CHAPTER 3: OPERATIONAL PLANNING.

I. Introduction.

It is essential that all aviation operations be planned with the utmost consideration given to safety and operational efficiency. Missions can be accomplished safely and efficiently, provided that a high degree of planning, risk analysis and management is applied. Many users have developed Standard Operating Procedures (SOPs) that streamline the planning process, incorporate the lessons learned from experience, and use the best practices that balance the demands for safety and efficiency.

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

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

II. Planning.

Every decision you make will be affected by the objectives that are the basis of your mission, and your ability to anticipate and influence events before they occur.

To be effective, objectives must be clear. Simple objectives are usually better, but to be effective they need to be the following:

- Measurable on some quantifiable scale so you can ultimately determine whether the mission was successful.
- Achievable. This doesn't mean it has to be easy. If you're going to mobilize resources, nothing degrades their abilities, motivation, energy or enthusiasm quicker than to give them an impossible task.
- Supportive of the overall goals of the organization.

Preparation is the key to flexibility. You always need to have options. Long term success won’t come if you continually rely on only one course of action. Ask “What if?” questions such as, “What if the flight is delayed? What if the passengers at an intermediate point are late? What if the meals for the spike crews aren’t delivered as scheduled?” Up to fifty percent of your planning process is usually required for contingency planning.

It is easier to do contingency planning in an air-conditioned room in the company of your teammates instead of later when the rotors are turning and the sun is getting close to the horizon. That’s not the time to brainstorm, but the time to execute based on decisions made in the calm comforts of the planning room. You won’t have time to think things through as thoroughly during the mission. The answers to these questions need to be made in the planning stage.

Contingency planning needs to be detailed. Break down your mission into its smallest components and then rank those components on the basis of their importance. What’s going to absolutely stop your progress? What component is essential for the mission to go on? Then work out all the ways something can go wrong to that component and develop your solutions.

At times you will come up with a very difficult situation that won’t have an apparent answer. When this occurs there is a blockage caused by the operational tempo, resources selected, organizational culture, personal priorities, etc. Seek out the underlying cause for the impediment. The process of repeatedly asking the “Why?” of the issue will lead you to options you can explore more fully and get around the mental block. Keep peeling back the layers until the block is removed. Once you’ve got a back-up for every item on the must-have list, you’re ready to execute your mission.

III. Risk Management

Risk management enables personnel at all levels to do exactly what the term implies: manage risks. Risk Management has been defined as the process by which risk assessment results are integrated with political, social, economic and engineering considerations for decisions about the need/methods for risk reduction. This section is directed toward risk management as it applies to helicopter and helibase field operations.

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

0% |------------------------|-------------------------|-----------------------------| 100% (MISHAP OCCURS)
(NO FLIGHT ACTIVITY)
Flight operations are usually well organized and funded, making them one of the safest means of accomplishing work. Alternative methods, such as performing the mission by ground, should always be considered. In every mission there are many decision points such as:

- Planning decisions made in preparation for the mission and planned threat mitigations.
- Management approval for the mission to take place and the controls that management deems necessary to ensure a level of safety commensurate with the benefit of the operation.
- Continual decision making that is necessary to evaluate and respond to changing conditions during the execution of every flight.
- In accordance with Federal Aviation Regulations, the Pilot always retains final authority for the operation when safety of the aircraft and occupants is a factor.

Risk management is an ongoing process that should be integrated into all of these decision making processes.

**A. Risk Management Principles.**

These basic decision making principles must be applied before any anticipated job, task, or mission is performed:

- Accept no unnecessary risk. Unnecessary risk does not contribute to the safe accomplishment of a task or mission. The most logical choices for accomplishing a mission are those that meet all the mission requirements while exposing personnel and resources to the lowest possible risk.
- Make risk decisions at the appropriate level. Making risk decisions at the appropriate level establishes clear accountability. Those accountable for the success or failure of a mission must be included in the risk decision process. Supervisors at all levels must ensure subordinates know how much risk they can accept and when they must elevate the decision to a higher level.
- Accept risk when benefit outweighs cost. Weighing risks against opportunities and benefits helps to maximize unit capability. Even high-risk endeavors may be undertaken when there is clear knowledge that the sum of the benefits exceeds the sum of the costs.
- Integrate risk management into planning and execution at all levels. To effectively apply risk management, leaders at all levels must dedicate time and resources to incorporate risk management principles into the planning and execution phases of all operations. Integrating risk management into planning as early as possible provides the decision maker with the greatest opportunity to apply risk management principles.
B. **Time Element in Risk Management.**

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

1. **Time Critical.** This type of risk management is an “on-the-run” mental or verbal review of the situation using the risk management process without necessarily recording the information. The process is used to consider risk while making decisions in a time limited situation. Many of the skills used in this context are applicable to normal mission where deliberate risk management has occurred and crews must manage risk in a dynamic situation.

