U.S. Department of Transportation
Federal Aviation Administration

Advisory Circular

Subject: Enhanced Flight Following Center (EFFC) for Commercial Air Tour Operators

Date: DRAFT
Initiated by: AFS-200

AC No: 136-EFFC
Change:

Commercial air tours are conducted throughout the United States, encompassing diverse terrains, including parts of the National Park Service (NPS) system. Title 14 of the Code of Federal Regulations (14 CFR) § 136.1 defines a "commercial air tour" as a "flight conducted for compensation or hire in an airplane, powered-lift, or rotorcraft where a purpose of the flight is sightseeing," for which the Federal Aviation Administration (FAA) may consider several factors in determining whether a flight is classified as a commercial air tour. This part also defines a "commercial air tour operator" as "any person who conducts a commercial air tour."

Following a fatal accident on June 25, 2015, in the state of Alaska, while the operator was conducting commercial air tour operations, the National Transportation Safety Board (NTSB) issued Safety Recommendation (SR) A-17-040. The recommendation urged the FAA to publish an advisory circular (AC) that provides guidance on operational control best practices, including, but not limited to, areas such as risk mitigation strategies, joint flight safety responsibilities, prior experience of operational control personnel, and operational control personnel duty time limitations.

In response to the NTSB SR, the FAA developed this AC to provide information and guidance and describes an acceptable means (but not the only means) for creating or implementing an Enhanced Flight Following Center (EFFC).

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CHAPTER 1. GENERAL

1.1 Purpose of This Advisory Circular (AC). This AC was created in response to safety recommendations proposed by the National Transportation Safety Board (NTSB) as a response to an accident which occurred in the state of Alaska. This document provides information and recommendations to commercial air tour operators on the creation of an Enhanced Flight Following Center (EFFC). In addition, the development, implementation, and integration of enhanced flight-following procedures for improved operational control. The creation of an EFFC is one way to incorporate positive safety procedures and comply with the requirements of Title 14 of the Code of Federal Regulations (14 CFR) § 135.79.

Note: This is a guidance document. Its content is not legally binding in its own right and will not be relied upon by the Department as a separate basis for affirmative enforcement action or other administrative penalty. Conformity with the guidance document is voluntary only. Nonconformity will not affect rights and obligations under existing statutes and regulations.

1.2 Audience. This AC is applicable to and may be used by existing and prospective 14 CFR part 91 operators and 14 CFR part 119 certificate holders (CH) who are currently conducting or intend to conduct commercial air tour operations in accordance with 14 CFR part 136. This AC is applicable to all sizes, scopes, or types of operators, their employees, and others associated with commercial air tours.

1.3 Where You Can Find This AC. You can find this AC on the Federal Aviation Administration's (FAA) website at https://www.faa.gov/regulations_policies/advisory_circulars and the Dynamic Regulatory System (DRS) at https://drs.faa.gov.

1.4 Related 14 CFR Parts. Parts 1, 61, 91, 93, 119, 120, 135, and 136.

1.5 Definitions, Abbreviations, and Descriptions.

1.5.1 Accident/Incident Plan (AIP)/Post-Accident/Incident Plan (PAIP). Emergency response procedures should serve as a foundation for training or a reference in the event of mishaps or emergencies. Typically, this plan is contained within the operator's General Operations Manual (GOM) or standard operating procedures (SOP).

1.5.2 Enhanced Flight Following Center (EFFC) for Commercial Air Tour Operators. An EFFC is a dedicated facility staffed by trained Operations Control Specialists (OCS). While EFFCs are not mandated by regulations, they are highly recommended for all commercial air tour operators.

1.5.3 Flight Locating. For the purposes of this AC, and similar to what is described under 14 CFR § 135.79(a)(1), (2), and (3), flight locating procedures should be designed to provide:

- The CH or operator with at least the information required to be included in a visual flight rules (VFR) flight plan;
- For timely notification of an FAA facility or search and rescue facility, if an aircraft is overdue or missing; and
- The CH or operator with the location, date, and estimated time for reestablishing communications if the flight will operate in an area where communications cannot be maintained.

> **Note:** Title 14 CFR § 135.79 requires flight locating procedures for CHs operating under 14 CFR part 135. While the adoption of flight locating procedures are not required for flight operations conducted under 14 CFR part 91, the FAA recommends that all commercial air tour operators consider the recommendations in this AC and also consider the adoption of flight locating procedures as part of their EFFC operating procedures.

1.5.4 Flight Monitoring. Active contact with an aircraft throughout all phases of a flight, including time on the ground, either through voice radio contact with the pilot or through automated flight monitoring systems.

1.5.5 Operations Control Specialist (OCS). A term which may be used for an individual who provides operational support for the air tour operations. An OCS interfaces with the pilot(s) prior to each flight and, as necessary, during flight.

Note: For definitions and abbreviations used in this AC that are not included in the list of definitions and abbreviations above, please refer to the related documents and regulations listed in paragraph 1.6 below and in AC 120-96, Operations Control Center (OCC) for Helicopter Air Ambulance (HAA) Operations.

1.6 Related Source Material. This list identifies some, but not all, published documents that may be applicable to commercial air tour operations.

- Current editions of ACs can be found on the FAA website at https://www.faa.gov/regulations_policies/advisory_circulars/.
- Current editions of FAA handbooks can be found on the FAA website at https://www.faa.gov/regulations_policies/handbooks_manuals.

1.6.1 ACs (current editions):

1. AC 60-22, Aeronautical Decision Making.
2. AC 90-48, Pilots' Role in Collision Avoidance.
3. AC 90-114, Automatic Dependent Surveillance-Broadcast Operations.
4. AC 90-117, Data Link Communications.

5. AC 91-32, Safety In and Around Helicopters.
6. AC 91-36, Visual Flight Rules (VFR) Flight Near Noise-Sensitive Area.
7. AC 91.21-1, Use of Portable Electronic Devices Aboard Aircraft.
8. AC 120-27, Aircraft Weight and Balance Control.
9. AC 120-51, Crew Resource Management Training.
10. AC 120-78, Electronic Signatures, Electronic Recordkeeping, and Electronic Manuals.
11. AC 120-92, Safety Management Systems for Aviation Service Providers.
12. AC 120-96, Operations Control Center (OCC) for Helicopter Air Ambulance (HAA) Operations.
13. AC 136-1, Commercial Air Tour Operations Conducted Over National Parks and Tribal Lands.
14. AC 136-2, Recommended Aircraft Maintenance Practices for Commercial Air Tour Operators.

1.6.2 Handbooks and Manuals (current editions):

- FAA-H-8083-3, Airplane Flying Handbook.
- FAA-H-8083-16, Instrument Procedures Handbook.
- FAA-H-8083-21, Rotorcraft Flying Handbook.
- FAA-H-8083-28, Aviation Weather Handbook.
- Aeronautical Information Manual (AIM) (published by the Department of Transportation (DOT)/FAA).

1.6.3 Pamphlets (current editions):

- DOT/FAA/PM-86/45, Aeronautical Decision Making for Helicopter Pilots.
- Flying in Flat Light and White Out Conditions.

1.6.4 Operations Specifications (OpSpecs)/Letters of Authorization (LOA) (current editions). OpSpecs and LOAs are issued to the commercial air tour operators to authorize certain types of air tour operations, (e.g., operations over or within national parks under 14 CFR part 136 or commercial air tour operations conducted under 14 CFR § 91.147).

Note: Not all OpSpecs or LOAs apply to all commercial air tour operators. For specific OpSpec/LOA information, refer to FAA Order 8900.1, Volume 3, Chapter 18.

1.7 AC Feedback Form. For your convenience, the AC Feedback Form is the last page of this AC. Note any deficiencies found, clarifications needed, or suggested improvements regarding the contents of this AC on the Feedback Form.

CHAPTER 2. ENHANCED FLIGHT FOLLOWING CENTER (EFFC) FUNCTIONS

2.1 Regulatory Requirements. There are no specific regulatory requirements associated with EFFCs for commercial air tours. However, to promote safety in the National Air Space (NAS), the FAA strongly encourages commercial air tour operators to establish an EFFC as an additional safety enhancement to their existing programs and manuals.

2.2 Core Concepts—EFFC and Operational Control Procedures. There are three core concepts that define an effective EFFC with enhanced operational control procedures.

2.2.1 Joint Flight Safety Responsibility. The first core concept is to establish a joint flight safety responsibility for each commercial air tour operation. Joint responsibility conveys ownership of the flight by all involved. The joint flight safety responsibility concept should include at least one qualified ground staff member, in addition to the pilot in command (PIC), to be actively involved in determining whether a flight can be completed safely. This involvement may include reviewing pilot and aircraft readiness (pilot currency, medical, and checkride status, aircraft airworthiness) current and forecast weather, Weight and Balance (W&B), and aircraft performance analysis, along with other risk factors and concurring with a risk analysis in accordance with a risk analysis program.

