CHAPTER 3: OPERATIONAL PLANNING.

I. Introduction.

It is essential that all aviation operations be planned with the utmost consideration given to safety. Missions can be accomplished safely, provided that a high degree of pre-planning, risk management, and analysis is applied.

This chapter discusses areas that must be addressed and actions that must be performed during the flight planning and scheduling process, including but not limited to:

- Submission of the Aircraft Flight Request/Schedule
- Cost-analysis
- Assessment and mitigation of hazards
- Selection of aircraft
- Scheduling of aircraft with vendors
- Ensuring that sufficient, qualified personnel are assigned
- Pilot and aircraft approvals
- Pre-flight briefings
- Post-flight evaluation

Hazards associated with the mission -- weather, takeoff or landing weights, landing areas, military training areas, wire hazards -- must be identified and controls implemented to mitigate the hazard(s). Preflight project planning for low-level flights and other special use activities is naturally more intensive because the aircraft and crew are placed in a higher-risk environment. Most agencies require that line management approve all special-use activities.

It is incumbent that the government representative supervising the mission ensures the flight is conducted as planned and in accordance with policy and procedures.

II. Risk Management and Risk Assessment[1].

The terms “risk management” and “risk assessment” are often used synonymously when, in fact, they are different.

A. Risk Management.

Risk management enables personnel at all levels to do exactly what the term implies: manage risks. The term is best applied generically, as individuals are confronted by a variety of risks: training risks, fiscal risks, and safety risks. Safety risk management, however, is a specific type of risk management. This section is directed toward safety risk management as it applies to helicopter and helibase operations.

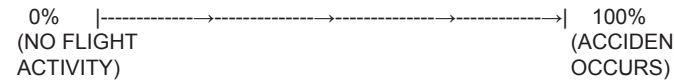
Alternative methods (for example, performance of the mission by ground) should always be considered. In accordance with Federal Aviation Regulations (FAR’s), the Pilot always retains final authority for the operation when safety of the aircraft and occupants is a factor.

[1]Parts of this section are paraphrased from Flightfax - Report Of Army Aircraft Accidents, “Risk Management vs. Risk Assessment: What’s The Difference,” LTC. Kurt Pierce, December, 1991, Volume 20, No. 2.

Hazards might not be limited to the performance of the flight, but may include hazards to personnel if the flight is not performed.

Risk management is a five-step cyclic process that is easily integrated into the decision-making process at all levels. Any flight mission has a degree of risk which varies from 0% risk (no flight activity is conducted) to 100% (aircraft and/or personnel experience a mishap).

RISK CONTINUUM



B. Risk Assessment.

Risk assessment is part of the risk management process. Risk assessment can range from simple to complex. The process of assessing risk causes personnel to identify hazards, analyze the degree of risk associated with each, and place hazards in perspective relative to the mission or task at hand. One can then arrive at a decision of whether or not to perform a flight mission.

It is understood that any risk management decision is a subjective process. Risk assessment should be conducted by those individuals best qualified by training and experience to evaluate a proposed flight or operation. These personnel include the Helicopter or Project Flight Manager, the Dispatcher, the unit Aviation Manager and Line Manager, and ultimately the Pilot, who has the authority to decline a mission which he or she considers excessively hazardous. Risk management decisions are always the prerogative of line management. The risk assessment process assures that these are informed decisions.

Logically, one cannot identify the risk without first determining what the hazards are.

C. Risk Management Applied.

1. Identification of Hazards. The first step in risk management is to identify hazards. The hazards are the potential sources of danger that could be encountered while performing a task or mission. Factors that determine hazards are weather, time of flight, terrain, equipment, and training and proficiency level of personnel.

   There could be other less obvious hazards that would become apparent during planning. The Helicopter Manager, the Pilot, other participants in the flight, and, if assigned, the Helibase Manager should all seek to identify potential hazards before the operation.

EXAMPLE: The Helibase Manager receives a mission to transport food, water, and shelter to crews who have been working the first day of a fire and will remain overnight in a remote camp. Conditions are extremely windy from approaching thunderstorms, visibility is decreasing as sunset nears, and the drop point is less than optimal. The forecast is for severe weather (thunderstorms, hail, possible floods) throughout the night.

The Helibase Manager receives a mission to transport food, water, and shelter to crews who have been working the first day of a fire and will remain overnight in a remote camp. Conditions are extremely windy from approaching thunderstorms, visibility is decreasing as sunset nears, and the drop point is less than optimal. The forecast is for severe weather (thunderstorms, hail, possible floods) throughout the night.

In this example, all personnel involved should participate in the identification of potential hazards. These individuals would include the Helibase Manager, higher-level air operations staff, the Operations Section Chief, the crew bosses on the fire line, and, most importantly, the Pilot(s) who may be asked to perform the mission. The above is also a good example of hazards to personnel which may be encountered if the flight is not performed.

Risk factors can generally be divided into four categories: Man (generic), Machine, Medium (Environment), and Method. Risk can be reduced significantly by examining each of these elements. Requirements can then be met (for example, Pilot/aircraft carding) or hazards can be mitigated (for example, high-level reconnaissance prior to descent to low-level).

Specific checklists have been developed to assist in risk assessments for helicopter operations (see Chapter 15 and Appendices A and B).

Chart 3-1, however, provides common risk elements associated with most flight missions.

NOTE: When utilizing the chart, the user should be aware that a “NO” answer does not preclude the flight from occurring. A “NO” answer does mean that a risk assessment of that particular area or concern should be performed, and the hazards associated with that risk mitigated.