   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 **time critical** does not mean “hasty” or “uninformed”.

2. **Deliberate.** 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 time critical risk management; 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, coordinate with the military to de-conflict airspace), and supervise preparations for the mission.

3. **Strategic/In-Depth.** 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 management at this level requires more sophisticated techniques and professional reviews.

   An example would be the Safety Management System testing and implementation of a new aerial firing device, new external load method, or new method of personnel delivery. In these cases, handbooks and operating procedures must also be developed and/or revised.

During mission planning, risk decisions should be made at a level of command that corresponds to the degree of risk. For personnel at the field level a general field appraisal may often be sufficient and may be accomplished through the use of one of the risk management tools that are discussed in Appendix J.

**IMPORTANT NOTE: Risk management tools have been moved to Appendix J.**

Medium-risk decisions should be elevated to a somewhat higher 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 Appendix J for guidance.

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 always have the authority to decline the mission.**

How to Properly Refuse Risk

Every individual (government and contract) has the right and obligation to report safety problems affecting his or her safety and has the right to contribute ideas to correct the hazard. In return, supervisors are expected to give these concerns and ideas serious consideration. **When an individual feels an assignment is unsafe, he or she also has the obligation to identify, to the degree possible, safe alternatives for completing that assignment.** Turning down an assignment is one possible outcome of managing risk.

A “turn down” is a situation where an individual has determined he or she cannot undertake an assignment as given and is unable to negotiate an alternative solution. The turn down of an assignment must be based on assessment of risks and the ability of the individual or organization to control or mitigate those risks. Individuals may turn down an assignment when:

1. There is a violation of regulated safe aviation practices.
2. Environmental conditions make the work unsafe.
3. They lack the necessary qualifications or expertise.

Individuals will directly inform their supervisor that they are turning down the assignment as given. The most appropriate means of documented turn down criteria is using the Aviation Watch Out Situations. See Exhibit 3-4.

The supervisor will notify the Air Operations Branch Director immediately upon being informed of a turn down. If there is no Air Operations Branch Director, notification shall go to the appropriate Section Chief, the Incident Commander, or the local Aviation Manager. Proper handling of turn downs provides accountability for decisions and initiates communication of safety concerns within the incident organization.
If the assignment has been turned down previously and the supervisor asks another resource to perform the assignment, he or she is responsible to inform the new resource that the assignment has been turned down and the reasons why. Furthermore, the personnel need to realize that a turn down does not stop the completion of the assigned operation. The turn down protocol is an integral element that improves the effective management of risk, and it provides timely identification of hazards within the chain of command, and raises risk awareness for both supervisors and subordinates and promotes accountability.

If an unresolved safety hazard exists, the individual needs to communicate the issue/event/concern immediately to their supervisor and document as appropriate, including filing an Aviation Safety Communique (SAFECOM).

IV. 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 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 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 feet 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 feet AGL of the area to identify hazards prior to descent to low level.

2. Special Use. Special use activities are described as operations involving helicopters which require special considerations due to their functional use. This may require deviation from normal operating practices when 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 missions:
   
   - Flights conducted below 500 feet AGL
   - Water or retardant application
   - Parachute delivery of personnel or cargo (not usually performed using helicopters)
• HLCO and Air Tactical Group Supervisor operations
• Aerial ignition activities
• Air Tanker Coordinator operations (not usually performed using helicopters)
• External Loads (Class B, C, or D as defined in 14 CFR 133)
• Night Vision Goggle operations
• Hoversite/Autosurvey
• Rappel
• Short-Haul
• 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

V. 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 and operational requirements.

C. Aerial Ignition.

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

D. Rappel.

The use of rappel 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. **Short-haul**

The use of helicopter short-haul requires agency approval. Training, qualification, and certification shall be in accordance with the current copy of the *Helicopter Short-Haul Handbook*. Tactical use of helicopter short-haul will be determined by the individual agency.

F. **Aerial Capture, Eradication and Tagging of Animals.**

ACETA operations are conducted primarily by DOI bureaus. For these operations, refer to the *ACETA Handbook*. Bureaus may have additional internal guidance. Other agencies conducting ACETA operations may wish to use the handbook as guidance.

G. **Media.**

Transportation of media personnel may be conducted in government helicopters provided media personnel meet the definition of “official passengers”. 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). See Chapter 10.