2.2.1.1 The EFFC should be staffed with trained personnel, referred to in this AC as Operations Control Specialists (OCS), who continuously provide safety input to each flight by monitoring factors affecting flight safety before, during, and after completion of every single flight.

2.2.1.2 The OCS personnel on the ground may provide additional Crew Resource Management (CRM) support for pilots during an emergency or situations where there is a potential for an emergency to occur, such as unforeseen weather or potential, unexpected airspace congestion of a known site-specific area.

2.2.2 Standard Operating Procedures (SOP). The second core concept is the development and implementation of documented SOPs that are used to guide training and to standardize EFFC operations. The FAA recommends OCS involvement in the creation of the operator's SOPs. OCS involvement in the SOP process will likely result in organizational efficiency. These SOPs may be contained in the operator's General Operations Manual (GOM), which is required for 14 CFR part 135 operators. In the same manner, OCS training may be a part of the operator's Training Program Manual (TPM) or procedures may be self-contained in standalone documents.

2.2.3 Leveraging Technology and Communication. The third core concept of an EFFC is to enhance operations control procedures by leveraging advanced technology to continuously track and monitor all aircraft operations with the purpose of augmenting safety and efficiency. This technology should only be implemented if it provides an improved level of situational awareness to the PIC and the OCS personnel. An EFFC

may implement multiple forms of technology to provide communication and safety benefits to commercial air tour operations.

2.2.3.1 **Example.** For example, an EFFC may be able to acquire weather information for situational awareness purposes from non-aviation sources that do not feed into the National Weather Service (NWS) database. This information may come from a variety of non-aviation-related weather sources available at the EFFC, such as telephone calls, local television (TV) stations, state Department of Transportation (DOT) roadside weather monitoring stations, non-government weather cameras, etc., which should be used to enhance situational awareness and "no-go" decision making only. Such non-NWS/FAA sources may not be used for "go" decisions.

2.2.3.2 **Provision of Situational Awareness Information.** Operators are highly encouraged to implement advanced communication technology and Global Positioning System (GPS) tracking in their tour aircraft. To best utilize an EFFC, the operator should establish a tracking system and document procedures for acquiring and providing situational awareness information to the PIC via direct communication from the OCS or via relay through other individuals. Leveraging technology and communications is key to reducing risks associated with commercial air tour operations.

2.3 EFFC Models. Many physical configurations are possible depending on the size and scope of the operator. The EFFC provides a physical location where the OCS and any other personnel can access information technologies to assist the PIC.

2.3.1 Locations. EFFCs may be co-located with a communications center that schedules flights, passes flight information to the pilot, and performing flight monitoring, etc. Alternatively, EFFCs may be located at one central site with one or more remotely sited communications centers that communicate flight information to the EFFC through various means.

2.3.2 Communication. Several key concepts should be considered regardless of the physical relationship between the EFFC and communications centers:

2.3.2.1 Direct communications between the EFFC and the PIC through the communications center should only be used for flight advisory information critical to flight.

2.3.2.2 The OCS should establish two-way communication with the PIC of the commercial air tour, if possible. This may occur through direct communication or established indirect procedures, such as relay through the communications center. The OCS should have the means available to immediately and directly communicate critical in-flight information or weather changes to the in-flight pilot. Additionally, the OCS should evaluate and concur or not with the pilot's mitigation plan (e.g., turn around, land offsite, divert, deviate from planned course, etc.). The OCS should also

possess a means of continually updating the risk analysis due to changing conditions to relay dynamic updates and collaborate on flight plan changes that may not have been considered at the beginning of the commercial air tour.

2.4 EFFC Facilities.

2.4.1 Hardware and Software Resources. A well-functioning EFFC should be equipped with sufficient hardware and software resources for effective flight monitoring and operational control. This includes:

2.4.1.1 Enabling technologies (e.g., internet access, non-FAA weather resources, digital signature capabilities for form completion, computers, cellphones, TV, etc.).

2.4.1.2 Ground-based aircraft situational displays (ASD) depicting the position and status on a viewable display (e.g., large computer monitor, laptop computer, tablet, phone, etc.) of all certificate holder (CH) commercial air tour flights and other local operator flights, as well as non-air tour flights airborne inside the air tour airspace from all aircraft transmitting Automatic Dependent Surveillance-Broadcast (ADS-B) Out or from linked GPS trackers.

2.4.1.3 Aviation weather analysis tools (e.g., textual, graphical, Geographic Information System (GIS)-enabled, and weather cameras).

2.4.1.4 Notice to Airmen (NOTAM) tools (both textual and graphical).

2.4.1.5 Air traffic flow tools (e.g., temporary flight restrictions (TFR), special-use airspace, Special Areas of Operation, military operations airspace, high-density congested airspace, warning areas, and weather watch boxes).

2.4.1.6 Communication tools (e.g., telephones, email, datalink, radio, Voice, or Radio over Internet Protocol (VoIP/RoIP) capabilities), satellite communications (SATCOM), and advanced communication consoles.

2.4.1.7 Non-aviation situational awareness tools capable of accessing weather cameras or TV capable of receiving cable news channels. These tools should be used solely for situational awareness and making a "no go" decision.

2.4.1.8 In the event of a national security emergency or local disaster, news, websites, and phone lines (both landlines and cellular phones) may become inoperative due to the sheer volume of people trying to simultaneously access these resources. Therefore, news broadcasts delivered via TV may be the best means of acquiring information regarding the airspace where air tour flights may be directed to immediately land, other areas where flights might be prohibited, and as a tool to locate an aircraft in distress or that have been involved in an accident.

2.4.2 Scoping of EFFC Facilities and Capabilities. Regardless of the organization's size, EFFC concepts should be carefully planned and implemented to avoid unintended gaps or errors that may result in actions or omissions detrimental to safety. The following guidelines are provided to assist the operator in avoiding such failures:

2.4.2.1 Establish and document applicable governing policies, procedures, and personnel training curriculum, which may be included in the operator's GOM or in the training program.

2.4.2.2 Demonstrate the maintenance of operational control and PIC responsibility and authority is maintained, ensuring safety is not compromised due to delegation of duties to staff members without proper OCS training.

2.4.2.3 Smaller operators may incorporate EFFC functions within their operational control system, with staff members providing OCS type services after receiving appropriate training.

2.4.2.4 Create SOPs suitable for the size and scope of the operation.

2.5 EFFC Physical Space Design Considerations. Consideration of human factors and physical space considerations should be considered when designing the layout of an EFFC for multiple aircraft operations.

2.6 EFFC Technology and Design Considerations.

2.6.1 Failure and Redundancy Considerations for Both Systems and Processes. As technology becomes increasingly integral to flight operations, the potential for its failure raises concerns. It is important to proactively plan for technology failures and implement redundant systems and processes. This ensures that contingency systems can deliver results without compromising the safety of normal operations or, when necessary, emergency operations. In addition to planning for temporary or minor failures and outages, comprehensive planning should also account for major technology failures. The development of an EFFC information technology (IT) disaster recovery plan is important to the success of an effective EFFC. This plan should be well-documented, and EFFC staff should periodically practice contingency operations, so they are prepared for such eventualities.

2.6.2 Common Technology Interruptions. When developing, implementing, and integrating an EFFC, it is important to plan for common technology interruptions. These include:

- Electrical power outages (localized to the building, the local area, or to a broader geographic area).
- Internet Service Provider (ISP) or ISP connectivity outages.
- Virus protection and firewalls to prevent system hackers.

2.6.3 ISP Connectivity. Software applications utilized by EFFCs are increasingly shifting to web-based platforms. Consequently, if an EFFC loses internet connectivity, web-based

applications become inoperative. The FAA recommends EFFCs to maintain at least two wholly independent internet access connections. For example, a primary internet source can be supported with a cellular system, such as a remote hot spot.

2.6.4 Phone Numbers. In the event of a Local Area Network (LAN) or local workstation failure, electronically accessible phone numbers may become inaccessible (see Appendix B, Diagrams and Examples, for examples of operator and out-of-company contact lists). Consequently, it is recommended to maintain hard copies of all phone number lists at each workstation.