Chart 3-1: Risk Analysis: The 4 M's

METHOD		YES	NO
1.	Is there an alternative method that would accomplish the mission more safely and/or efficiently (including accomplishment by ground methods)?		
2.	Is the method selected approved and do detailed instructions for safe accomplishment exist?		
3.	Have adequate flight following and communications methods been established?		
MEDIUM			
1.	Can factors of terrain, altitude, temperature, or weather that could adversely affect the mission's success be mitigated?		
2.	Will the mission be conducted at low (below 500' AGL) or high altitudes - can the same objective be achieved by flying at a higher altitude AGL?		
3.	If low-level flight, have all know aerial hazards been identified during the planning process and are they know to all participants?		
4.	If there is a potential for an airspace conflict (military, media, or sightseeing aircraft), have mitigating measures been taken?		
5.	Have adequate landing areas been identified and/or improved to minimum requirements?		
MAN (GENERIC)			
1.	Is the Pilot properly carded for the mission to be conducted?		
2.	Will the flight be conducted within the Pilot flight time/duty day requirements and limitations?		
3.	Have the minimum number of personnel necessary to accomplish the mission safely been assigned, and do they meet personnel qualifications and experience requirements?		
4.	Will adequate personnel (flight and ground) and Pilot briefings be conducted prior to the flight?		
5.	Are users aware that the Pilot-in-command has final authority over any operations conducted involving the aircraft or its occupants?		
MACHINE			
1.	Is the aircraft capable of performing the mission in the environment (altitude, temperature, terrain, weather) where the operation will be conducted?		
2.	Is the aircraft properly carded for the intended mission?		

2. **Assessment of Hazards.** Refer to Chart 3-2. The second step is to assess the hazards. Each of the hazards is analyzed to determine (1) the effect on personnel and equipment should the hazard be encountered, and (2) the probability that the hazard will be encountered.

   a. Effect. If the hazard is encountered during a flight mission or aviation operation, the effect may be:

      - Catastrophic: Death or serious injury; system/equipment loss (aircraft or ground accident).
      - Critical: Serious injury; damage to equipment.
      - Moderate: Mission can be accomplished, though there may be adverse effects on mission efficiency (extra cost, delays, etc.)
      - Negligible: No effect on mission accomplishment.

   b. Probability. The probability of encountering the hazard during the flight mission or operation may be:

      - Frequent: May be continuously or often encountered during each mission.
      - Likely: May be encountered several times during the course of many missions.
      - Occasional: May be encountered sporadically during the course of many missions.
      - Seldom: May be encountered infrequently, but chances are remote.
      - Unlikely: May be encountered only rarely; chances are possible, but improbable.

   c. Risk Levels. Refer to Chart 3-2. This step concludes with a risk assessment that describes the risk associated with each of the hazards individually, then the risk associated with the combined hazards. The result is a quantification of the risk associated with the operation: Extremely High, High, Medium, or Low.

      - Extremely High: Risk is so high that it is very probable that the mission cannot be accomplished without an accident and/or loss of life or serious injury. Hazards cannot be mitigated effectively.
      - High: Risk is high enough that there is uncertainty as to whether the mission can be accomplished without an accident and/or loss of life or serious injury. Hazards may or may not be able to be mitigated.

- Medium: Degree of risk is such that it is fairly certain that the mission can be accomplished safely. Hazards exist, but can be mitigated.

- Low: Little or no impact on mission accomplishment. Hazards are those normally associated with flight (possibility of bird strike, mechanical malfunction, etc.).

  Exercising judgment on how to eliminate or reduce hazards to lessen the overall risk is inherent in the risk assessment process. Note that during step four controls will be implemented that may reduce and mitigate the risk to an acceptable level. Use the attached chart and the attached completed Risk Assessment Worksheet as an example.

3. Making a Risk Decision. The third step is to make a risk decision. Personnel are expected to weigh the risk against the benefits of performing an operation.

   Be aware that the mentality, even during non-emergency operations, may often be very mission-oriented, “get-the-job-done.” This attitude on the part of government representatives may encourage some pilots to take on unnecessary risks in order to satisfy the customer (that is, the government). It is to be avoided at all costs.

   A thorough review of the generic elements of a risk analysis in Chart 3-1, when applied to Chart 3-2, coupled with the completion of the more specific checklists discussed elsewhere in the guide, will determine if the mission can be conducted safely, if it must be delayed or modified, or if it cannot be accomplished with a reasonable degree of safety assurance.

   IMPORTANT NOTE: Be aware that the initial assessment of risk(s) may indicate an unacceptable level (for example, Extremely High or High). However, once controls are implemented, the risk assessment may indicate an acceptable level (for example, Medium or Low).

Chart 3-2: Risk Assessment Matrix			HAZARD PROBABILITY				
			Frequent	Likely	Occassional	Seldom	Unlikely
			A	B	C	D	E
EFFECT	Catastrophic	I	Extremely				Medium
	Critical	II	High	High		Medium	
	Moderate	III	High	Medium		Low	
	Negligible	IIV	Medium				

AVIATION RISK ASSESSMENT WORKSHEET			
Assess the risks involved with the proposed operation. Use additional sheets if necessary.			
Assignment:		**Date:**	
Describe Hazard: **Pre-Mitigation hazards rate out as:**	Probability (A-E)	Effect (I-IV)	Risk Level
Mitigation Controls: **Post-Mitigation hazards rate out as:**	Probability (A-E)	Effect (I-IV)	Risk Level
Operation Approved by	Title:	Date:	

NOTE: A blank electronic version of the Risk Assessment Worksheet can be found on the internet at http://aviation.blm.gov

Hazard Risk Assessment Code	Risk Level	Appropriate Management Level For Go/No Go Decision	
		FIRE	PROJECT
I-A, I-B, II-A	I	Incident Commander or Operations Section Chief	Line Manager
I-C, II-C, II-B, II-C, III-A	II	Incident Commander or Operations Section Chief	Line Manager
I-E, II-D, IIII-B, III-C, IV-A	III	Air Operations Branch Director	Project Aviation Manager
II-E, III-D, III-E, IV-B, IV-C, IV-D, IV-E	IV	Helibase Manager	Helicopter or Flight Manager

A hazard analysis does not have to be an extremely long process. However, it must be accomplished. If the examination of any one of these factors results in a moderate to high risk assessment, then the flight mission and its proposed method of accomplishment should be seriously reconsidered.

➔ During mission planning, risk decisions should be made at a level of command that corresponds to the degree of risk. The Pilot and or Helicopter Manager will have the authority to decline the mission in question. Helicopter manager, with concurrence from the pilot, will have final decision to proceed with the mission. As such, guidance should be established as to who makes which risk decisions.

