

NATIONAL PARK SERVICE

Reference Manual #60: Aviation Management

Chapter 11 –Flight Operations

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Prepared by the Branch of Aviation

Reviewed by the Chief, Division of Fire and Aviation Management

Signature / Date

Approved by the Associate Director, Visitor and Resource Protection

Signature / Date

11 Flight Operations

11.1 General

All missions under the operational control of NPS will comply with applicable FAA regulations, DOI aviation policy, DOI handbooks, and Interagency Guides as listed in Chapter 2, *Aviation Directives*.

Operational control, with respect to flights, means the exercise of authority over initiating, conducting, or terminating a flight. See [CFR, Title 14, Chapter 1](#).

NPS personnel issuing permits (e.g., Special Use or Scientific Research and Collection) must not add aviation language (e.g., routes, altitudes, aircraft types, operational procedures) that may potentially or inadvertently put the NPS in operational control of the flight. If a permitting request involves an aviation component, the PAM must be consulted in the process.

Without fear of reprisal, NPS personnel should not fly under any condition they consider to be unsafe. Anyone has the right to refuse to participate in a flight.

11.2 Aircraft and Pilots

For operational missions, NPS employees must only use aircraft and pilots approved or authorized by OAS or the United States Forest Service.

Pilots must conduct a visual inspection of the aircraft prior to and after completion of each flight, per [351 DM 1.1E](#).

Pilots shall use applicable written/electronic cockpit checklists for all phases of flight, per [351 DM 1.1 E](#).

11.3 Interagency Aircraft Data Card

An Interagency (DOI/USFS) Aircraft Data Card must be maintained in the aircraft and physically inspected prior to each mission. Approval of cooperator aircraft may be accomplished by a Letter of Authorization or previously established Memorandum of Understanding (MOU). MOUs affecting DOI aviation are found in the [OAS Document Library](#).

11.4 Interagency Pilot Qualification Card

The Interagency or DOI Pilot Qualification Card must be carried by fleet and contractor pilots and inspected by flight managers prior to each mission. The card may be printed or digital. If the card is unavailable, the pilot's authorization to fly the mission must be verified prior to flight. Approval of cooperator flight crewmembers may be by Letter of Authorization or previously established MOU.

11.5 Noise Impact Mitigation

With safety of flight as the first priority, certain pilot techniques and planning can reduce noise impacts over parks. Flight operations over and adjacent to noise-sensitive areas should be avoided whenever possible. Examples of such areas include campgrounds, heavily used trails or recreation/visitor areas (amphitheaters, visitor centers, permitted hunting and fishing areas), sensitive wildlife habitats, culturally sensitive areas (including ceremonial areas), and areas managed as wilderness. In addition to operating parameters such as route and altitude, the number and frequency of flight operations must be minimized to the extent possible and time of day/month/year should be considered to avoid impacts and address

various park management objectives including tribal ceremonies, breeding, nesting, and migration periods, and heavily used visitor times. Aviation managers will make every effort to prevent impacts to cultural and historic resources through appropriate planning and mitigation. See Chapter 1.4, *Environmental Concerns*, and [DO-47, *Soundscape Preservation and Noise Management*](#).

Noise impacts should be considered when adjusting power settings, conducting ascents and descents (during departure, climb, and arrivals), turns, and maneuvering (noise mitigation techniques for helicopter operations are available through FAA course ALC-500: Fly Neighborly). The Aviation Business Case Study, for replacement of existing fleet aircraft, should consider the potential to reduce noise impacts through quiet technology enhancements to the aircraft when feasible. Relevant documentation such as studies or definitions for Quiet Aircraft technology developed by NPS and FAA for air tour management planning should also be considered when looking at replacement aircraft.

11.6 Aviation Management Plans

Regional AMPs will be tiered off RM-60 and cannot be less restrictive. Park AMPs will be tiered off their regional AMP, unless approved by the RAM, and cannot be less restrictive than their regional AMP. Parks that either meet the definition of a Level 1 or 2 aviation program are required to have an aviation management plan (AMP). Level 3 parks must consult with their RAM to determine whether a park AMP is required. If the RAM determines that the Level 3 park does not require a stand-alone Park AMP, they will adhere to the regional AMP. AMPs must be approved by the superintendent/USPP Chief of Police and reviewed annually. Appendix 1, *Park Aviation Management Plan* contains the minimum elements required in an AMP.