2.6.5 Flight Monitoring. Flight monitoring processes often rely on electronic applications or specialized communication equipment (e.g., radio, data link, SATCOM, etc.). These specialized flight monitoring technologies, in turn, often rely on internet or LAN connectivity or both within the data chain to transmit the aircraft location information to personnel responsible for flight monitoring functions. Therefore, it is important that an operator establishes and documents alternate flight locating procedures in the event the primary flight monitoring application and procedures become inoperative. Alternate flight monitoring processes typically involve alternate communication methods for tracking the aircraft, such as communicating with outstations, other aircraft, air traffic control (ATC), Flight Service Station (FSS), etc. The acceptable industry standard for flight monitoring is for all aircraft to update their position (electronically or verbally) every 15 minutes or less (see Appendix B for a flight monitoring procedures flowchart example).

2.7 Emergency and Abnormal Operations. Commercial air tour operators should establish and document procedures that most effectively leverage EFFC resources in response to abnormal or emergency operations before they occur. The following are some of the situations that may be encountered followed by possible solutions:

2.7.1 Partial or Full Loss of EFFC Function. Clearly defined procedures should address the effective management of partial or full shutdown of an EFFC. This encompasses handling scenarios such as power failure, loss of primary ISP connectivity, or instances requiring a complete evacuation due to emergencies such as fire, snow, earthquake, hurricane, tsunami, tornado, flood, etc. Computers, tablets, phones, and other essential equipment should be immediately available for the OCS to quickly execute a "grab and go" should an emergency evacuation be necessary.

2.7.2 Unavailable Facilities. Contingency plans should be in place for situations where local facilities are unavailable for relocating the EFFC. During such circumstances, operators should consider holding a temporary moratorium on launching new flights in anticipation of events that may trigger a EFFC temporary shutdown or a complete recall. This may involve temporarily transferring EFFC duties to alternative EFFC facilities or mobile resources until a suitable alternate EFFC facility is established.

CHAPTER 3. OPERATIONS CONTROL SPECIALIST (OCS) DUTIES AND RESPONSIBILITIES

3.1 OCS Duties and Responsibilities. Each commercial air tour operator should describe in their General Operations Manual (GOM) or other FAA-accepted document the duties and responsibilities of an OCS. This includes preflight risk mitigation strategies, risk control measures, and the use of a shift change checklist. The level of operational control authority delegated to the OCS should be clearly defined in the commercial air tour operator's GOM (for 14 CFR part 119 certificate holders (CH)) or described in Operations Specifications (OpSpec) A008, Operational Control, if applicable. Operators must also ensure that each person authorized to exercise operational control are listed in the GOM in accordance with 14 CFR § 135.23(a). The minimum duties of an OCS should include:

3.1.1 Operational Control. The commercial air tour operator should authorize each OCS to exercise operational control, directing the pilot to decline, divert, abort, or reroute the flight. The OCS should not provide opinions to the pilot suggesting that a flight can be initiated or completed when weather is a factor. Likewise, in the opinion of the pilot, whenever a flight should not be initiated or continued due to weather or other safety factors, the OCS should not suggest or direct otherwise.

Note: One principle employed by several operators is the OCS should follow the "advise, suggest, direct" concept, advising the pilot of any potential hazards along proposed routes, suggesting possible mitigation strategies, and, if needed directing the commercial air tour pilot to decline, divert, or terminate the flight.

3.1.2 Communications. Ideally, the OCS should communicate directly with the commercial air tour pilot via radio or other means to provide weather advisories and notifications of other factors affecting the overall safety of the flight. If direct communication is not possible between the OCS and pilots, a secondary means through a communications center staffed by trained communications specialist (CS), should be available. These procedures should be incorporated into the CH's GOM or other written standard operating procedure (SOP). If communications between the air tour pilot and OCS are expected and there is a loss of communication, the operator should be prepared to activate the Accident/Incident Plan (AIP).

3.1.3 Weather Reporting. The OCS may provide pilots with weather briefings, to include current and forecasted weather along the planned route of flight. While the OCS may obtain weather from non-National Weather Service (NWS)/FAA weather sources to aid in situational awareness, only information derived from the NWS or other FAA-approved sources will be used in making "go" decisions. However, any weather source that is relevant to the safety of flight should be used for advisories as a flight progresses. This information may be relayed to the pilot by an appropriately trained OCS.

3.1.4 Monitor the Progress of the Flight. The OCS should monitor the progress of each commercial air tour flight. This may be accomplished through a variety of means, including satellite tracking, position reports, etc. Weather conditions in the area(s) of

operation should be monitored, and methods communicating adverse or forecast deteriorating weather conditions to the pilot should be established. In the event the OCS cannot directly monitor a flight's progress via satellite or other graphic means, commercial air tour operators should have established procedures for monitoring the flight via position reports or other means.

3.1.5 Preflight Risk Analysis. EFFC personnel/pilots should be trained in basic risk analysis, with the ability to stop or terminate a flight as risk dictates. The analysis is ongoing as flights progress and conditions change. If the risk level increases as the day/flight progresses, the appropriate higher risk approval authority should be immediately notified to approve, mitigate, or terminate continued operations.

3.1.6 Risk Analysis. Risk analysis is a continuous and iterative process encompassing risk assessment, mitigation, and reassessment. The risk assessment phase is a key element within the broader risk analysis process. This involves identifying hazards, calculating the probability of their occurrence, and determining the likely severity of outcomes should a hazard occur.

3.1.7 Risk Mitigation. Risk mitigation and its effectiveness in reducing risk is an essential component of the risk analysis program. In cases where the risk assessment rates a particular risk element as high, preplanned and preapproved mitigations may be advisable. Risk mitigations should not be improvised at the time of need to prevent unintended consequences. Following application of effective mitigation measures, both individual and total residual risk factors should be reassessed. This risk mitigation/reassessment cycle should be repeated until all higher risks are effectively mitigated.

3.1.8 Risk Threshold. Each individual risk element is evaluated against the operator's predetermined risk threshold and aggregated into a total risk score after applying approved mitigation strategies. This total risk is then compared to the operator's predetermined aggregate threshold. If the final aggregate residual risk or individual risk elements or both exceed the operator's predetermined thresholds, a higher level of operator management approval (above the OCS) should be sought. If this approval cannot be obtained, the flight should be declined.

3.1.9 Participation of Personnel. The OCS should participate in preflight risk analysis, providing essential preflight information and should limit their approval to low-risk scenarios, typically routine commercial air tour flights with minimal risk. Unmitigated risks above the low level should be forwarded to upper-level management (e.g., Director of Operations (DO), Chief Pilot, etc.) for consideration in accordance with company procedures.

3.1.9.1 The OCS should ensure the pilot completes all items on the operator's preflight risk analysis worksheet. Procedures for determining the minimum items for the risk analysis should be clearly outlined in the operator's risk analysis program.

3.1.9.2 The OCS should verify the pilot's completion of all items on the preflight risk analysis worksheet. Additionally, they should assist the pilot in mitigating any identified risks prior to takeoff. If communication systems are available and maintained, the OCS can provide real-time information during flight in case of unexpected changes in conditions.

3.1.9.3 Risk mitigation strategies offered by the OCS should be presented as validated options previously endorsed by the operator. Ad hoc risks mitigation may lead to unintended consequences. It's important to note, the PIC ultimately decides the acceptability of the recommended risk mitigation strategies. Conversely, the OCS should assess mitigation strategies proposed by the PIC and have the authority to direct the PIC to decline or abort a flight if, in their opinion, the proposed risk mitigation is inadequate, inappropriate, or if the residual risk remains excessive.

3.1.9.4 Operators are encouraged to document the use of mitigation strategies and their impact on the safe conduct of a flight.

3.1.9.5 The air tour operator should establish a procedure for OCS acknowledgment in writing, specifying the accurate completion date and time of the preflight risk analysis worksheet. According to the OCS's professional judgment, this documentation should confirm that the flight can be conducted safely.

3.1.9.6 The method of acknowledgement may vary as specified by the commercial air tour operator in their risk analysis program. This acknowledgement can be on the same risk analysis worksheet completed by the PIC or on a separate record. The record needs to include the acknowledgement date and time, sufficient information to identify the PIC, the flight date, the flight route details, confirmation of accurate completion of the preflight analysis worksheet, and the OCS's professional judgment that the flight may be conducted safely, along with any other information deemed appropriate by the CH. The method of acknowledgement may be in writing, electronic, etc., as specified in the risk analysis program.

3.1.9.7 When, in their professional opinion, the OCS cannot concur that a flight can be conducted safely, the OCS should direct the PIC not to accept the flight. If the OCS observes changes in the risk analysis factors during a commercial air tour operation, the OCS should advise the PIC, recommend possible mitigation strategies, and, if the risk becomes unacceptable, direct the PIC to divert or abort the flight. This OCS authority should be documented in the CH's or operator's risk analysis program and GOM or other FAA-accepted document, as applicable.