For example, high-risk decisions such as that in the example earlier, where the safety of the aircraft must be weighed against the potential for exposure of unprotected crews to severe weather, must be balanced. Such a high-risk decision should be elevated through the chain-of-command to the highest level of decision-making responsibility (for example, to the Operations Section Chief for fire or to the Line Manager for project missions).

Medium-risk decisions should be elevated to a somewhat lower level (for example, to the Air Operations Branch Director or Project Aviation Manager level). Low-risk decisions can usually be made at the Helibase Manager or Helicopter Manager level. Refer to Chart 3-2 for guidance.

4. **Implementing Controls.** Step four is to implement the controls established as a result of steps one through three. Included in this step is supervisory action to reduce or eliminate hazards. Controls may be as substantial as writing a special-use plan or as simple as conducting a short safety briefing.

Once the controls are implemented, the manager should reassess the individual and combined hazards to ensure that risks have been mitigated to fall with an acceptable level of safety.

In the example outlined earlier, the Air Operations Director, the Operations Section Chief, and the Pilot(s) would weigh the risks associated with flying supplies in deteriorating weather and visibility against the hazards of exposure (for example, hypothermia) to the crews in the camp.

If the decision were made to fly, then the Air Operations Branch Director might direct the Helibase Manager to present a briefing to the pilot with the following parameters (1) utilize only one pilot for greater control; (2) choose the most highly-skilled pilot for the mission; (3) weigh the positive benefits and negative factors associated with longlining the cargo versus carrying it internally into a less than optimal helispot; and (4) if winds increase or visibility deteriorates beyond safe minimums at either the helibase or at the site, then mission will be canceled.

In summary, although many steps can be taken to reduce the risk during the flight planning process, the following measures must be taken while in-flight to reduce the risk.

- Look for hazards and alert the Pilot.
- Stay above 500 feet AGL whenever possible.
- Do not fly during poor visibility (half-mile minimum visibility)
- Perform a high-level reconnaissance before descending below 500 feet AGL.

CAUTION: Users must not exert pressure upon the pilot to perform missions or maneuvers with which he or she does not feel comfortable.

5. **Supervision.** Step five is to supervise. However, supervision in this sense goes beyond ensuring that people do what is expected of them. It includes following up during and after a mission to ensure that all went according to plan, reevaluating the plan, or making adjustments as required to accommodate unforeseen issues, and incorporating lessons learned for future use. The nightly debriefing at helibases is a good example of this additional supervision and follow up.

D. Time Element in Risk Assessments.

Performing risk assessment is limited by the amount of time available for planning and requires flexibility and judgment by both pilots and air operations supervisors. Risk assessments can be divided into three categories according to time element.

1. **Rapid Risk Assessment.** This type of assessment is required when planning time is minimal, the situation is such, as in the example, that there are high-risk hazards associated with not flying (that is, crews may get hypothermia if not supplied) as well as with flying.

   Search and rescue missions also fall in this category. Encountering unexpected winds at a helispot is another common occurrence, where the Pilot must rapidly assess the

risk and determine whether to land, attempt to land at another spot farther from the objective, or abort the mission and return to base. Note that "rapid" does not mean "hasty" or "uninformed."

See Exhibit 3-4 for an example of a Rapid Risk Assessment.

2. **Deliberate Risk Assessment.** This type is used when planning time permits. It involves systematic risk identification, evaluation, consideration of control options and risk decision making, implementation of controls, and supervision. Note that all of these may be applied to rapid risk assessment; however, the time frame in which the rapid examination is performed is extremely compressed by the urgency of the situation.

   This is the type of risk assessment that should be performed by the Air Operations Branch Director in completing the ICS-220 Air Operations Planning Summary, by the Helibase Manager in briefing personnel and discussing intended missions, and by project personnel when planning a flight mission days or weeks in advance.

   For example, if a Wild Horse and Burro Specialist knows that she must perform a census in a certain area at a specific time of year, there is ample time to identify and evaluate hazards (wires, military training routes, deep canyons, etc.), develop and implement controls (for example, obtain military's cooperation in not flying the routes), and supervise preparations for the mission.

3. **In-Depth Risk Assessment.** This type should be used in instances where new technology is being proposed, when risks appear high, and time and resources allow thorough assessment. Risk assessment at this level requires more sophisticated techniques and professional reviews.

   An example would be testing and implementation of a new aerial firing device (for example, helitorch), new external load methods (for example, longlining), or new method of personnel delivery (for example, rappelling). In this case, handbooks and operating procedures must also be developed and/or revised.

III. Types of Flight Missions.

Informational needs, flight following methods, requirements for personal protective equipment, aircraft/Pilot carding, and required management approvals differ between point-to-point and mission-type flights, and between general use and special use flight. In order to identify the type of flight, the following definitions have been established.

A. Point-to-Point vs. Mission-Type Flight.

1. **Point-to-Point Flight.** Typically, the flight originates at one developed airport or permanent helibase, with flight route being direct to another developed airport or permanent helibase. The flight is conducted solely for the purpose of transportation of persons or cargo for administrative travel purposes, and does not involve mission-type flight.

When planning to deviate from a direct route for aerial surveillance or other reasons, the deviation must be specified and documented in advance.

Except in an emergency or at the direction of an air traffic control facility, there shall be no deviation from the submitted flight plan while en route unless the agency representative aboard the aircraft reports the amended flight plan to a designated point-of-contact.

All point-to-point flight is considered general use flight (see general and special use definitions below).

2. **Mission Flight.** These flights are defined by exclusion as all flights not meeting the definition of "point-to-point" flight. As such, mission flight requires work to be performed in the air (for example, retardant or water delivery, reconnaissance, etc.), or through a combination of ground and aerial work (for example, delivery of personnel and/or cargo from helibases to helispots or unimproved landing sites, rappelling or cargo letdown, horse herding, etc.).

   Mission flight inherently requires greater planning due to the greater number of hazards and consequent higher degree of risk commonly involved in non-point-to-point flights.