11.7 Project Aviation Safety Plan

NPS has developed a standardized PASP that will be utilized for missions under the operational control of the NPS unless otherwise approved by the RAM. See Appendix 3, *NPS Standardized PASP*. The PASP is only valid for a maximum of one year.

1. Project Aviation Safety Plans (PASPs) will be developed for all special use activities.
2. For those parks or units that perform similar special use activities on a recurring or routine basis, the required PASP elements may be incorporated into an AMP.
3. Project leaders and/or management-level project approvers are responsible for ensuring PASPs are completed. The superintendent/USPP Chief of Police or designee will approve the PASP.
4. Risk assessments are required to be included with the PASP. See Appendix 3, *Project Aviation Safety Plan*.
5. A day of risk assessment, such as a GAR, shall be completed prior to flight operations.

11.7.1 Emergency and Urgent Operations

It is not anticipated that a PASP will be completed for emergency situations (e.g., SAR, fire, LE); however, a time-critical risk assessment must be performed before such a flight takes place OR a documented process (as approved by the RAM) to capture the unique and special circumstances that will be incorporated into the park AMP. See [OPM-6, DOI *National Aviation Management Plan and Project Aviation Safety Plan*](#), and Chapter 3.4, *Risk Management*.

11.8 Flight Plan and Flight Following

Flight plans are prepared for aviation activities in accordance with [351 DM 1.4](#). Flight Following is required for all NPS contracted and fleet aircraft utilizing a satellite-based tracking system.

Pilots must initiate contact with the dispatcher or flight follower to ensure satellite tracking is functional. Flight following should be completed in accordance with local protocols, SOPs, and/or AMPs.

Tracking must be monitored, and aircraft locations documented, at a minimum of every 60 minutes, by dispatch or flight following qualified personnel during all flight operations. Flight followers must be able to contact the aircraft if AFF becomes inoperable during a flight.

Mishap Response Plans: Each park or other NPS office using flight services must maintain a current and complete aviation mishap response plan, See Chapter 17.3, Aviation Mishap Response Plan.

If satellite-based tracking becomes temporarily inoperable, an aircraft will normally remain available for service, (e.g., using radio and/or satellite phone, text device, or cell phone systems for flight following). Each occurrence will be evaluated individually and will be mutually agreed to by the pilot and aircraft manager/dispatcher/flight follower. If continuous communication cannot be established the aircraft must return to base.

If a pilot is in continuous communication or visual range of a ground crew, or in radio range of another aircraft (known as “local” or “on-site” flight following), operating in the immediate vicinity of an airport or controlled airspace and the entity has a responsible person dedicated to the flight following duties who has access to the mishap response plan or can communicate with someone that does or is conducting Instrument Flight Rules (IFR) operations on a Federal Aviation Administration (FAA) IFR flight plan, monitoring is not required by dispatch personnel.

These requirements apply to all NPS aviation operations except for operations conducted under [CFR Title 14, Part 121](#), seat fares, end product contracts, UAS, and some USPP missions.

11.9 Passenger Manifest

The pilot-in-command shall ensure that a manifest of all onboard personnel has been completed. A copy of this manifest shall remain at the point of initial departure. Manifest changes will be left at subsequent points of departure when practical. In those instances where multiple short flights will be made in a specified geographical area that involves frequent changes of personnel, a single manifest of all passengers involved may be left with an appropriate person to preclude unreasonable administrative burden.

11.10 Passenger Briefing

Except in exigent circumstances, the PIC must ensure that each passenger receives a briefing prior to each mission per [CFR Title 14, Part 135.117](#) and [351 DM 1.5 B](#).

11.11 Crew Duty Time Limitation

All activities must be conducted in accordance with [351 DM 3.6](#), and/or the procurement document that crews are working under. Deviations from this policy will be documented by filing a SAFECOM.

11.12 Instrument Flight Rules

Instrument flight rules flights are permitted in accordance with [CFR Title 14, Part 61.57](#), [CFR Title 14, Part 91.167 - 193](#) (applicable areas of the CFR), [Aeronautical Information Manual \(AIM\)](#), and [351 DM 1](#).