Note: Chapter 7, Risk Analysis Tool, provides additional information related to the purpose, suggested use, of a risk analysis tool, and an example of a risk assessment matrix.

3.1.10 Emergency Assistance Capabilities. The OCS plays an important role in providing emergency assistance to PICs during emergency situations, such as an encounter with inadvertent instrument meteorological conditions (IIMC), if equipped with advanced communication technology. Two-way communication systems have the potential to enhance situational awareness, preventing unknown IIMC encounters for the pilot. In many circumstances, the OCS may observe the aircraft's position and maintain communication with the PIC when the aircraft is below air traffic control (ATC) radar and communications coverage. Under these circumstances:

3.1.10.1 The OCS may need to relay crucial information to ATC regarding an aircraft declaring an emergency and the pilot's intentions.

3.1.10.2 Additional communication resources enable active OCS personnel to deliver accurate weather information or route recommendations to airborne aircraft. This capability is important and crucial for a commercial air tour to avoid or navigate away from severe or deteriorating weather conditions. In certain situations, the OCS may be the only means by which the PIC can receive accurate weather information or route recommendations to escape severe or deteriorating weather conditions.

Note: The utilization of advanced communication technology by the OCS can significantly contribute to the overall safety of the flight, providing timely and critical information to the PIC, especially in emergency scenarios. The OCS's ability to relay information to ATC and offer real-time guidance enhances the operational response and decision-making capabilities during unforeseen events, ultimately ensuring the well-being of the flight and its passengers.

3.2 OCS Shift Change and Relief Procedures. Commercial air tour operators should develop a shift change and relief checklists for use by OCS personnel during shift changes. Procedures for briefing the incoming OCS on ongoing and upcoming commercial air tour operations should be developed, documented, and regularly trained. The shift change checklist should, at a minimum, encompass the following:

- Active ongoing commercial air tour operations.
- Weather affecting possible flight areas.
- Temporary flight restrictions (TFR).
- Technology anomalies to include "COMMUNICATION" and "INTERNET" status.
- New flight operations policies, manual changes, etc., that have taken effect since the last shift for an oncoming OCS.

Note: Refer to AC 120-96, Operations Control Center (OCC) for Helicopter Air Ambulance (HAA) Operations, for additional OCS shift change procedures.

3.3 OCS Interfaces. Some commercial air tour operators may view it as a best practice for the OCS to transmit routine, noncritical information to the PIC through the communications center. This practice ensures that all involved parties (OCC, pilot, and any other EFFC personnel) are aware of information being provided and potential route deviations resulting from OCS suggestions or direction. Refer to AC 120-96, Chapter 3, Paragraph 3.2, OCS Shift Change/Relief Procedures, for additional information.

3.3.1 Direct Communications. In cases where the OCS is performing tasks such as those listed in 14 CFR § 135.619(a) and needs information from or intends to pass information to the pilot, the OCS will normally communicate directly with the PIC. This direct communications link is crucial, especially in time-critical situations or when technical discourse is necessary to reach a consensus position regarding risk analysis or weather options. It is recommended that the OCS promptly informs the communications center of the nature of the communication and any potential impacts on the commercial air tour operation as soon as it becomes feasible.

3.3.2 Non-Normal Event. The EFFC should be notified by all employees or personnel any time they are made aware of an out-of-the-ordinary event during a commercial air tour flight. Such events include diversions, precautionary landings, or any occurrences deemed appropriate by the operator. These notification processes should be thoroughly documented in the operator's GOM or any other accepted document or SOP. This documentation ensures a comprehensive record of non-normal events and supports subsequent analysis and improvement of operational procedures.

Note: The primary interface between the OCS and the PIC tour operations occurs primarily before the commercial air tour flight and at the termination of the flight. Direct communication during any portion of the flight between the EFFC/OCS should be limited to matters related to the safety of the flight.

3.4 Accident/Incident Procedures. Procedures for the OCS to follow in the event of an overdue aircraft, or if an aircraft is known to have been involved in an accident or incident, should be thoroughly documented in the GOM or SOP. These procedures should include steps for notifying appropriate company personnel, as well as emergency medical services (EMS), fire, and police, if necessary, in the area where the aircraft is believed to be located. It is recommended that the OCS maintain a comprehensive listing of all EMS, fire, and police dispatch centers, along with their phone numbers for the areas where commercial air tour operations are typically conducted at the OCS workstation.

3.4.1 Task Delegation. The OCS may delegate some tasks related to the Post-Accident/Incident Plan (PAIP) to other EFFC personnel. If this delegation occurs, it should be noted in the PAIP documentation.

3.4.2 Overdue Aircraft. See Appendix B, Diagrams and Examples, for an overdue aircraft flowchart example to supplement GOM accident notification procedures.

3.4.3 Human Factors. Operators should also consider the human factors associated with OCS staff involvement in risk analysis or other activities preceding an accident or incident and the impact of this involvement on the OCS's ability to effectively continue in their duties.

3.4.4 OCS Involved With an Accident/Incident. In the event that an OCS involved with a flight (e.g., having concurred with and signed off a personal Flight Risk Assessment Tool (FRAT), advised a pilot of inclement weather, or directed a diversion) subsequently experiences an accident or incident, it is recommended that the OCS be temporarily relieved of duty. The operator may choose to establish a policy ensuring that the individual receives adequate debriefing, appropriate counseling, and sufficient time to resolve the psychological trauma associated with peripherally involved in an accident or incident. The manager responsible for EFFC operations should review the OCS's fitness for duty before authorizing the return of the OCS to their duties.

CHAPTER 4. OPERATIONS CONTROL SPECIALIST (OCS) TRAINING

4.1 Training General. Although not required by regulation for commercial air tour operations conducted under either 14 CFR part 91 or 135, commercial air tour OCS personnel should be trained in accordance with a training program established by the operator. Ideally, OCS personnel should be pilots experienced in commercial air tour operations.

4.1.1 Initial Training. Prior to performing the duties of an OCS, each individual should satisfactorily complete the commercial air tour operator's OCS initial training program. Documentation of initial OCS training documents should be maintained and retained for the entire duration of their employment and 90 days thereafter.

4.1.2 Recurrent Training. After completing initial training satisfactorily, each OCS should complete recurrent training every 12 months, focusing on the topics outlined in the operator's training program. It is recommended to maintain and retain documentation of recurrent training for a minimum of 12 months unless superseded by more recent training.

4.2 Training Subjects. The recommendations below serve as a guide for developing commercial air tour OCS training.

4.2.1 Training Elements. In conjunction with initial classroom or computer-based training, OCS candidates should pass an operator-specific knowledge test. Initial training may adopt a scenario-based approach, incorporating one-on-one supervised sessions or coached on-the-job training (OJT), or both, leading to the operator-specific practical test. Throughout OJT, the OCS instructor should be cognizant of and responsible and accountable for all actions undertaken by the OCS candidate under their direct and continuous supervision. Recurrent training should include periodic abnormal/emergency procedures drills, and both training and testing should be completed before the end of the twelfth calendar month since the last test was conducted.

4.2.2 Instructors. Individuals authorized by the commercial air tour operator to facilitate OCS training and testing should possess experience as OCS personnel or be individuals recognized as suitable and knowledgeable by the commercial air tour operator. Initial OJT should be conducted by specifically designated and current OCS trainers, and this authorization should be outlined by position or individual name in the OCS training program.

4.2.3 Training Hours. The training program should allocate sufficient hours of instruction to comprehensively cover the topics specified within the training program. One approach to determining necessary training hours for various topics may be conducting a knowledge assessment by the prospective OCS. This assessment can gauge the prospective OCS's depth of knowledge in various areas, and the results may inform the appropriate allocation of training hours to ensure a thorough understanding across all subject areas.

4.3 Training Topics. The OCS training program should cover the following topics:

4.3.1 Operations Control Specialist (OCS).

- Duties and responsibilities.
- Operational control, concepts, and definition.

4.3.2 Aviation Weather.

- General meteorology.
- Prevailing weather.
- Adverse and deteriorating weather.
- Wind shear.
- Use of aviation weather products available to the operator.
- Cue-based weather training.
- Available sources of information.
- Weather minimums (see Figure 7-1, Risk Assessment Matrix Reflecting Quantification of Factors).

4.3.3 Navigation.

- Navigational Aids (NAVAID).
- Instrument approach procedures (IAP).
- Navigational publications.
- Navigation techniques.