B. General Use (point to point) vs. Special Use.

Flights are also categorized as either "General Use" or "Special Use" activities. Special use flights require additional Pilot qualifications, aircraft equipment, and passenger safety equipment. All helicopter flights, including those aboard cooperator, military, and other government agencies' aircraft, shall conform to the requirements as outlined in appropriate agency directives.

1. **General Use.** A point-to-point flight is general use flight. Mission flight conducted at greater than 500 feet AGL, with no descent at any time below 500' AGL, is also general use flight. During a flight mission, the type of use shall not change from a planned "general use" environment to an unplanned "special use" flight environment unless the following conditions have been met:

   - Required personal protective equipment is being worn by both Pilot and all passengers.
   - Line manager approval is obtained prior to the change in type of flight activity.
   - Pilot and aircraft are carded for the special-use activity, as verified by either the Dispatcher or the Helicopter Manager.
   - The Dispatcher or other point-of-contact reviews the unit aerial hazard map and relevant information on area of operations is relayed to the Pilot or Helicopter Manager.

These requirements are waived when a life-threatening situation exists on the ground, and intervention or surveillance by the occupants of the helicopter will avert the situation. Such situations shall be documented by the Helicopter Manager or Flight Manager, and a report submitted to the unit aviation manager.

- The Pilot performs a high-level reconnaissance above 500' AGL of the area to identify hazards prior to descent to low level.

2. **Special Use.** Special use activities are described as operations involving the utilization of helicopters which require special considerations due to their functional use. This may require deviation from normal operating practices where authorized. Special Pilot qualifications and techniques, special aircraft equipment, and personal protective equipment are required to enhance the safe transportation of personnel and property.

   Special use flight includes the following flight missions:

   - ➔ Flights conducted below 500 feet AGL
   - Water or retardant application
   - Parachute delivery of personnel or cargo (not usually performed utilizing helicopters)
   - Helicopter Coordinator and Air Tactical Group Supervisor operations
   - Aerial ignition activities
   - Air tanker Coordinator operations (not usually performed in helicopters)
   - External Loads (Class B, C, or D as defined in 14 CFR 133
   - Night Vision Goggle operations
   - Hoversite/Autosurvey
   - Rappelling
   - Short Haul
   - Aerial Capture, Eradication, and Tagging Of Animals (ACETA)
   - Offshore vessel or platform landings
   - Toe-in, single-skid and step-out landings (prior authorization or exemption required)
   - Takeoff or landing requiring special techniques due to hazardous terrain, obstacles, pinnacles, or surface conditions

IV. Specific Missions.

A. Law Enforcement.

See Chapter 16 for discussion of law enforcement-specific missions and operational requirements.

B. Search and Rescue.

See Chapter 17 for discussion of search and rescue-specific missions operational requirements.

C. Aerial Ignition.
All aerial ignition operations shall be conducted in conformance with the Interagency Aerial Ignition Guide.

D. Rappelling.
The use of rappelling from helicopters requires agency approval. Training, qualification, and certification shall be in accordance with the current copy of the Interagency Helicopter Rappel Guide. Tactical use of rappelling will be determined by the individual agency.

E. Shorthaul.
The use of helicopter shorthaul requires agency approval. Training, qualification, and certification shall be in accordance with the current copy of the Interagency Helicopter Shorthaul Guide. Tactical use of helicopter shorthaul will be determined by the individual agency.

F. Aerial Capture, Eradication, and Tagging of Animals (ACETA).
ACETA operations are conducted primarily by agencies within the United States Department of the Interior. For these operations, refer to DOI Handbook "Aerial Capture, Eradication, and Tagging Of Animals (ACETA)." Agencies within DOI may have additional internal guidance. Other agencies conducting ACETA operations may wish to utilize the DOI material as guidance.

G. Media.
Transportation of media personnel may be conducted in government helicopters provided media personnel meet the definition of "official passengers" (see Chapter 10). Refer to agency-specific direction concerning level of approval needed to conduct flights with media on board. Media personnel must adhere to all requirements (for example, personal protective equipment).

H. External Load Operations.
External load operations include water bucket operations, seeding, sling loads using either normally-configured leadline/swivel/cargo hook or the remote electric hook and long line. When planning an operation which will involve external loads, the personnel requirements and operational procedures outlined in Chapter 11, Cargo Transport, shall be followed. Chapter 11 also includes recommendations for the transport of material or equipment when standard methods cannot be utilized.

I. ➔ End Product Contracts.
End Product Contracts are contracts that may use aircraft but are primarily written to obtain another end product or service. This is usually acres seeded, horses gathered, acres sprayed, etc… The use of aircraft is incidental to the product or services contracted. Refer to agency policy for further information.

V. Project Flight Planning and Scheduling Process.

Preflight planning by all participants in the intended mission serves to reduce the risk inherent in any aviation mission to acceptable levels. Levels of aviation safety and efficiency can be significantly improved by comprehensive planning of both one-time and recurrent aviation projects. Individuals who have a need to initiate or participate on a flight mission should consult their agency's manual and handbooks for the specific process and procedures to be followed.

The following is a discussion of recommended procedures for project operations, with Sections V.J through V.N applicable to both project and incident operations. Other processes for incident operations are described in Section VI of this chapter and in Chapter 15.

A. Elements of the Process.

There are certain common elements involved in any planning and aircraft scheduling process. This process should consist of:

- An Aircraft Flight Request/Schedule submitted by the user requesting the mission (see Exhibit 3-1);
- A cost-analysis performed by the Dispatcher or individual scheduling the flight;[2]
- A Dispatch/Aviation Manager Checklist and Hazard Analysis performed by the requester (assigned Helicopter or Flight Manager), the scheduler (the Dispatcher and/or Aviation Manager), and, for complex missions, the Pilot (see Exhibit 3-2);
- Higher-level approval(s) which may be required; [3]
- Standard Aircraft Safety Briefing completed by the Helicopter Manager or Project Flight Manager and Pilot just prior to the flight (see Chapter 10);
- A post-flight evaluation which identifies any problems encountered so that corrective action can be taken on future flights.

