consideration in developing an Overflights Plan for Grand Canyon. There is extensive scientific evidence documenting the deleterious effects of habitat fragmentation on many animal species. It is likely that similar concepts apply to acoustical environments spatially and temporally. Clustering acoustic events in time and space would concentrate their effects, which may be desirable if repeated exposure does not intensify animal reactions. Avoiding fragmentation of the acoustic environment will maximize the intervals and areas that preserve natural conditions. The effects of prolonged concentration of acoustic events in the same location should also be considered. If it is deleterious, the cluster of acoustic activity could be moved to different areas on a daily, weekly, or seasonal basis.

Peak received sound level is not a critical factor for wildlife (i.e., max dBA), as all animals have evolved to cope with nearby thunderclaps and other loud natural sounds. Chronic and spatially extensive effects are more problematic, because the scope of potential impacts is greater and the diffuse nature of the impacts is more difficult to measure.

The concepts are illustrated in the figures below. The following figure illustrates the concept of fragmentation in time and how it might be reduced. The black boxes represent mechanical noise and the white boxes represent natural quiet.



The following figure illustrates the concept of fragmentation in space and how it might be reduced. The black boxes represent mechanical noise and the white boxes represent natural quiet.



How does fragmentation affect humans and animals?

- Individual episodes of impact result in interruptions of activities or behaviors. Animals can remain in an altered state for considerable time, even after relatively brief events.
- Each episode of interruption has an associated lag time before normal activity or behavior is resumed. Thus, numerous interruptions may have a greater impact.
- Some activities cannot be easily resumed; they must be reinitiated (e.g., breeding).
- Animals that vocalize could have their calls masked by human-caused sounds, which could affect their “environmental awareness.” A 6 dB increase in ambient noise levels means that the same sound would need to be twice as close to become audible.
- Hearing is the most vital sense for omnidirectional perception. There are many blind species of vertebrates, but no deaf species are known. Mechanical noise casts a veil over the sense of hearing, compromising the awareness of all animals, including humans.

What do you think? Should this concept be considered? Are there other factors or concepts that should be considered?