Airports Safety Management System (SMS)

An Overview

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Airports Safety Management System

- Part 139 SMS, also referred to as “External” SMS
- ARP SMS, also referred to as “Internal” SMS
- ARP Safety Risk Management (SRM)
  - Triggering Actions
  - Safety Assessment Screening
  - Facilitator Selection
  - AIP/FPC Funding Eligibility
  - The Role of the Airport Sponsor
  - ARP SMS Training
- Resources
Proposed “External” SMS Rule - 1

- Certificate holders create/maintain their own SMS
- ARP acts as oversight
- July 2011 -- NPRM Comment Period Closed
- Dec 2013 (est.) – Supplemental NPRM
- Feb 2014 (est.) – Supplemental NPRM Comment Period Closes
- Up to 16 months to published final rule after comment period
Proposed “External” SMS Rule - 2

- Must incorporate all 4 SMS components; Safety Policy, SRM, Safety Assurance, and Safety Promotion
- Scalable implementation
- SMS Manual referenced or incorporated into the Airport Certification Manual (ACM)
Proposed “External” SMS Rule - 3

• Airport Deliverables (as proposed rule is written)
  – SMS Implementation Plan Development
    • Class I airports: 6 months
    • Class II, III, and IV airports: 9 months
  – SMS Program Implementation
    • Class I airports: 18 months
    • Class II, III, and IV airports: 24 months

• FAA’s Oversight Role
  – Review/Approve SMS procedures as part of ACM
  – Part 139 inspection: Airport Certification Safety Inspector (ACSI) verifies SMS requirements clearly identified in ACM/referenced in SMS Manual; records review and interviews to verify that program is functioning as intended
Proposed “External” SMS Rule - 4

- Draft AC 150/5200-37A, SMS for Airports
  - Detailed guidance for development and implementation of SMS in the airport environment
  - Sample Implementation Plan, SMS Manual, and Dashboard templates
  - Industry comment period ended August 31, 2012
ARP SMS

• Goals of ARP SMS:\(^1\):
  – Identify hazards and safety concerns early in the planning phase of airport projects
  – Identify and mitigate potential hazards in the design phase before large investments are made
  – Facilitate better coordination by providing a means for communicating safety issues and sharing safety information among all LOBs

\(^1\)ARP SMS Desk Reference, Section 2
Why SMS?

• FAA Order 8000.369, FAA SMS Guidance
  – Brings FAA into compliance with ICAO safety standards
  – Establishes SMS requirement for regulated agencies
  – Integrates SMS into FAA LOBs (ATO, AVS, ARP)

• FAAO 5200.11, ARP SMS
  – Specifies SMS requirements for ARP – “Internal SMS”
  – Describes roles and responsibilities of ARP staff
  – Focuses on SRM and Safety Assurance
ARP SMS Implementation Schedule

• **Original Schedule**
  - June 1, 2011: Large Hub airports
  - June 1, 2012: Part 139 certificated airports
  - June 1, 2013: Remaining towered airports
  - June 1, 2014: Remaining NPIAS airports

• **Current Schedule**
  - June 1, 2011: Large Hub airports
  - June 1, 2015: Medium Hub airports
  - June 1, 2016: Small Hub airports
ARP Safety Management System

The Four SMS Components

Safety Policy
Establishes senior management’s commitment to continually improve safety. Defines the methods, processes, and organization needed to meet safety goals.

Safety Assurance
Evaluates the continued effectiveness of implemented risk control strategies. Supports the identification of new hazards.

Safety Risk Management
Determines the need for, and adequacy of, new or revised risk controls based on the assessment of acceptable risk.

Safety Promotion
Includes training, communication, and other actions to create a positive safety culture within all levels of the work force.
Safety Policy

- Provides foundation for SMS program
- FAAO 5200.11, FAA ARP SMS, Chapter 3

Chapter 3. Safety Policy

3-1. Purpose. Safety Policy provides the foundation for SMS. It outlines the methods and tools for achieving desired safety outcomes and details management responsibility and accountability for safety. It identifies overall goals, needs, resources, priorities, and management commitment to SMS.

3-2. Safety Policy. ARP will commit to implementing and systematically integrating SMS throughout the organization. The ARP SMS will:
   a. Continuously improve and uphold safety as the highest priority.
   b. Bring both internal and external stakeholders together early in all applicable processes.
   c. Facilitate and promote a proactive and positive safety culture.
   d. Consistently evaluate hazards and decisions to remove, control, and mitigate those hazards and their associated safety risks.
   e. Promote an environment where safety is our first concern when considering a change to the NAS.