B. Frequency of Completion.

1. **One-Time Missions**. The elements of the flight planning and scheduling process described above should be addressed or completed for each flight mission.

[2] Note that OMB Circular A-126 requires a formal cost-analysis only for point-to-point ("administrative travel") flights. Performance of a cost-analysis of different makes and models of helicopters, as well as of various vendors or other aircraft sources available, for all flights is highly recommended. Refer to agency-specific direction concerning requirements for a cost-analysis of mission-type flight. The Interagency Helicopter Approval Performance Index (IHAPI) for Type 1 and 2 CWN helicopters is recommended.

[3] Agency-specific direction may require line manager approval for special use flights. Administrative travel flights with senior federal officials on board require higher approvals and documentation (see OMB Circular A-126).

2. **Recurrent Special Use Projects and Operations.** For recurrent flight missions of a similar nature in a special-use environment, scheduling and approval requirements can be reduced by the completion of a Project Aviation Safety Plan (see Exhibit 3-3 at the end of this chapter for an example).

   a. Purpose. The purposes of a Project Aviation Safety Plan is to:

   - Ensure that recurrent flights in special use environments (primarily flight below 500' AGL) are adequately pre-planned and that management is aware of, and has approved flight in the special use environment.

   - Document the information required on the Aircraft Flight Request form and the Dispatch/Aviation Manager Checklist and Hazard Analysis for successive, similar missions. The Project Aviation Safety Plan can thus relieve the user from completing repetitive information (hazards, communications, etc.) on the Flight Request each time a flight is made to the same area(s). For scheduling and manifesting purposes, the Aircraft Flight Request is completed for each use. However, only that information not contained in the Project Aviation Safety Plan is required (for example, Date/Time of Flight, Manifest, etc.)

   b. Applicability. The Project Aviation Safety Plan should be completed for all recurrent special-use flights for the same project to the same areas(s). Examples are wild horse counting or herding, bald eagle survey, communication site repair, etc.

   c. Responsibilities and Requirements for Completion. The local Aviation Manager and Project Aviation Manager are jointly responsible for determining the need for a Project Aviation Safety Plan. Plans are generally completed in the following sequence:

      (1) Project Aviation Manager and/or assigned Helicopter or Flight Manager completes the majority of plan information;

      (2) Dispatcher completes flight following and emergency search and rescue information;

      (3) An aerial hazard analysis is completed jointly by the Project Aviation Manager, the Helicopter Manager, the Dispatcher, and the unit Aviation Manager;

      (4) ➔ Unit Aviation Manager reviews and recommends;

      (5) Line Manager or designee reviews and approves. Note that approval is not automatic. The Manager may choose to make a risk management decision not to conduct the operation as planned, or not to conduct the mission at all.

d. Content. At a minimum, the plan shall consist of those elements depicted in Exhibit 3-3 at the end of this chapter.

e. Routing and Filing. After approval by line management, the plan itself is maintained in the Dispatch Office for reference during flight.

f. Annual Review and Update. The Plan should be reviewed annually by the unit Aviation Manager for currency of information, with at least annual re-approval by line management. Updates should be performed as necessary. More frequent review and update may be necessary if the type of mission, location, etc., change.

C. Aircraft Flight Request/Schedule Preparation.

The following is a suggested format for ensuring all elements of the flight request and scheduling process are met. All flights should be requested and scheduled using the following procedures.

- The Aircraft Flight Request/Schedule (see Exhibit 3-1 at the end of this chapter) is completed jointly by the Helicopter or Flight Manager assigned and the Dispatcher or Aviation Manager;

- The Dispatcher and/or unit Aviation Manager complete the Dispatcher/Aviation Manager Checklist (see Exhibit 3-2);

- For special use flights, a Hazard Analysis (see Exhibit 3-2) is completed jointly by the Helicopter Manager or Flight Manager and the Dispatcher or Aviation
- Manager;

- For Cooperator (Civil) or Other-Government-Agency aircraft, refer to agency-specific direction on the approval process. For Military aircraft, Refer to Military Use Handbook for ordering and approval process. Gaining approval for use of these types of aircraft is the joint responsibility of the Dispatcher, unit Aviation Manager, and the individual requesting the aircraft.

- The Aircraft Flight Request/Schedule must be relayed to all personnel and offices involved in the flight: other dispatch offices involved, the Pilot, and the Helicopter Manager or Flight Manager. This may be accomplished by automated flight planning and transmission on electronic mail, by telefax transmission, or by telephone. The Helicopter Manager is responsible for relaying flight specifics to other passengers.

D. Manifest.

All personnel on the manifest must meet the definition of “air crew member,” or “authorized passenger” and “official passenger” (see Glossary). Chapters 7 and 10 and Appendix A contain additional guidance in this area.

E. Aircraft Capability and Selection Factors.

To complete any helicopter mission safely and efficiently, the aircraft must have passenger/cargo carrying capacity and sufficient power capability for anticipated temperature(s) and elevation(s).

Aviation Managers and Dispatchers must be trained in and knowledgeable of helicopter capabilities and limitations in order to schedule the proper aircraft.

During the scheduling process for project flights, the intended mission shall always be discussed in depth with the vendor, and preferably with the Pilot assigned to the mission.

It is essential that pilots perform load capability calculations. Requirements are discussed fully in Chapter 7. Appendix A contains instructions and procedures for completion of the load calculation and manifest forms.

When selecting helicopters, several factors must be taken into consideration to determine an aircraft appropriate for the mission.

1. **Capabilities**. Each aviation management office should maintain a current copy of the specification of helicopters commonly used and which summarizes performance capabilities of those aircraft. This data may be used for program planning, but shall not be used to perform the actual helicopter load calculation prior to takeoff.

2. **Limitations.** Limitations to consider in operational planning may include, but are not limited to:

   - Number of passenger seats;
   - Aircraft performance given the density altitude at takeoff and landing sites;
   - Skid or wheel footprint given the size of landing pad;
   - Radio equipment capability (does helicopter have VHF-FM equipment?);
   - Cargo-carrying equipment (does helicopter have cargo hook or remote electric hook/longline equipment, cargo compartment, etc.?).