4.3.4 Flight Monitoring.

- Maps/charts.
- Operators commercial air tour routes.
- Local points of interest and checkpoints on navigational publications.
- Local area hazards.
- Primary flight monitoring procedures (specific to operator as per General Operations Manual (GOM)/standard operating procedure (SOP)).
- Alternate flight monitoring procedures (if applicable).

4.3.5 Air Traffic Control (ATC).

- Airspace.
- ATC procedures.
- Aeronautical charts.
- Aeronautical data sources.
- ATC basic information.
- Who they are and what they do.
- How to contact local ATC in case of an emergency or loss of communication with a pilot.

4.3.6 Aviation Communication.

- Available aircraft communications systems (e.g., very high frequency (VHF), satellite capable, etc.).
- Operator-specific capabilities and what they can do.
- Limitations of aircraft communication.
- Areas of line-of-sight communication.
- Areas without line-of-sight communication.
- Other sources of communication.
- Relayed communication.
- Normal communication procedures.
- Abnormal communications procedures.
- Emergency/alternate communication procedures.

4.3.7 Aircraft Systems. The operation should consider that specific aircraft limitations may require increased levels of operational control, with considerations tailored to each aircraft in a nonstandardized fleet. In other words, less-equipped aircraft necessitate more meticulous management. The following are suggested topics for OCS personnel. It is important to note that this information is presented at a basic level suitable for the operation of commercial air tours.

- Communications systems (company aircraft capabilities, see paragraph 4.3.6 above).
- Navigation systems.
- Surveillance systems.
- Specialized systems (if applicable).

- General maintenance.
- Minimum equipment lists (MEL) (if applicable).

4.3.8 Aircraft Limitations and Performance.

- Aircraft operational limitations.
- Aircraft performance and performance plans.
- Landing zone (LZ) and landing facility.
- Suitable diversion airports or landing facilities based on landing performance requirements.

4.3.9 Aviation Policy and Regulations.

- Title 14 CFR parts 61, 91, 135, and 136 (pertinent sections).
- Title 49 of the Code of Federal Regulations (49 CFR) part 830.
- Company operations specifications (OpSpecs).
- Company general operations policies.
- Enhanced operational control policies.
- Aeronautical decision making and risk management.
- Lost aircraft procedures.
- Emergency and search and rescue procedures, including plotting coordinates in degrees/minutes/seconds format and degrees/decimal/minutes format.

4.3.10 Crew Resource Management (CRM).

- Concepts and practical application (e.g., working as a team and flight ownership).
- Risk management and risk mitigation.
- Preflight risk analysis procedures.
- How to assist pilot with risk assessment form.
- How to evaluate a risk assessment form.

4.3.11 Area of Operations for Commercial Air Tours. Familiarity with information appropriate to the OCS position pertaining to local geographical features:

- Terrain features.
- Obstructions (e.g., wires, buildings, etc.).
- Weather phenomena for local area.
- Airspace and ATC facilities (sterile cockpit situations).

- Heliports, airports, LZs, and fuel facilities.
- Instrument approaches (if applicable).
- Predominant air traffic flow.
- Landmarks and cultural features, including areas prone to flat-light, whiteout, and brownout conditions.
- Local aviation and safety resources and contact information. Areas that lack communication should be well-identified.

4.4 Methods of Instructional Delivery. The method of instructional delivery is at the discretion of the operator. Although classroom instruction is a preferred method for many topics, some may deem it more suitable to conduct training on some subject areas through computer-based training or a similar method.

4.4.1 Initial Training. The operator should develop a tailored training program for its OCS personnel. All newly appointed OCS personnel should successfully complete this training before assuming the duties within an EFFC.

4.4.2 On-the-Job Training (OJT). OJT can serve as a continuation of the training, reinforcing learning to ensure a comprehensive understanding. Topics established for OJT should be clearly identified in the commercial air tour operator's OCS training program. Newly trained OCS personnel are highly recommended to work under the supervision of an experienced OCS (or other qualified personnel) for a specified period after the completing initial training.

4.4.3 Recurrent Training. Commercial air tour operators may utilize ongoing training for OCS personnel, such as annual training modules incorporating abnormal/emergency procedures drills. Alternatively, training could occur quarterly, provided the operator meets preplanned hours and topics within a fixed 12-month training period. Training should be tailored to the operator's capabilities and documented at least annually.

4.4.4 Testing. OCS should pass a knowledge and practical tests administered by the commercial air tour operator. For 14 CFR part 119 certificate holders (CH), the testing should be inclusive of the CH's approved training program. The operator is responsible for developing the knowledge and practical tests, covering all topics taught during the initial and recurrent training.

4.4.5 Failure to Complete Recurrent Training. If an OCS candidate fails to satisfactorily complete recurrent training and testing within the preceding 12 months, the air tour operator should not allow the individual to perform OCS duties until the training and testing are completed. Due to the criticality of the OCS position, there should be no provision for a grace period. Requalification following a lapse can be achieved by satisfactorily completing recurrent training and testing, with the duration of the lapse determined by the commercial air tour operator.

4.4.6 Retesting. It is recommended that an individual achieve a minimum score of 80 percent in any initial or recurrent OCS testing, with the test subsequently corrected to 100 percent through a focused review with the OCS instructor for each missed element. In the case of a test failure (scoring below 80 percent), the OCS retest should be preceded by retraining in the subject areas where failure occurred, covering all topics from the initial or recurrent training, as applicable. If an operator administers a retest after an initial failure, it is recommended to use a different version of the test. The knowledge test should be satisfactorily completed and corrected to 100 percent before proceeding to the practical test. While failure of the practical test does not necessitate a reapplication of the knowledge test, a subsequent failure in a practical retest indicates a significant knowledge deficiency. Therefore, it is recommended that the individual undergo requalification training and retesting.

4.4.7 Test Formats. The knowledge test may take the form of oral, written, or a combination of both, and it should be completed before the practical portion of the test. The practical segment of the test should evaluate the real-time application of all OCS procedures, including the utilization of all regularly available and used equipment, computer programs, and other technology employed by the OCS, with special emphasis on new technology and areas of previously identified systemic issues. The chosen method(s) of testing by the commercial air tour operator should be documented in the approved training program (for 14 CFR part 119 CHs), or a similar document for 14 CFR part 91 commercial air tour operators.

4.4.8 Annual Recurrent Testing. CHs should outline OCS training and testing procedures in their GOM or approved OCS training program. Procedures for retesting after failure and requalification training following an extended absence should be described. As there is no regulatory requirement for requalification training and testing, the operator may define the term beyond which requalification is necessary, considering the need for additional training to achieve requalification. Minimum test scores (80 percent recommended) and procedures for correcting tests to 100 percent should be detailed in the OCS training program.

4.5 Training Records. Commercial air tour operators should maintain a training record for each OCS throughout the duration of their employment and for an indefinite period thereafter. The training record should include a chronological log for each training course, detailing the number of training hours and the examination dates and results. These records may be stored in paper form or electronically at the discretion of the commercial air tour operator.

CHAPTER 5. OPERATIONS CONTROL SPECIALIST (OCS) DUTY TIME LIMITATIONS

5.1 OCS Duty Time Limitations. Each commercial air tour operator should establish the daily duty period to begin at a time that allows the OCS to become thoroughly familiar with operational considerations including existing and anticipated weather conditions in the area of operations, tour operations in progress, and maintenance status before performing duties associated with any commercial air tour operation. The operator should consider establishing duty time limitations for OCS personnel minimize instances of OCS personnel performing their duties while fatigued.

5.1.1 Duty Period. The OCS should remain on duty until relieved by another qualified OCS or until each commercial air tour flight monitored by that person has completed its flight.

5.1.2 Hours on Duty. Except in cases where circumstances or emergency conditions beyond the control of the commercial air tour operator prevent relieving personnel from arriving at the Enhanced Flight Following Center (EFFC), it is recommended that the CH or operator determine duty hour limitations for all OCS personnel.

CHAPTER 6. DRUG AND ALCOHOL TESTING PROGRAM

6.1 Drug and Alcohol Testing Program. Although this AC and the provided recommendations are not required by regulations, given the critical nature of the duties and responsibilities of an Operations Control Specialist (OCS), if a commercial air tour operator elects to implement an Enhanced Flight Following Center (EFFC), all OCS personnel should participate in the commercial air tour operator's drug and alcohol testing program administered under 14 CFR part 120. OCS should receive training on the commercial air tour operator's Employee Assistance Program (EAP) in accordance with 14 CFR § 120.115.