3-3. Supporting Requirements.
   a. Safety objectives will be measurable, attainable, relevant, and time-bound and will promote a positive safety culture.
   b. Safety objectives will be supported by clear methods, procedures, and guidance in each ARP program area as required by this Order. All SMS guidance will be clear, comprehensive, and concise.
   c. The ARP SMS will employ integrated data-driven risk management to the maximum practicable extent.
   d. ARP will use transparent, unambiguous safety performance measurement, including documentation of safety risk and mitigation actions.
   e. The ARP SMS will feature organization-wide understanding and application of SMS principles, including comprehensive and thorough training as necessary.
   f. ARP will provide outreach to our external stakeholders explaining the benefits of SMS. Outreach will include the creation of a website for lessons learned and best practices.
Safety Promotion

• Development of safety culture
  – Internal and external communication
    • Sharing data via the SRMTS
    • FAA Website
    • Publications (ACs, EBs, PGLs)
    • Multimedia
  – Confidential reporting system
  – Training
Safety Assurance

• Tracks SMS performance and focuses on continuous improvements

• Last SMS component to be fully implemented
  – Confidential voluntary reporting system
  – SRM Tracking System (SRMTS)
    • Interim system – SAS forms w/associated documentation
  – Analysis of data, analysis, and audits (AAS-1)
ARP Safety Risk Management (SRM)

- FAA ARP SMS Desk Reference, June 1, 2012
  - Clarifies requirements, processes and procedures for implementation of ARP SMS
  - Focuses on the SRM Safety Assessment process
    - Transition Plan
    - Roles/Responsibilities
    - SRM Triggering Actions
    - SRM Process
    - SRM Panel Formulation/Documentation
    - Facilitator Qualifications and Selection
    - Workflow for Project Types (Planning, CSPP, MOS, CFR Part 150 Noise Compatibility)
SRM Safety Assessment Triggers

- Review of new/revised ALPs
- Review of Construction Safety and Phasing Plans
- Modification of Standards
- New/updated ACs
- Part 150 Noise Compatibility Program
- Airspace Determinations for non-construction changes
- Changes to projects with a previously completed SRM panel
No SRM Safety Assessment

• Examples of project approvals not normally requiring a safety assessment (FAAO 5200.11, Appendix B)
  – Admin approvals such as award of grants
  – Purchase of mobile vehicles/equipment
  – AIP grant for reimbursement of a completed project
  – Land acquisitions
  – Residential/public building sound insulation
  – Installation of noise monitoring equipment outside airport operations area
  – Construction where ALL activities occur outside the airport operations area
  – Projects on an ALP not expected to be under construction within 15 years
  – Approval of a PFC for ‘impose only’
  – Other approval actions that do not introduce risk to the airport or NAS
Safety Assessment Overview

• **Purpose:** Provided documented evidence to support whether the proposed action is acceptable from a safety risk perspective
• Comparable in purpose to an ATO SRMD/SRMDM
• **Documentation:** SAS Form and associated docs
  – Describes the proposed change and rationale for safety analysis
  – Signed by the appropriate management officials
  – Kept on file for lifecycle of system or change
• **Begin SAS Form as soon as practicable**
  – For example, if project involves displaced threshold, declared distances, taxiway entry configuration changes then most likely SRM panel will be required and preparatory actions can begin
Safety Assessment Supports Decisions

- Safety Assessment provides:
  - Description of the proposed project
  - Copy of the hazard assessment (PHA or CSA)
  - Panel discussion narrative and any dissention
  - Record of panel participants
  - Signed written documentation
Safety Assessment Screening - 1

- Safety Assessment Screening (SAS) Form(s)
  - Determines whether or not an SRM panel is required
    - SAS-1: Airport Planning/Construction Projects
    - SAS-2: Modification of Standards
  - Documents the SRM panel process and findings
  - SAS forms and user manual located at Q:\ARP-SWAP\SMS\SAS
  - Forms use macros so detailed instructions must be followed
  - ADOs forward completed forms to RO SMS Coordinator and Q: drive until the SRM Hazard Tracking System is operational
Safety Assessment Screening (SAS)

- Determines if an SRM panel is required for a triggering event
- Documents the safety assessment process to include SRM documentation, if applicable
SAS Example - 1

- If no item in Block 3 is checked, no SRM review required. Sign Block 4 and file.
- If an item in Block 3 is checked, check appropriately in block 4 then continue SRM review.
Blocks 5-6: If there are OE/AAA objections or any item in block 6 is checked, an SRM panel is required. Otherwise, check block 6i, sign block 7 and file.

Block 6: Consider existing controls (Appendix G shows partial list of existing controls developed by National SRM panel). Select items here only if existing controls do not eliminate potential increase in risk. Large/complex projects are more likely to require an SRM panel.
SAS Example - 3

Block 12: The airport sponsors signs the SAS form acknowledging the requirement to comply with any hazard mitigation measures.

Block 13: ARP manager signs SAS form indicating acceptance of documentation; not assumption of risk.
Safety Assessment Acceptance vs. Approval

- **ATO**: Two signatures
  - Approval of SRMD
  - Risk acceptance

- **ARP**: One signature
  - Manager signature signifies acceptance of the SRM documentation, not acceptance of risk
  - No additional liability is assumed by the manager
  - ARP signature level dependent upon initial risk identified during the panel (FAAO 5200.11, Table 4-1)
## Safety Assessment Acceptance

