



**BUILDING
AN EFFECTIVE
UAS / UAM
SAFETY
PROGRAM**

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safety and
compliance





Building An Uncrewed Safety Management System

The Uncrewed Aircraft System (UAS) and Urban Air Mobility (UAM) worlds are rapidly evolving as efficient and productive ways to conduct surveillance, search and rescue, firefighting, shipping and delivery, transportation, aerial photography and videography, and more.

With more operators and apparatus in the sky, consideration for the safety of aircraft, the framework for operation, access to airspace, infrastructure development, and community engagement is evolving as well.

UAS/UAM has unique challenges and obstacles. This guide can help operators better understand and navigate any opportunities and threats by establishing an effective safety management system with robust analysis, mitigation development, monitoring, and reporting.





Phase One

1. Assign a Safety Manager

Find a person who is passionate about safety. This person will lead the effort to implement a healthy UAS/UAM safety program and to maintain it going forward.

2. Evaluate your operation

Conduct a gap analysis by comparing how your organization is currently managing safety against regulatory guidance or a well-established industry standard (e.g., BARS, IS-BAO, etc.). Any differences can be the basis for your plan to implement the safety management system.

3. Get support from leadership

Be sure to have a high-ranking person or executive in your organization support the safety goals and objectives and back the program administratively and financially.

Prepare a letter of support for this person to sign. The letter should state why the program is important. Include the letter in your SMS manual.

4. Establish a Safety Committee

This group is made up of individuals from each operational function within your organization (flight, maintenance, and administrative). If you have a small operation, the committee may be your entire staff. The Safety Committee will meet regularly to provide guidance to your safety management.

Phase Two

5. Create your SMS Manual

Establish specific policies and address all areas of risk management; provide for assurances and promote training and communication.

Include a section which establishes a "Change Management" process. Address all change-related procedures or processes that directly affect safety in your operation. This section should emphasize how staff may put new procedures or processes in place to minimize risk.

All guidelines, standards, and processes for your UAS operation should meet FAA Part 107 requirements. UAM guidelines and regulations are being developed.

You may want to divide the manual chapters among staff for writing and reviewing to share the work and to help instill ownership and accountability within the organization.

6. Write an Emergency Response Plan (ERP)

Include appropriate emergency protocols and responses for your UAS/UAM operation. Create guidelines, checklists, and a means to keep personnel contact information current.

Also, include how you will alert all staff in an emergency and when you will conduct your annual drill on your ERP.





Phase Three

7. Establish Reports and Assessments

Risk Assessment Form (RA)

- Create a risk assessment template designed to capture the unique functions, performance, and operating limits of your UAS/UAM fleet
- Begin using it; after a few months, evaluate how the RA is working
- Make changes to directly support your operation

Safety Reports for all personnel

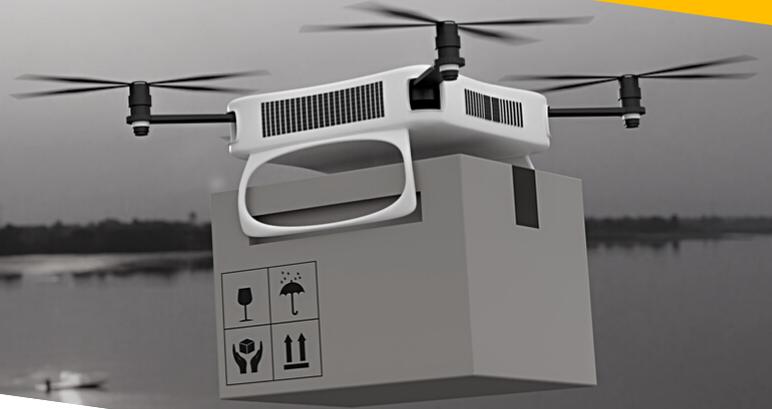
- Train personnel in the process of submitting a safety report
- Safety Reports should be submitted to document incidents, events, and occurrences, to report a potential hazard, mistake, or error, and to share safety concerns

Safety Performance Indicators – SPIs

- Build your SPIs to track areas important to your operation
- RAs and Safety Reports are obvious areas, but the Human Factors area may require some specific adjustments for UAS/UAM operations (Fatigue Assessment, Scheduled Pilot Rest, Total Sleep, etc.)
- SPIs should monitor and track data on submitted forms

8. Train everyone in your organization how an SMS works

Frontline staff and leadership should complete SMS training. This can be done in-house or through a third-party.