F. Aircraft Cost-Comparison Analysis.

1. **Requirements**. OMB Circular A-126 requires that a cost analysis and comparison of different aircraft and vendors be performed for point-to-point administrative travel flights. States may have similar requirements.

   It is recognized that the majority of helicopter flights involve non-point-to-point, mission-type flight for which this cost-comparison may not be required. If a helicopter flight falls within the point-to-point definition, then a cost-comparison that meets OMB Circular A-126 requirements must be performed.

It is also recommended that a cost-comparison be completed for helicopter mission flights. Often a helicopter that has a more expensive hourly rate will prove to be cheaper due to a variety of factors, including higher cruise speed during ferry, greater load-carrying capability, and other factors.

2. **Documentation**. The comparison, and the reason for selecting any aircraft other than the least-cost aircraft (for example, safety considerations, cannot meet ordered time frames, etc.) should be documented in writing.

G. Scheduling Aircraft with Vendors.

The following guidance applies primarily to project flights.

1. **Documentation of Contacts.** Once a preliminary flight plan has been prepared and a cost-comparison performed, the Scheduling Dispatcher may contact a vendor to determine availability. These contacts may be documented on a Resource Order Form or other appropriate format.

2. **Vendor Review of Flight Request and Preliminary Flight Plan.** During the scheduling contact, the preliminary flight plan must always be reviewed with the vendor and preferably the Pilot who will fly the mission. Scheduler should relay an accurate itinerary and manifest, along with the desired sequence of events. Flight plan should be amended at this time, subject to aircraft limitations, refueling needs, or other concerns identified by the vendor. More complex projects may require in-person meetings with the vendor to plan the flight or project correctly.

H. Obtaining Approved Pilots and Aircraft.

During the scheduling process, the individual scheduling the aircraft must ensure that the vendor provides approved pilots and aircraft. Refer to Chapter 5 for an explanation of the Pilot and aircraft carding and approval process.

Aircraft and pilots shall not be scheduled or dispatched unless it is verified that both are approved and current for the mission. Note that use of other-government agency, military, and civil aircraft requires approval but not necessarily carding.

Initially it is the responsibility of the Dispatcher to verify that the equipment and pilots are carded. This may be done by reference to the agency's vendor source list. The Dispatcher should then verbally verify with the vendor that the Pilot(s) and aircraft are approved and that the Pilot is current for the intended mission.

I. Obtaining Necessary Equipment.

It is essential that the individual submitting the Flight Request give sufficient information to ensure any specialized mission equipment requirements are met, especially for equipment which is to be supplied by the vendor. Local operating plans should specify procedures for obtaining agency supplies and equipment, (for example, handheld radios, external load equipment, and personal protective equipment).

J. Analyzing Known Aerial Hazards.

The special use flight profile of low altitude flight places people and equipment in a higher risk area of potential wire strikes, mid-air collisions with other low flying aircraft, and impact with obstacles protruding beyond normal surface features.

To mitigate this risk, aircraft pilots, helicopter and flight managers, and passengers must be made aware of obstacles which they may encounter during low-level operations.

Known aerial hazards must be identified and analyzed during the flight planning process. Managers must be made aware of the associated risk and make a risk management decision to accept those risks, provided of course they are properly mitigated, to require the mission to be changed to avoid identified risks, or to cancel the flight.

1. **Local Unit Hazard Maps.** Known flight hazards must be identified on the unit's "Known Aerial Hazard Map." Managers of each permanent helibase shall obtain and post a flight hazard map.

   a. Purpose. The purpose of aerial hazard mapping is to pre-identify aerial hazards within and/or near local administrative boundaries so that in-flight safety awareness by the Pilot, the helicopter manager, and passengers is achieved.

   b. Applicability. Each unit shall maintain a current aerial hazard map in each location where flight planning, flight tracking, and aircrew dispatch occur. The master map should be located in the office where flight planning and scheduling is accomplished (for example, in the dispatch office). For units without dispatch offices, the hazard map should be located where flights are normally planned and scheduled. Maps shall also be maintained at permanent helibases.

   c. Responsibility and Requirements for Completion.

      Unit Aviation Managers are responsible for ensuring the development and update of Known Aerial Hazard Maps. All personnel are responsible for reporting aerial hazards to the designated point-of-contact for inclusion on the Hazard Map.

      Particular emphasis should be placed on identifying those obstructions not normally indicated on government-published flight maps: old mining wires, stream flow gauges, areas of extreme turbulence, etc.

      Medical facilities (hospitals, clinics, etc.) with landing areas or heliports should be shown on the hazard map. Those with air-transport ("life flight") capability should be so indicated.

      If not already marked, all airports, landing strips, and heliports should be added.

      Each Flight Request or Resource Order for non-point-to-point mission-type flights, regardless of altitude, must have known hazards identified or a hazard map attached.

d. Instructions for Completion. Potential hazards and emergency services as identified above must be marked. Method of marking is optional, but may be determined by agency-specific direction.

2. Hazard Maps on Large Incidents.

a. Dispatcher Responsibility. Prior to the start of the second full operational period, the Dispatcher shall furnish the incident air operations staff and all aircraft operating bases with a copy of the current local aerial hazard map for the area surrounding the incident, as well as the areas surrounding any aircraft operating bases.

b. Air Operations Branch Responsibility. Upon arrival at the incident, the Air Operations Branch Director or designee shall make an aerial survey of incident operations airspace and shall post a detailed Aerial Hazard Map at all aircraft operating bases. This map is usually the one received from dispatch, with any amendments or additional hazards observed added.

During the initial stages of a large incident, the Air Operations Branch Director position may be filled by the Operations Section Chief or by one of the subfunctions of the branch (for example, by a Helibase Manager). It shall be the responsibility of that individual to perform the above survey. The local unit Aviation Manager should ensure compliance.

Hazards shall be reviewed each morning during the briefing of pilots and helibase support personnel.