CHAPTER 7. RISK ANALYSIS TOOL

7.1 Purpose of a Risk Analysis Tool. Risk analysis is an iterative risk assessment, mitigation, and reassessment process. Risk assessment is one key element of the broader risk analysis process. The risk assessment process should identify hazards, the probability of their occurrence, and the likely severity of the outcome should a hazard occur. The operator may or may not choose to utilize a risk analysis tool. Additional information on risk analysis management and tools can be found in AC 120-92, Safety Management Systems for Aviation Service Providers.

7.1.1 Background. The FAA encourages commercial air tour operators to conduct a preflight risk analysis as an essential component of the overall risk analysis, integrated within an operator's Enhanced Flight Following Center (EFFC). This preflight risk analysis should be incorporated into a comprehensive framework of organizational systems, encompassing policies, procedures, training, and supervision developed based on assessment of day-to-day operational risks.

7.1.2 Risk Assessment. The risk assessment process should produce a quantitative result. This involves identifying hazards associated with a proposed operation and assessing risks associated with each hazard. Once risks are assessed, strategies for risk mitigation can be identified, developed, and implemented. If mitigations fail to reduce risk to an acceptable level, authorization for the flight should not be granted. Unacceptable risks are identifiable as "no go" items, and the flight should not be authorized if a "no go" item is present.

7.1.3 Risk Analysis Components. Risk analysis involves the assessment of two components, Severity (indicating the worst probable outcome) and Likelihood (probability of occurrence):

- Severity refers to the consequences of an event resulting from the hazard.
- Likelihood is an estimate of how likely the event is to occur.

> **Note:** If the likelihood of an event is estimated to be high, and the consequences are potentially severe, the risk analysis would indicate that the flight should not be conducted until the identified hazards are eliminated or suitable mitigations have reduced the risk to an acceptable level.

7.2 Severity and Likelihood Criteria. This section presents examples of an effective tool utilized by 14 CFR part 135 operators. The intention is to provide a functional tool suitable for everyday operations without unnecessary complexity. Consistent with the approach throughout this AC, the emphasis in this chapter is on the results the tool yields to address safety-related concerns. It is not intended to prescribe the use of a specific methodology of process. The EFFC operator has the discretion to define the final matrix's design and its definitions. The expressions for each level of severity and likelihood will be tailored to the individual operational environment and operator's profile, ensuring the decision tools' relevance to specific needs.

7.3 Risk Acceptance.

7.3.1 Risk Acceptance. In establishing risk analysis criteria, commercial air tour operators are expected to develop risk acceptance procedures, encompassing acceptance criteria, and designation of authority/responsibility for decision making.

7.3.2 Acceptability of Risk. The acceptability of risk can be assessed using a risk matrix or a numbered system such as those illustrated in Figure 7-1, Risk Assessment Matrix Reflecting Quantification of Factors. A low number corresponds to low or everyday risk, which may be approved by regular OCS personnel. Elevated numbers should be approved at higher levels within an EFFC; for example, a medium risk should be approved by a Chief Pilot, whereas a high risk necessitates approval from both the Chief Pilot and the Director of Operations (DO). There may be certain risks that are deemed unacceptable and are identified as "no go" items.

7.3.2.1 Unacceptable (Red No Go). When combinations of severity and likelihood position the risk in the red/high area, it is assessed as unacceptable. A flight should not be authorized under unacceptable conditions until additional controls are developed, either eliminating the associated hazard or which would control the factors that lead to higher risk likelihood or severity.

7.3.2.2 Acceptable With Mitigation (Yellow). If the risk analysis falls into the medium-risk yellow area, the risk may be accepted under defined conditions. Risk mitigation could involve considering alternate routes/destinations. The decision to initiate an operation should be elevated to the person responsible for decision making at the specified risk level prior to conducting the flight. For example, landings and takeoffs at high altitude or high-density altitude Landing zones (LZ) present risks resulting from marginal aircraft performance. Risk mitigation might include load reduction or selecting a LZ at a lower altitude, where aircraft performance would be improved, and the impact on the flight would be minimal.

7.3.2.3 Acceptable (Green). Where the assessed risk falls into the green area, it can be accepted by the OCS staff and the pilot without further action. The objective should always be to reduce risk to as low as practicable.

7.4 Safety Risk Assessment. The operator should establish written policies that delineate acceptable levels of risk in numerical terms, procedures for determining risk acceptability, and steps to be taken for a given level of assessed risk, including risk control strategies. The FAA strongly encourages commercial air tour operators to have documented procedures for elevating the management level for flight approval when the risk exceeds predetermined levels.

7.5 Risk Assessment Matrix Example. The definitions and design of a risk analysis matrix are left to the commercial air tour operator. An individualized design ensures each of the operator's decision tools is relevant to its specific needs. An example of a single-sided paper form is included in this chapter (see Figure 7-1). Note that the numbers on this

example form are universal representations of an analysis and may be changed by each operator. Not only can the value assigned to each factor be altered, but the factors selected may be changed to meet the operator's needs. For instance, an operator in an inland area may not need to consider glide distance from shore for overwater flights, while one operating on an island would have to do so. Another relative example is how many tours can be conducted in one day. It is up to the commercial air tour operator to decide the risk assigned to each given application to determine what is or is not acceptable.

Figure 7-1. Risk Assessment Matrix Reflecting Quantification of Factors

Step 1. Complete a system and task analysis matrix.

- Fill out a risk assessment document using the enclosed example (Figure 7-1) to create a document specific to the operator's needs and then quantify what is acceptable and nonacceptable.

Step 2. Primary objective is to identify the hazards to flight.

- It's rainy.
- It's hot and the Density Altitude (DA) is high.
- The destination crosswinds are greater than 20 knots (if applicable).

Step 3. Secondary objective is to analyze the safety risk (Severity and Likelihood).

- The combination of the risk factors associated with this proposed flight generates a risk value of 50, using the example risk assessment tool.

Step 4. Assess the safety risk.

- Company policy should consider implementing company policies considering the Chief Pilot assessment and approval of any flight risk value exceeds 50. Given that the risk value of 50 surpasses the company's operational threshold risk of 49, the Chief Pilot decides to operate the flight. To achieve this, the Chief Pilot may adjust the flight route or wait until conditions change, effectively reducing the flight risk value to a more acceptable level.

Step 5. Control the safety risk.

- The Chief Pilot focuses on mitigating adjustable hazards, recognizing that not all hazards can be fully mitigated. Certain "no go" items cannot be downplayed or mitigated.

  a. The Chief Pilot decides to permit the scheduled PIC to operate the flight if risks can be lessened or removed.
  b. The reduction of risk may prompt the reassignment of the specific flight to another PIC who possesses greater experience with the make of aircraft, who has conducted recent IIMC training, or who has flown more route segments.
  c. Further mitigation may necessitate the Chief Pilot involvement and the need to alter the route or area to an area with no high-risk conditions expected or to terminate the flight.

- By closely monitoring the risk values associated with these identified three hazards, the Chief Pilot successfully reduces the overall flight risk value to 35, effectively controlling the level of safety in operations.

DATE: _____ PILOT NAME: _____ ACFT #:	**CALL SIGN:**	**COMMERCIAL AIR TOUR ROUTE/S:**	**RISK FACTOR**
1. Pilot Duty/Rest and Health		**10. Fuel**	
More than 10 hours rest and not ill or sick = 0		Onboard fuel exceeds required by 10 % = 0	
8 to 10 hours rest +5		Onboard fuel meets minimum fuel +10	
8 to 6 hours rest and or light pain +15		Onboard fuel does not meet FAR or refuel req. no go	
Less than 6 hours rest and or severe pain +50 no go		**11. Recency of Emergency Training**	
2. Commercial Air Tour Experience		Within last 3 months = 0	
More than 1 year = 0		6-19 months +5	
6 months to 1 year +5		9-12 months +10	
Less than 6 months +10		12 months or more +50 no go	
3. Route Experience With Operator		**12. Aircraft Equipment**	
20 times or more on same route = 0		No GPS +10	
Less than 20 times with route +5		One radio +10	
4. Aircraft Experience With Operator		No ATT indicator +15	
More than 250 hrs in model = 0		No HDG indicator +10	
Between 50 and 250 hours in model +5		SATCOM equipped -10 reduction	
Less than 50 hrs in model +15		GPS datalink -10 reduction	
5. Commercial Air Tour Flights Previously Conducted for the Day		Cell phone coverage -5 reduction	
1-2 tours = 0		ADS-B In and Out -10 reduction	
2-4 tours +5		**13. MEL**	
4 to 6 tours +10		Nav. or comm. Inop. +10	
More than 6 tours +30		**14. IIMC Training**	
6. Length of Each Tour Route		IFR current -10 reduction	
1 hours or less = 0		Within last 3 months = 0	
1 to 2 hours +5		6-9 months +5	
More than 2 hours +10		9-12 months +10	
7. Weather		**15. ATC**	
Ceiling Greater than 5000' and 5 miles visibility = 0		High traffic area +10	