H. **External Load Operations.**

External load operations include water bucket operations, seeding, sling loads using either lead line/swivel/cargo hook or the swivel/remote electric hook/longline. 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 used.

VI. **Project Flight Planning and Scheduling Process.**

Flight planning involving 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 J through N applicable to both resource/project and incident operations.
A. Elements of the Process.

There are 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.
- A Dispatch/Aviation Manager Checklist and Hazard Analysis performed by the requester (assigned Helicopter/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.
- Standard Aircraft Safety Briefing completed by the Helicopter Manager or Project Flight Manager and Pilot just prior to the flight.
- 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. 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.

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

   - Ensure that recurrent flights in special use environments (primarily flight below 500 feet AGL) are adequately 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 relieve

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3 Note that Office of Management and Budget (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.

4 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).
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, such as 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:

(i) Project Aviation Manager or assigned Helicopter/Flight Manager completes the majority of plan information.

(ii) Dispatcher completes flight following and emergency search and rescue information.

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

(iv) Unit Aviation Manager reviews and recommends.

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

d. Content. As 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 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 is completed jointly by the Helicopter/Flight Manager assigned and the Dispatcher or Aviation Manager. See Exhibit 3-1.
• The Dispatcher and/or unit Aviation Manager completes the Dispatcher/Aviation Manager Checklist. See Exhibit 3-2.

• For special use flights, a Hazard Analysis is completed jointly by the Helicopter Manager or Flight Manager and the Dispatcher or Aviation Manager. See Exhibit 3-2.

• 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 including other dispatch offices, the Pilot, and the Helicopter/Flight Manager. This may be accomplished by automated flight planning and transmission by email, fax or telephone. The Helicopter/Flight Manager is responsible for relaying flight specifics to other passengers.

D. Manifest.

All personnel on the manifest must meet the definition of “air crewmember” or “authorized passenger” and “official passenger.” See Glossary.

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 calculations. 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:
3. Anticipated Environmental Conditions. All environmental factors should be considered when selecting an appropriate helicopter. Temperatures, wind speed and direction, visibility, and local weather anomalies can impact aircraft capabilities, mission profile and fuel burn.

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 lowest 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 plans 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.

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 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 such as 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, 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 they are properly mitigated, require the mission to be changed to avoid identified risks, or 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 identify aerial hazards within and/or near local administrative boundaries so that flight safety awareness by the Pilot, the helicopter manager and passengers is achieved.
c. Applicability. Each unit shall maintain a current aerial hazard map in each location where flight planning, flight tracking and aircrew dispatching 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.

d. 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 including 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/helibases 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.

e. 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. Aviation Manager 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 sub-functions 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 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, Visual Flight Rules (VFR) Airways, etc., which may impact air operations
  - Identifying these areas on the Incident or Project Hazard Map
  - Ensuring all Pilots are briefed on these hazards
- Ensuring that a TFR is in place when appropriate.
  - NOTAMS are advisable for some project work (horse herding, construction longline, etc.)
- Reporting any violations through the SAFECOM reporting system.
- Ensuring the TFR is cancelled 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 not be exceeded. For contractor personnel, limitations are stated in the procurement document.

M. Personal Protective Equipment and Aviation Life Support Equipment.

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 or working around operating helicopters).

N. Communication Plan.

Radio frequencies must be designated for Air-to-Air, Air-to-Ground and Ground-to- Ground operations. Identification of the means of flight following and the methods by which it will be accomplished is an essential part of the communication plan.

VII. 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 using 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 VI.J through VI.N in the previous section are applicable to both project and incident operations.

VIII. Pre-Flight Briefings.

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

IX. 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: Aircraft Flight Request/Flight Schedule

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<thead>
<tr>
<th>AIRCRAFT FLIGHT REQUEST/FLIGHT SCHEDULE</th>
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<tbody>
<tr>
<td>1. INITIAL REQUEST INFORMATION</td>
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<td>2. AIRCRAFT INFORMATION</td>
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<tr>
<td>3. AIRCRAFT INFORMATION</td>
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<tr>
<td>4. FLIGHT FOLLOWING</td>
</tr>
<tr>
<td>5. METHOD OF RESOURCE TRACKING:</td>
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<tr>
<td>6. ADMINISTRATIVE</td>
</tr>
<tr>
<td>7. REVIEW of Specifics</td>
</tr>
<tr>
<td>8. CLOSE-OUT</td>
</tr>
</tbody>
</table>