Phase Four

9. Collect Data

Be sure to include both flight and maintenance areas. RAs should be submitted for every flight, whether single or multi-flight days. Maintenance RAs should be completed at least weekly or for inspections or major component changes.

Create a Hazard Log

- Objectively evaluate your hazards and assess your risks for severity and probability
- Find ways to mitigate those risks

10. Engage your UAS/UAM SMS program

You've done the hard work to build a professional Safety Management System. The next steps to keeping your safety program advancing are:

Ongoing Tasks

- Post bulletins from articles on drone operations, operational and maintenance changes on the equipment, company updates, FAA Advisory Circulars, etc.
- Monitor personnel to ensure they are up to date on safety and operational info
- Review your RAs and Safety Reports completed by your personnel

Quarterly Tasks

- Hold Safety Meetings with all department personnel. The Safety Meeting should address current and past issues within your organization. Safety Reports, RAs, SPIs, and Change Management items are a good place to start
- After each Safety Meeting provide notes highlighting the lessons learned

Annual Tasks

- Review the Hazard Log to determine the risks and the mitigations are still appropriate
- Conduct emergency response drills



10 Steps to Building Your UAS/UAM Safety Program

1. Assign a Safety Manager
2. Evaluate your operation
3. Get support from leadership
4. Establish a Safety Committee
5. Create your SMS Manual
6. Write an Emergency Response Plan
7. Establish Reports and Assessments
8. Train everyone in your organization
9. Collect Data
10. Engage your UAS/UAM SMS program

Feeling overwhelmed? Need some help?

Baldwin Safety & Compliance can help you build an effective Safety Program to fit your organization.

- Baldwin's proprietary software technology is scalable, configurable, intuitive and includes 24/7 support for your organization.
- Administer an anonymous safety culture survey to find out how your operation's personnel feel about safety and its direction
- Receive personalized support for your Safety Officer through one-on-one training and a myriad of on-going, updated resources
- Conduct initial and recurrent training for all staff through BaldwinVirtualTraining.com (Safety Manager Certificate available)
- Track and monitor submitted reports and SPIs
- Create, customize, and publish your manuals via Baldwin's Document Management System
 - Use Baldwin's UASM template for FAA Part 107
 - Edit, approve and publish subsequent UAS manual updates
- Use Baldwin's ER ALERT notification system to automate your Emergency Response Plan

Contact Baldwin today to get started!

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About Baldwin

Since 2004, Baldwin Safety & Compliance has been a visionary in safety management, supporting global organizations by crafting scalable and intuitive safety systems and related business support and training products designed specifically for their operations and resulting in positive safety cultures.

MISSION

To manage risk and prevent accidents, including loss of life, personal injury, and damage to equipment and infrastructure by supporting our clients in the pursuit of organizational excellence.

VISION

To be the premier Safety Management System provider worldwide, known for innovation, customer service, and simplicity.

VALUES

- Bold** Actively embrace the culture of safety management and guide our clients in managing risk and preventing accidents
- Involved** Open and actively engaged with our customers, partners, employees and the transportation industry
- Innovative** Committed to developing products and delivering dynamic service while exceeding industry standards for safety and quality management
- Dependable** Available to our clients and employees around the clock, in good times, not-so-good times, and during emergencies.
- Balanced** Committed to an environment where our clients and employees are able to streamline processes and maintain a healthier, happier, and more productive workspace and lives.

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