11.13 Night Flying

Night flights are permitted in accordance with [CFR Title 14, Part 61.57](#), [351 DM 1](#), and the procurement document for contracted aircraft.

11.14 Transport of Hazardous Materials by Aircraft

Transport is allowed with a valid [Hazardous Materials Special Permit](#) and in accordance with the [NWCG Standards for Aviation Transport of Hazardous Materials](#). A current copy of the permit and NWCG documents must be in the aircraft and at the place of loading. All other types of transport of hazardous materials must be carried out in accordance with [CFR Title 49, Part 171-175](#).

Note:

- All involved employees and ground crew must have completed A-110, *Aviation Transport of Hazardous Materials* prior to handling or transporting hazardous materials by aircraft.
- Law enforcement officers with a duty belt holster designed to carry a chemical agent (e.g., pepper spray, mace, etc.) may be carried internally in an aircraft. Other hazardous materials can be transported when secured in a sealed, non-porous container (e.g., ammunition can).

11.15 Aviation Fuel Handling

Superintendents are responsible for ensuring that parks that host aviation fuel systems shall manage the program in accordance with OAS guidance. The following documents can be used for reference purposes:

- [DOI Aviation Fuel Handling Handbook](#)
- [OPM-13, Fuel Quality Control/Fuel Site Inspection](#)
- [OPM-20, Drum Fuel Management](#)
- [National Fire Protection Association \(NFPA\) 407, Standard for Aircraft Fuel Servicing](#)
- [NWCG Standards for Helicopter Operations \(when applicable\)](#)

At a minimum, NPS facilities that maintain aviation fueling systems, either fixed or mobile, or have drummed fuel, must be inspected by the OAS quality assurance specialist (fuel) or an OAS-approved individual or vendor every two years.

This biennial inspection does not relieve the supporting facility of required daily and monthly checks, or of addressing problems identified during these checks. For remote fuel station locations, these checks can be completed at the time of use. The audit will include a review of quality control procedures related to fuel receipts. Those inspections will be documented and sent to the RAM.

Additional information is available from FAA Advisory Circulars (AC) [20-125 Water in Aviation Fuels](#) and [AC 150/5230-4A, Aircraft Fuel Storage, Handling and Dispensing on Airports](#).

11.16 Transport of Cargo/Equipment

Only cargo and/or equipment necessary for the mission are permitted onboard aircraft under the operational control of NPS and must be transported in accordance with CFRs and DOI policies. (for helicopters, refer to the [NSHO, Chapter 11, Cargo Transport](#)).

Fixed-wing external load operations will be conducted in accordance with FAA authorization and [OPM-29 Special Use Activities for Manned Aircraft](#).

11.17 Load Calculations/Weight and Balance

Load calculations/weight and balance will be accomplished prior to each NPS flight by the PIC. These calculations will consider the weight of cargo and passengers, center of gravity, etc., relative to environmental conditions and performance capabilities of the aircraft. [351 DM 1](#). For helicopters, refer to the [NSHO Chapter 7, Helicopter Load Calculations and Manifests](#). Helicopter load calculations must be completed daily using the standard [OAS-67 Interagency Helicopter Load Calculation](#) or NPS Automated Helicopter Performance Program (AHPP). Other helicopter performance planning methods documented in unit operations plans may be used with concurrence from the NAM.

Fleet and exclusive use contracted helicopter programs are authorized to use the NPS AHPP. The NPS AHPP consists of an electronic version of the Interagency Helicopter Load Calculation which is linked to Computed Gross Weight Look-Up tables. Use of the NPS AHPP is optional and requires concurrence of both the pilot and helicopter program manager prior to use. If the NPS AHPP is not used, then the standard [OAS-67 Interagency Helicopter Load Calculation](#) must be completed for all flights. Other electronic load calculation programs are not to be used.

A new calculation is required when there is a change of +/- 5 degrees Celsius in temperature, or +/- 1000 feet change of altitude, helicopter equipped weight, or flight crew weight.