#### AIRCRAFT INFORMATION
- **Make/Model:** [Insert Make/Model]
- **Serial Number:** [Insert Serial Number]
- **Registration:** [Insert Registration]
- **Color:** [Insert Color]
- **Vendor:** [Insert Vendor]
- **Phone:** [Insert Phone]
- **Pilot(s):** [Insert Pilot(s)]

#### Initial Request Information
- **Initial Date/Time:** [Insert Initial Date/Time]
- **From:** [Insert From]
- **To:** [Insert To]
- **Phone Number:** [Insert Phone Number]

#### Aircraft Information
- **Aircraft #:** [Insert Aircraft #]
- **Vendor:** [Insert Vendor]
- **Phone:** [Insert Phone]
- **Pilot(s):** [Insert Pilot(s)]

#### Flight Following
- **FAA FR:** [Insert FAA FR]
- **FAA VR:** [Insert FAA VR]
- **Agency:** [Insert Agency]
- **Service:** [Insert Service]
- **Service Time:** [Insert Service Time]

#### Method of Resource Tracking
- **Radio:** [Insert Radio]
- **Phone:** [Insert Phone]
- **Satellite:** [Insert Satellite]
- **Agency:** [Insert Agency]
- **Vendor:** [Insert Vendor]
- **Service:** [Insert Service]

#### Flight Itinerary
- **Depart From:** [Insert Depart From]
- **Arrive At:** [Insert Arrive At]
- **ETA:** [Insert ETA]
- **ATD:** [Insert ATD]
- **Drop-Off Points:** [Insert Drop-Off Points]
- **Mail Points:** [Insert Mail Points]
- **Departure Points:** [Insert Departure Points]
- **Return Points:** [Insert Return Points]

#### Administrative Details
- **Route Document To:** [Insert Route Document To]
- **Review of Specifics:** [Insert Review of Specifics]
- **Close-Out:** [Insert Close-Out]

---

*Note: The table contains placeholders for data entry.*
**Exhibit 3-2: Hazard Analysis and Dispatch/Aviation Manager Checklist**

<table>
<thead>
<tr>
<th>Hazard Analysis and Dispatch/Aviation Manager Checklist</th>
</tr>
</thead>
<tbody>
<tr>
<td>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:</td>
</tr>
<tr>
<td>- High elevations, temperatures, and weights:</td>
</tr>
<tr>
<td>- MAX. LANDING ELEV. (MSL):</td>
</tr>
<tr>
<td>- MIN. FLIGHT ALTITUDE AGL:</td>
</tr>
<tr>
<td>- Transport of hazardous materials:</td>
</tr>
<tr>
<td>- Other:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>II. DISPATCHER/AVIATION MANAGEMENT CHECKLIST</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Towers and bridges</td>
</tr>
<tr>
<td>- Other aerial obstructions:</td>
</tr>
<tr>
<td>- Pilot flight time/duty day limitations and daylight/darkness factors:</td>
</tr>
<tr>
<td>- SUNRISE:</td>
</tr>
<tr>
<td>- SUNSET:</td>
</tr>
<tr>
<td>- Limited flight following communications:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>III. APPROVALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>- A. MISSION FLIGHT: HAZARD ANALYSIS PERFORMED BY:</td>
</tr>
<tr>
<td>- B. MISSION FLIGHT: HAZARD ANALYSIS REVIEWED BY:</td>
</tr>
<tr>
<td>- C. IF NON-FIRE, ONE-TIME (NON-RECURRING), SPECIAL USE MISSION SIGNATURE REQUIRED **:</td>
</tr>
<tr>
<td>- D. THIS FLIGHT IS APPROVED BY (Authorized Signature):</td>
</tr>
</tbody>
</table>

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

Note: Reference Handbook §429 for approval/approval requirements.
Exhibit 3-3: Elements of a Project Aviation Safety Plan

Identify qualified Project Aviation Manager and/or Helicopter Manager Project Name and Objectives. Brief description of the project and 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.

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.

Communication Plan, 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 (e.g. 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 and 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 and are completed daily.

Signatures. Appropriate level of approval such as supervisor or line officer.
Exhibit 3-4: Aviation Watch Out Situations

Aviation Watch Out Situations
Is this flight necessary?
Who is in charge?
Are all hazards identified and have you made them known?
Should you stop the operation or flight due to change in conditions?
  – Communications
  – Conflicting Priorities
  – Personnel
  – Turbulence
  – Weather
  – Confusion

Is there a better way to do it?
Are you driven by an overwhelming sense of urgency?
Can you justify your actions?
Are there other aircraft in the area?
Do you have an escape route?
Are any rules being broken?
Are communications getting tense?
Are you deviating from the assigned operation or flight?