DATE: _____ PILOT NAME: _____ ACFT #:	**CALL SIGN:**	**COMMERCIAL AIR TOUR ROUTE/S:**	**RISK FACTOR**
Less than 5&5, but greater than 2000 and 4 miles +5		Low traffic area = 0	
Greater that 1000-3, but less than 2000-4 +10		**16. Site Specific**	
1000-3 or less no go +50		More than 3 aircraft at site +10	
Icing if present without deice no go +50		Small area only capable of 2 acft. +10	
Precipitation more than light or drizzle no go +50		Multiple flight paths to site +5	
Turbulence above Moderate no go +50		**FORM TOTAL**	
Thunderstorms present on route no go +50			
8. Terrain			
Free of hazards with large landing areas and no wires = 0			
Overwater +10		**Risk Level Approval**	
Rough/jagged no emergency landing areas +15		Low Risk: 0–75 OCS CAN SIGN APPROVAL	
9. Lighting		Medium Risk: 75–125 CHIEF PILOT CAN APPROVE	
Daylight high illum. no issues = 0		High Risk: 125–200 CHIEF AND DO SHOULD SIGN APPROVAL	
Whiteout chances high +15			
Brownout chances high +15		**PILOT SIGNATURE:**	
Flat light chances high no go		**OCS SIGNATURE:**	
Nighttime no illum. no aid +25		**APPROVAL AUTHORITY:**	

Figure 7-2. Sample Risk Assessment Matrix Additional Information

Definitions and Abbreviations
Pilot – The pilot who is planned to be predominantly at the controls during critical phases of flight. (FW) – Item applies to fixed-wing aircraft. (RW) – Item applies to rotorcraft aircraft. No go items cannot be mitigated.
Additional Information – Examples
1. <u>Pilot Rest and Health</u>. Health and rest of pilot is essential. Good sleep and health ensure an alert pilot. Less sleep and decreased health increases risk numbers.
2. <u>Commercial Air Tour Experience</u>. More experience conducting the operators planned tours increases situational awareness and thus decreases risk.
3. <u>Route Experience</u>. More experience with an individual route decreases risk and identifies problematic areas and weather phenomena.
4. <u>Aircraft Experience</u>. More experience by make and model decreases risk.
5. <u>Commercial Air Tour Flights Previously Conducted for the Day</u>. 1-2 commercial air tours a day is much less risk than conducting 6 a day. Less flights less risk.
6. <u>Length of Each Tour Route</u>. Commercial air tour route length based on environment and time.
7. <u>Weather</u>. Weather that is greater than 5 miles of visibility and more than 5000 feet of ceiling is relatively free of a weather risk for commercial air tours, but as weather decrease the risk exponentially increases. Weather close to or less than a 3 miles visibility and 1000-foot ceiling should be prohibited and is a "no go" item. Severe turbulence is no go. Icing conditions without equipment is no go, and rain more than Light or Drizzle is no go, thunderstorms are no go items.
8. <u>Terrain</u>. Terrain can play a very important part in determining risk. Areas that will not provide for a safe landing in the event of an emergency are significantly higher in risk than say a flat area free of obstacles.
9. <u>Lighting</u>. Commercial air tours are conducted into very diverse areas and the amount of lighting or effects on lighting can alter a pilot's perception relative to the earth. Less light increases risk. Light can be limited if blowing snow or dust is encountered. Technological advanced aircraft may provide mitigation by increasing situational awareness.
10. <u>Fuel</u>. Extra fuel onboard an aircraft conducting tours allows for multiple options during a tour and may preclude an inadvertent weather encounter thus lessening risk. Minimal fuel limits decisions and increases risk.
11. <u>Recency of Emergency Training</u>. Pilots that are recently trained in flight are more prepared to handle emergencies and have less risk.
12. <u>Aircraft Equipment</u>. More equipped aircraft provide more situational awareness to the pilot and decrease risk.
13. <u>Minimum Equipment List (MEL)</u>. Aircraft that have inoperable navigation and/or communication equipment decrease situational awareness and increase risk for a commercial air tour. Some inoperative items authorized to be deferred per the MEL may be extremely detrimental to a commercial air tour and may be no go items based on operators' profile.

Definitions and Abbreviations
14. Inadvertent Instrument Meteorological Condition (IIMC) Training. IIMC is an emergency procedure, and only pilots trained and current can be expected to succeed. Recently trained pilots have less risk. Pilots that maintain instrument flight rules (IFR) currency are better prepared for unplanned IIMC events and are less risk.
15. Air Traffic Control (ATC). ATC areas with high density of aircraft create a significant workload for the commercial air tour pilot, so areas with higher density than normal traffic will increase the risk.
16. Site-Specific Area Information. Multiple aircraft in one area could increase the risk levels.

APPENDIX A. INADVERTENT INSTRUMENT METEOROLOGICAL CONDITIONS (IIMC)

A.1 Encountering inadvertent instrument meteorological conditions (IIMC) should be avoided and considered an emergency. It is far better to practice weather avoidance and employ appropriate maneuvers in instrument conditions to escape a potential IIMCs encounter than to risk entering instrument weather conditions unprepared. Aircraft encountering IIMCs, especially those not equipped for continuous IMC and operated by ill-prepared pilots, may subject the pilot to an unacceptable level of stress and could lead to a fatal outcome.

A.2 Helicopter pilots that encounter IIMCs may experience physiological illusions which can lead to spatial disorientation and loss of aircraft control. Even with some instrument training, many helicopters are not equipped with the proper augmented safety systems or autopilots, which could significantly aid in controlling the helicopter during an IIMC emergency.

A.3 Here are some fundamental guidelines to help a pilot remain in visual meteorological conditions (VMC) throughout a flight:

1. Turn Around: If threatened by deteriorating visual cues, slowly turn around and proceed back to VMC or to the first safe landing area if the weather ahead becomes questionable. Prevention is paramount.
2. Terrain Visibility: Do not proceed further on a course if the terrain ahead is not clearly discernible.
3. Flight Consideration: Delay or consider cancelling the flight if weather conditions are already questionable, could significantly deteriorate based on forecasts, or if there is uncertainty about conducting the flight safely. Trust your instincts, as a gut feeling may signal unreasonable risks.
4. Identify Safe Landing Areas: Always have previously identified safe landing areas (such as large open areas or airports) in mind for every route of flight.

A.4 In the event of IIMCs, there are five basic steps that every pilot should be familiar with and execute immediately, if applicable. However, it is crucial to note that if you are not trained to execute these maneuvers solely by reference to instruments or if your aircraft is not equipped with such instruments, this guidance may be less beneficial, and loss of helicopter control may occur:

1. Level the "Wings": Level the bank angle using the attitude indicator.
2. Attitude: Set a climb attitude that achieves a safe climb speed appropriate to your type of helicopter. Typically, this involves no more than a 10° pitchup on the attitude indicator.
3. Airspeed: Verify that the selected attitude has achieved the desired airspeed. It is critical to recognize that slower airspeeds, closer to effective translational lift, may

require large control inputs and will decrease stability, making recovery impossible while in IMC.

4. Power: Adjust to a climb power setting relative to the desired airspeed. This should be executed concurrently with steps 2 and 3.
5. Heading and Trim: Select a heading known to be free of obstacles and maintain it. This is likely the heading you were already on, which was planned and briefed. Set the heading bug, if installed, to avoid overcontrolling your bank. Maintain coordinated flight to prevent the development of an unusual attitude.