11.18 Environmental Considerations

Weather is the primary environmental factor affecting aviation operations. The minimum weather standard for fleet and vendor VFR flights is a 500-foot ceiling and two statute miles of ground visibility. Flight visibility will be used in areas without weather reporting capability. Employees are required to terminate flight operations if the weather is below the applicable minimum by returning to the starting point or landing at the nearest safe airport or landing site.

Flight operations are prohibited until the weather improves above the minimums.

Note: The pilot may set a more restrictive weather minimum if necessary for the safe conduct of the flight.

Flights may be restricted due to environmental conditions such as cold weather below -40 degrees C, high winds, and volcanic dust. Refer to [351 DM 1.3](#) for specifics. Additional helicopter guidance can be found in the NSHO.

11.19 Aerial Hazard Maps

Aerial hazard maps shall depict local hazards such as congested flight areas, local reporting points, wires, low-flying aircraft, obstacles protruding beyond normal surface features, and known wildlife hazards (e.g., bird migratory routes, nesting areas, etc.) and are to be reviewed prior to flight. Any new hazards

found in the area flown must be added to the hazard map. Aerial hazard maps shall be updated annually or when new hazards are identified and reflect the date the map was verified. The hazard maps may be posted in permanent NPS airbases with assigned staff and be available electronically for aviation personnel. [See 352 DM 1](#).

11.20 Lap Belt/Shoulder Harness

A lap belt, shoulder harness, or approved secondary restraint system must be worn during all flights. Configuration of lap belt/shoulder harness and/or secondary restraint system must meet standards set in [351 DM 1](#) and the Interagency [ALSE Handbook](#).

11.21 Special Use Activities

Special use is defined in [351 DM 1](#) and [OPM 29, Special Use Activities for Crewed Aircraft](#) as those operations in which special pilot qualifications and techniques, special aircraft equipment, and PPE are required to enhance the safe transportation of personnel and property. OAS authorization for both pilot and aircraft is required for special use operations.

Special use flight operations require a PASP. See Chapter 11.5, *Project Aviation Safety Plan* and Appendix 3, *Project Aviation Safety Plan*.

Fixed wing landing areas utilized in parks require approval by the RAM for listing in the DOI Airport Directory. Those landing areas with a current listing in the DOI Airport Directory are considered point-to-point and do not have any special use PPE requirements.

11.21.1 Aerial Capture, Eradication and Tagging of Animals (ACETA)

Safe, effective, and efficient ACETA operations blend aviation management, weapon/firearms use, and biological considerations. For non-aviation procedures, training, and certifications refer to [RM-77, Natural Resource Protection](#). The planned aerial (fixed-wing and helicopter) capturing, eradication, tagging, and gathering of animals must be conducted in accordance with the [NPS ACETA Operational Plan](#) and this reference manual. Parks must consult with their RAM before conducting ACETA missions if ACETA operations are not documented in the park aviation management plan.

11.21.2 Search and Rescue and Emergency Medical Services (EMS)

The NPS Management Policies 2006, states that “The saving of human life will take precedence over all other management actions as the Park Service strives to protect human life and provide for injury-free visits” ([Section 8.2.5.1, Visitor Safety and Emergency Response](#)). The NPS’ ability to respond to incidents is essential to the safety of all who enter NPS areas and is implemented in this policy.

Parks providing aviation resources for SAR and EMS missions must follow applicable CFRs, Departmental, and NPS aviation policy. Deviation from these policies must include management involvement and superintendent approval or higher, in addition to submission of a SAFECOM.

11.21.3 Human External Cargo (Short-haul, Hoist and Rappel)

These operations must be conducted in accordance with corresponding departmental guidance, [NPS Short-haul Operations Plan](#), and unit plans for hoist and rappel operations.

11.21.4 Single Skid, Toe In, and Hover Exit/Entry Procedures (STEP)

These landings, as defined below, are also prohibited except when a park has an approved program.

1. Toe-In: Landings that are used to drop off or pick up passengers or cargo by resting the helicopter on the toes of the skids.
2. Single-Skid: Landings that are used to drop off or pick up passengers or cargo while holding the helicopter with one full skid on the ground and the other suspended in the air.
3. Hover Entry/Exit Procedures: Landings that are used to drop off or pick up passengers and cargo, other than rappel/short-haul, while holding the helicopter in a hover.