3. **In-Flight Hazard Identification.** To reduce wire strike potential, it is essential that an on-site risk assessment be conducted prior to all low-level flights. All low-level flights require a thorough, high-level map reconnaissance of the route to be flown. Transition to an unplanned low-level flight mode should only be conducted when determined to be critical to the safety of the operation. Extreme caution shall be exercised.

K. Airspace Coordination.

Personnel involved in helicopter operations shall follow all processes and procedures outlined in the Interagency Airspace Coordination Guide. Positions such as the Air Operations Branch Director, Air Support Group Supervisor, Air Tactical Group Supervisor, Helibase Manager, and Project Aviation Manager are all responsible for:

- Evaluating the airspace surrounding the incident, to include but not limited to:
  - Identifying Military Training Routes, Special-Use Airspace, VFR Airways, etc., which may impact air operations;
  - Identifying these areas on the Incident or Project Hazard Map; and,
  - Ensuring all pilots are briefed on these hazards.

- Ensuring that a Temporary Flight Restriction (TFR) is in place when appropriate;
    - NOTAMS are Advisable for some project work (Horse Herding, Construction Slinging, etc.)
- Reporting any violations through the incident/hazard reporting system;
- Ensuring the TFR is canceled when no longer necessary.

L. ➔ Flight or Driving Time and Duty Day Limitations.
For safety purposes, flight or driving time and duty day limitations must be taken into account when planning flights. Care should be taken that limitations will not be exceeded. For contractor personnel, limitations are stated in the procurement document and must be followed.

M. Personal Protective Equipment (PPE) and Aviation Life Support Equipment (ALSE).
Requirements for personal protective equipment are determined by the type of flight. The type of ground operation being performed also will determine PPE required (for example, hover hookup, working around operating helicopters). These requirements are discussed in Chapter 9.

N. Flight Following.
Identification of the means of flight following and the methods by which it will be accomplished is an essential part of the flight planning process. Requirements and operational procedures are discussed in Chapter 4.

VI. Fire Aircraft Aviation Safety Plans.
Units shall have Fire Aviation Safety Plans when engaging in incident aviation operations. These plans should include an Operations Plan for exclusive-use contract and CWN helicopter crews assigned to the unit. When utilizing the helicopter for project missions, processes and procedures described in the preceding section should be followed.

The Resource Order is used to order or dispatch tactical or reconnaissance/detection fire helicopters on initial attack on the local unit. Appendix A contains an optional form, Flight Order: Helicopter, for use by the Helicopter Manager when receiving flight information from a dispatch office.

During incident helibase operations, other formats are used to schedule missions (see Appendix B).

Sections V.J through V.N in the previous section are applicable to both project and incident operations.

VII. Pre-Flight Briefings.

A briefing covering both the specifics of the intended mission and helicopter safety is required. See Chapter 10 and Appendix A for additional information.

VIII. Post-Flight Evaluation.

Just as the pre-flight briefing is deemed essential to the success of a mission, the post flight evaluation of a flight is likewise important in order to correct problems encountered.

Exhibit 3-1: Example of Aircraft Flight Request/Schedule (Front)

AIRCRAFT FLIGHT REQUEST/FLIGHT SCHEDULE

CHANGE #:	6. AIRCRAFT INFORMATION FAA N#:

1. INITIAL REQUEST INFORMATION			COST-ACCOUNT/MANAGEMENT CODE(S):	BILLEE CODE (OAS A/C only)	FLIGHT SCHEDULE #:
INITIAL DATE/TIME:	TO/FROM:	PHONE NUMBER:			MAKE/MODEL: # SEATS:
					COLOR:
CHECK ONE: ( ) Point-to-Point Flight ( ) Mission Flight DESIRED A/C TYPE: ( ) Helicopter ( ) Airplane					VENDOR:
MISSION OBJECTIVE/SPECIAL NEEDS:					PHONE #:
					PILOT(S):

2. PASSENGER/CARGO INFORMATION: INDICATE BY ASTERISK WHICH PASSENGER LISTED BELOW IS CHIEF-OF-PARTY.

NAME/TYPE OF CARGO	LBS OR CU FT	PROJECT ORDER/ REQUEST NO.	DEPT ARPT	DEST ARPT	RETURN TO	NAME/TYPE OF CARGO	LBS OR CU FT	PROJECT ORDER/ REQUEST NO.	DEPT ARPT	DEST ARPT	RETURN TO

3. FLIGHT ITINERARY (For Mission-Type Flights, provide points of Departure/Arrival and attach Map With Detailed Flight Route and Known Hazards Indicated)

DEPART WITH			DEPART FROM			ENROUTE	ARRIVE AT			DROP OFF		KEY POINTS	INFO RELAYED
Date	No. Pax	Lbs.	Airport/Place	ETD	ATD	ETE	Airport/Place	ETA	ATA	No. Pax	Lbs	Drop-Off Points, Refueling Stops, Flight Check-ins, Pickup Points	TO/FROM
						+							
						+							
						+							
						+							
						+							
						+							
						+							

4. FLIGHT FOLLOWING

( ) FAA IFR ( ) Satellite

( ) FAA VFR With Check-in Every ____ Minutes To

( ) FAA or ( ) Agency

( ) Agency VFR With Check-in via radio Every ____ Minutes

Frequency(ies):

5. METHOD OF RESOURCE TRACKING:

( ) PHONE ( ) RADIO

( ) To Scheduling Dispatcher @ _____
(PHONE NUMBER)

( ) Prior to Takeoff ( ) Each Stop Enroute ( ) Arrival At Destination

( ) To: _____ @ _____
(OTHER OFFICE) (PHONE NUMBER)

7. ADMINISTRATIVE

Type of Payment Document:

( ) OAS-23 or ( ) OAS-2

( ) FS 6500-122

OTHER:

Route Document To:

8. REVIEW (if applicable)

___ Hazard Analysis Performed

___ Dispatch/Aviation Mgr Checklist

___ Other:

9. CLOSE-OUT CLOSED BY:

Exhibit 3-2: Example of A Hazard Analysis and Dispatcher/Aviation Manager Flight Planning Checklist (Request/Schedule)