APPENDIX B. DIAGRAMS AND EXAMPLES

Figure B-1. Flight Monitoring Procedures Flowchart

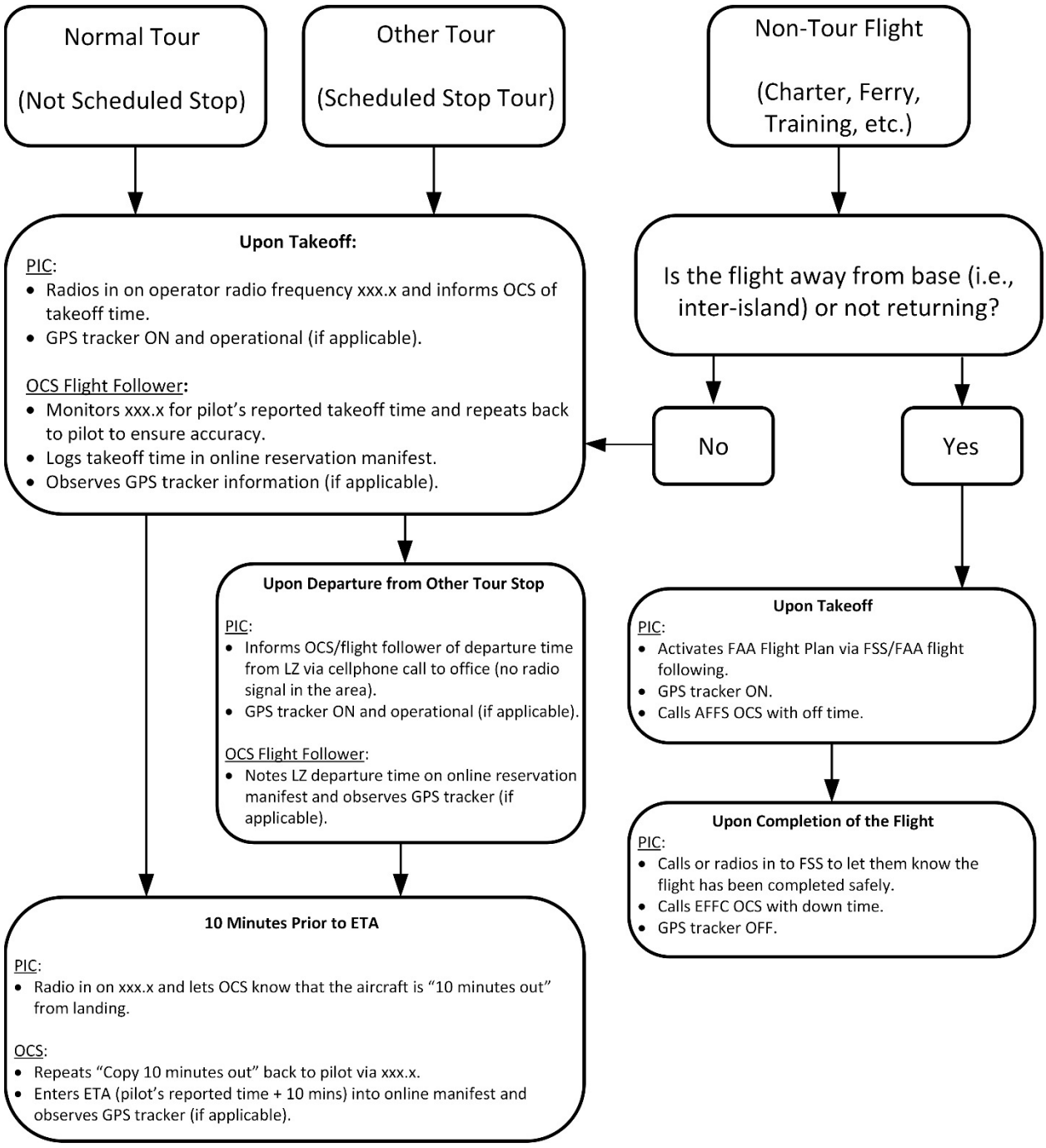

Figure B-2. Overdue Aircraft Flowchart

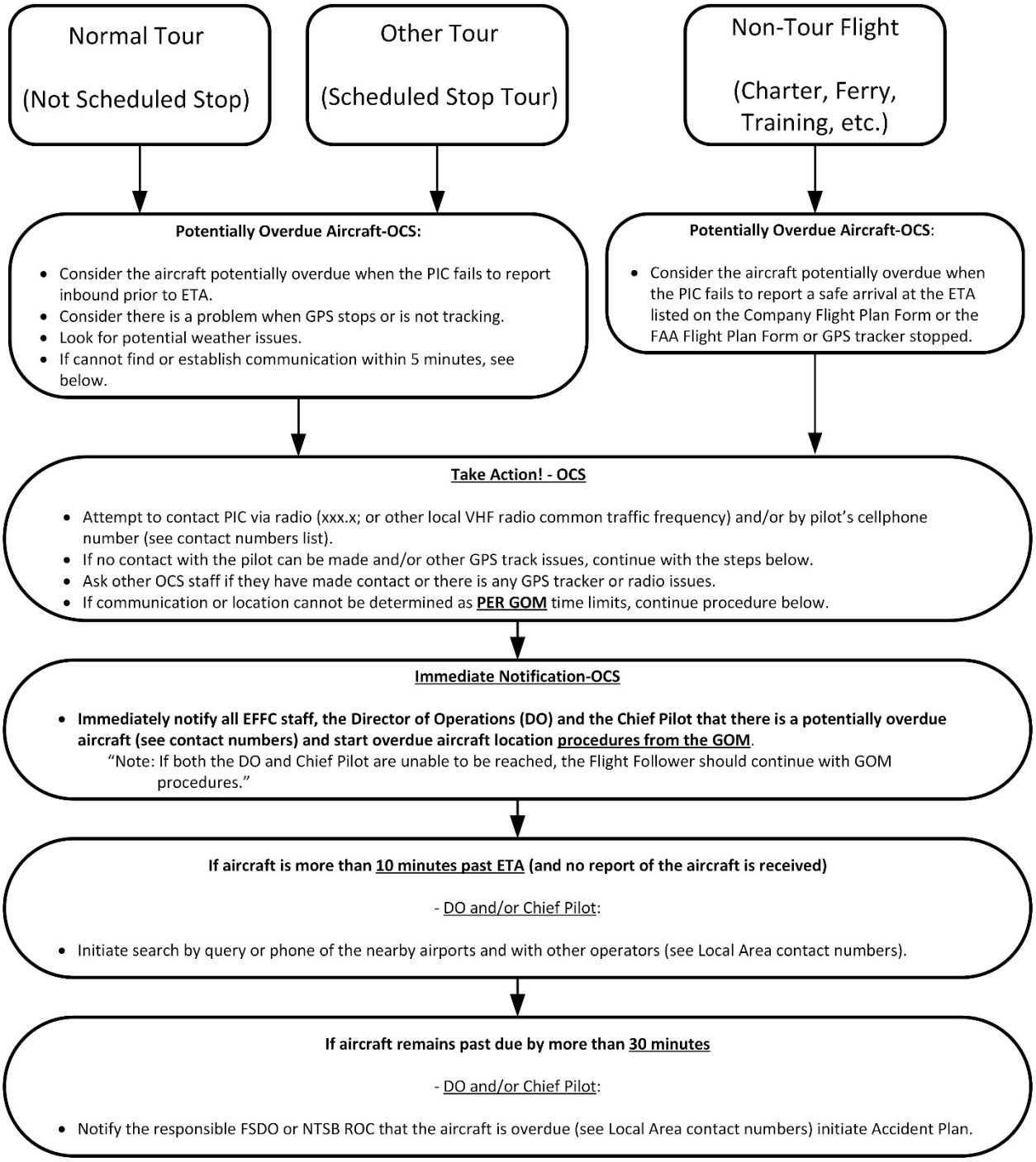

Figure B-3. Operator Contact List – Main Base

Main Office

1800 Anywhere Street
CITY, STATE ZIP
(xxx) xxx-xxxx (Direct Line)
(xxx) xxx-xxxx (Toll Free)
(xxx) xxx-xxxx (FAX)

Administration

Bossman, Joe
President
boss@yourbusiness.com
(xxx) xxx-xxxx

Vice, Buddy
Vice President
vman@yourbusiness.com
(xxx) xxx-xxxx

Guy, Operations
Director of Operations
opsguy@yourbusiness.com
(xxx) xxx-xxxx

Pilots

Chief, Aviator
Chief Pilot
chief@yourbusiness.com
(xxx) xxx-xxxx

Pilot, Joe
joepilot@yourbusiness.com
(xxx) xxx-xxxx

Main Base Maintenance

Office
mainenance@yourbusiness.com
(xxx) xxx-xxxx

Mechanic, Joe
Head Mechanic
mechdude@yourbusiness.com
(xxx) xxx-xxxx

Mechanic, Backup
backupmech@yourbusiness.com
(xxx) xxx-xxxx

Ground Crew

Front Office, Person
Office Manager
offman@yourbusiness.com
(xxx) xxx-xxxx

#1 Specialist, Ops Control Instructor
OCS, Joe
Front Desk
ocs1@yourbusiness.com
(xxx) xxx-xxxx

#2 Specialist, Ops Control
OCS
Front Desk
ocs2@yourbusiness.com
(xxx) xxx-xxxx

#3 Specialist, Ops Control
OCS
Back Desk
ocs3@yourbusiness.com
(xxx) xxx-xxxx

Figure B-4. Emergency/Out of Company Local Area Contact List