11.21.5 Off Airport Operations-Wheels (Airplane)

Fixed-wing aircraft conducting off airport operations shall comply with [OPM-29, *Special Use Activities for Crewed Aircraft*](#).

11.21.6 Aircraft Operations Below 500' Above Ground Level (AGL)

Low level flight, when authorized, may be conducted in accordance with CFR Title 91, Part 119, CFR Title 14, Part 135 Subpart D, Part 135, Part 137, FAA Exemption 3017B or further grant of exemption if applicable. While low level flight operations are authorized under the above auspices, consideration of minimum safe altitudes for other than low level operations must always be considered.

11.22 Wildland Fire

Fire management activities that use aviation resources will be conducted in accordance with applicable guides, handbooks, and [Reference Manual-18, *Wildland Fire Management*](#). Wildland fire personnel conducting non-fire management missions will follow RM-60.

Wildland fire mission support is the primary purpose for NPS wildland fire funded aircraft. Utilization and movement of these aircraft is governed by Regional and National Mobilization Standards and must be coordinated with relevant stakeholders at park, region, and national office levels through fire duty officers.

11.23 All-Hazard

NPS aviation resources and personnel may be asked to respond to All-Hazard incidents. Response to All-Hazard incidents utilizing aircraft may fall under special use flight activities for NPS response (e.g., search and rescue, law enforcement, earthquakes, hurricanes, tornadoes, oil spills, floods, or declared national or state disasters). See [RM-55, *Incident Management Program*](#).

11.24 Law Enforcement Operations

All NPS law enforcement personnel must adhere to all departmental and NPS aviation policy except for approved undercover operations as specified in [351 DM 1](#). NPS law enforcement officers are required by [DO-9, *Law Enforcement*](#), to wear certain defensive equipment while engaged in law enforcement duties. The minimum defensive equipment to be worn includes authorized firearm and holster, spare ammunition, handcuffs, and authorized intermediate defensive equipment. On-duty law enforcement employees involved in law enforcement duties cannot be directed to remove defensive equipment.

The [NSHO](#) provides guidance regarding the transport of weapons. Pilot authority is clearly stated in the CFRs, DOI policy and contracts, and is pertinent to the safe operation of the aircraft.

11.25 Transport of Weapons

Personnel must adhere to the [NWCG Standards for Aviation Transport of Hazardous Materials](#) when transporting weapons. In addition, the following safety precautions shall be taken:

1. Brief pilots on weapon type(s) and safety policy.
2. A person who is required to carry a firearm while performing official government duties may carry ammunition for small arms in a readily accessible manner.
3. Loaded weapons will be transported in aircraft only when the mission dictates their use in flight or soon after landing. Whether or not a long gun is physically carried, stowed in a case, or placed in a cargo compartment will be dictated by the operational situation.
4. Law enforcement officers with a duty belt holster designed to carry a chemical agent (e.g., pepper spray, mace, etc.) may be carried internally in an aircraft. Other hazardous materials can be transported when secured in a sealed, non-porous container (e.g., ammunition can).

11.26 Flights Outside the US, Trust Territories, and Possessions

Such flights will comply with the flight regulations of the country in which the operation occurs. Applicable DOI and NPS aviation policy should be used for employee guidance for PPE when participating in flights of this nature.

[DOI DM 350-353](#) and RM-60, do not apply to international DOI and NPS operations, except for fleet operations. NPS employees should attempt to follow NPS aviation policies to the extent practical.

Fleet aircraft flights also will comply with applicable DOI aviation policy, handbooks, and this reference manual. Additional personal liability insurance may be required for agency pilots flying outside the United States.

11.27 Emergency Situations

NPS personnel are authorized to deviate from this policy manual for emergencies. See [350 DM 1.3B](#). All deviations must be reported as expeditiously as possible to the regional and national aviation offices via phone or email. Deviations from policy require a SAFECOM to be filed based on the nature of the incident. More information on SAFECOMs can be found in *Chapter 17.6.2, Aviation Mishap Information System* and [352 DM 3](#). See Chapter 3.4, *Risk Management* for requirements regarding the required risk assessments related to urgent or emergency missions.