HAZARD ANALYSIS AND DISPATCH/AVIATION MANAGER CHECKLIST

I. MISSION FLIGHT HAZARD ANALYSIS (fire flights exempt provided a pre-approved plan is in place). The following potential hazards in the area of operations have been checked, have been identified on flight itinerary map, and will be reviewed with Pilot and Chief-of-Party prior to flight:

- ☐ Military Training Routes (MTRs) or Special-Use Airspace (MOAs, Restricted Areas, etc.)
- ☐ Areas of high-density air traffic (airports); Commercial or other aircraft
- ☐ Wires/transmission lines; wires along rivers or streams or across canyons
- ☐ Weather factors: wind, thunderstorms, etc.
- ☐ Towers and bridges
- ☐ Other aerial obstructions:
- ☐ Pilot flight time/duty day limitations and daylight/darkness factors

  SUNRISE: ____________

  SUNSET: ____________
- ☐ Limited flight following communications
- ☐ High elevations, temperatures, and weights:

  MAX LANDING ELEV (MSL): ________________

  MIN. FLIGHT ALTITUDE AGL: ________________
- ☐ Transport of hazardous materials
- ☐ Other: ________________________________

  ____

II. DISPATCHER/AVIATION MANAGEMENT CHECKLIST

- ☐ Pilot and aircraft carding checked with source list and vendor; carding meets requirements;
- ☐ OR, Necessary approvals have been obtained for use of uncarded cooperator, military, or other-government agency aircraft and pilots
- ☐ Check with vendor that an aircraft with sufficient capability to perform mission safely has been scheduled
- ☐ Qualified Aircraft Chief-of-Party has been assigned to the flight (noted on reverse)
- ☐ All DOI passengers have received required aircraft safety training;
- ☐ OR, Aviation manager will present detailed safety briefing prior to departure;
- ☐ Bureau Aircraft Chief-of-Party will be furnished with a Chief-of-Party/Pilot checklist and is aware of its use
- ☐ Means of flight following and resource tracking requirements have been identified
- ☐ Flight following has been arranged with another unit if flight crosses jurisdictional boundaries and communications cannot be maintained
- ☐ Flight hazard maps have been supplied to Chief-of-Party for nonfire low-level missions
- ☐ Procedures for deconfliction of Military Training Routes and Special-Use Airspace have been taken
- ☐ Chief-of-Party is aware of PPE requirements.
- ☐ Cost analysis has been completed and is attached
- ☐ Other/Remarks:

III. APPROVALS

Note: Reference Handbook 9420 for approval(s) required.

A. MISSION FLIGHT: HAZARD ANALYSIS PERFORMED BY:

____
Chief-of-Party Signature

B. MISSION FLIGHT: HAZARD ANALYSIS REVIEWED BY:

____
Dispatcher Or Aviation Manager Signature Required

C. IF NON-FIRE, ONE-TIME (NON-RECURRING), SPECIAL-USE MISSION, SIGNATURE OF LINE MANAGER IS REQUIRED **:

________________________ **DATE:** __________

D. THIS FLIGHT IS APPROVED BY (Authorized Signature):

________________________ **DATE:** __________

*** For recurring Special-Use Missions, signature is required on Special-Use Air Safety Plan, and not required here.*

Exhibit 3-3: Elements of a Project Aviation Safety Plan

Supervision. Identify qualified Project Aviation Manager and/or Helicopter Manager

Project name and Objectives. Brief description of the project its objectives.

Justification. Indicate why the project will require the use of aircraft in special-use flight conditions/environments and list the most practical alternative for completion of the project.

Project Dates. Dates project will begin and end. These may be approximate, since exact dates of flights may not be known at the beginning of the year.

Location. Enter descriptive location and include a map clearly showing area where flights will be made; aerial hazards must be clearly indicated.

Projected Cost of Aviation Resources. Enter cost coding, projected flight hours and cost, projected miscellaneous expenses (overnight charges, service truck mileage, etc.), and total cost of project.

Aircraft. If known, identify company(ies) that own(s) aircraft anticipated to be used, registration number, aircraft type, date of aircraft data card expiration and missions for which aircraft is approved.

Pilot. If known, identify pilot(s), type of aircraft qualified in, type of missions qualified for and pilot card expiration date.

Participants. List individuals involved in flights, their qualifications (Helicopter Manager, Passenger, Helibase Manager, etc.), dates of last aviation training, and include individuals' project responsibilities.

Flight Following and Emergency Search-and Rescue. Identify the procedures to be used.

Aerial Hazard Analysis. The project Aviation Manager develops an aerial hazard analysis with attached map. Flights made in confined areas (eg. deep, narrow canyons) require that a prior ground and/or aerial survey of hazards be made. A copy of the hazard map shall be provided to the pilot prior to any project flights. The necessary temporary flight restrictions and coordination with the Federal Aviation Administration and, if appropriate, military authorities, must be accomplished prior to project flights.

Protective Clothing/Equipment. Identify the protective equipment and clothing necessary for the particular operation. Survival equipment (extra water, flotation devices, sleeping bags, etc.) beyond the normal PPE complement may be required.

Load Calculations. The pilot is responsible for the accurate completion of load calculations. Trained aviation personnel shall ensure that aircraft scheduled are capable of performing the mission(s) safely and within the capabilities of the aircraft selected. The Helicopter Manager shall ensure that manifests and load calculations are completed properly.

Exhibit 3-4: Rapid Risk Assessment

A. Is this flight necessary?
B. Who is in charge?
C. Are all hazards identified and have you made them known?
D. Should you stop the operation or flight due to change in:
    1) Conditions?
    2) Weather?
    3) Communications?
    4) Turbulence?
    5) Confusion?
    6) Personnel?
    7) Conflicting Priorities?
E. Is there a better way to do it?
F. Are you driven by an overwhelming sense of urgency?
G. Can you justify your actions.?
H. Are there other aircraft in the area?
I. Do you have an escape route?
J. Are any rules being broken?
K. Are communications getting tense?
L. Are you deviating from the assigned operation or flight?