**SRM acceptance authorities for varied risk levels**

<table>
<thead>
<tr>
<th>Type of Project</th>
<th>High Initial Risk Acceptance Authority</th>
<th>Medium Initial Risk Acceptance Authority</th>
<th>Low Initial Risk Acceptance Authority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airport projects</td>
<td>Safety Review Board for review. ARP-1 for approval</td>
<td>Regional division managers who have authority over the change</td>
<td>ADO managers who have authority over the change</td>
</tr>
<tr>
<td>Modifications of Standards (MOSs)</td>
<td>Safety Review Board for review. ARP-1 for approval</td>
<td>AAS-1</td>
<td>Regional division managers who have authority over the change</td>
</tr>
<tr>
<td>Advisory Circulars (ACs), both new and revised</td>
<td>Safety Review Board for review. ARP-1 for approval</td>
<td>AAS-1 or APP-1, whichever is the responsible office</td>
<td>HQ division managers who have authority over the change (AAS-1 or AAS-300)</td>
</tr>
</tbody>
</table>
Airport Planning

• The goal of SRM Safety Assessments for these projects should be to “design out” or “plan out” hazards in the planning and design phases before construction. SRM is generally required for airport layout plan (ALP) approval and related Modification of Airport Design Standards (MOS).

• Project managers should consider completing SRM for any proposed MOS prior to the ALP SRM.
Planning Safety Assessments

• Consider SRM during the alternatives analysis of a planning study using SAS/SRM procedures for any proposed MOS

• If planning alternatives depend on approval of a MOS, then the FAA MOS approval process should be completed to ensure alternatives are acceptable
Safety Assessment Process ALP Example

• Upon receipt of the draft ALP, the PM begins the SAS-1
  – Only consider projects estimated to occur within 15 years
• Complete OE/AAA as soon as possible. *For projects with known safety concerns, the PM may decide to conduct the safety assessment prior to airspace review*
• ARP determines if hazards create a system safety impact, and initiates an SRM panel if appropriate
• SRM panel findings are documented and attached to the Safety Assessment Screening Form
• If risks are acceptable, the ALP *may* be approved, pending other considerations
Airport Construction Safety Phasing Plans - 1

• Each CSPP associated with an airport development project will require an SRM Safety Assessment
• Depending on the complexity of the project, each CSPP may require an SRM panel.
• Safety Assessment is required regardless of funding source
• Primary focus of the CSPP SRM Safety Assessment does not include end-state operation of the facilities
Airport Construction Safety Phasing Plans - 2

- Consider SRM principles early in project formulation
  - Potential hazards may be addressed and mitigated/eliminated in the design phase
- Draft CSPP should be submitted 6 months prior to construction and begin coordination in OE/AAA
- SAS-1 form completed and depending upon the result, an SRM panel may be required
- The more complex the project, the higher the likelihood of a panel being required
Safety Assessment Process CSPP Example 1

- PM informs sponsor of safety assessment requirements early in the process and discusses at the pre-design meeting.
- Draft CSPP should be submitted to PM during scope development at least 6 months prior to construction.
  - Allows time to review the CSPP, schedule SRM panel if required, and include any mitigations in the project specifications prior to release for bid.
- OE/AAA review should be initiated as soon as possible – results needed to complete the SAS-1.
- The sponsor prepares a Project Proposal Summary (Note 1) that is included in the airspace analysis and provided to SRM panel members.
- Complete the SAS-1 form.
  - If a panel is not required, PM signs and files the SAS form and upload to Q: drive.
- PM notifies the airport sponsor that a panel and facilitator is required.

*Note 1:* The ARP SMS Implementation Guidance, Appendix H contains an example Project Proposal Summary.
Safety Assessment Process CSPP Example 2

- PM works with the facilitator to schedule and develop the agenda for the panel
- PM designates/selects panel members in conjunction with the sponsor/facilitator and Regional SMS Coordinator
- PM monitors/leads the panel in conjunction with the facilitator
- PM accepts the final SRM for management review and signature
  - Airport sponsor retains responsibility for airport ops; ARP manager does not accept risk
  - Manager signs to endorse that hazards have been considered and risks levels are acceptable provided risk mitigations remain in place
    - Low initial risk: ADO Manager
    - Medium initial risk: Regional ARP Division Manager
    - High initial risk: ARP Safety Review Board review/ARP-1 signature

* The CSPP Safety Assessment does not consider the system end-state. End-state is considered during planning safety assessments.
Modifications of FAA Airport Design Standards - 1

- The Safety Assessment process supplements and provides additional documentation to support the FAA’s review of MOS proposals.
- The primary focus of the Safety Assessment for a MOS should be the *end-state* operation of the airport facilities.
Modifications of FAA Airport Design Standards - 2

- SRM for MOS only applies to airfield layout and dimensional standards
- MOS request must be approved by AAS prior to considering the SRM Safety Assessment
- A SRMP cannot be used to justify a MOS
Modifications of FAA Airport Design Standards - 3

• Safety Assessment Applicability
  – Sponsor request for Modification of FAA design and safety standards
  – MOS may be part of ALP planning effort, design effort, or stand alone activity
  – NOT necessary for FAA approval of construction material or equipment standards
• Airport sponsor and consultant must address potential SMS requirements in project scope
  – Use existing MOS, planning documents, and if applicable, similar MOS requests at other airports to help determine if a panel is likely
• Project scope should identify expected workload, time, and cost for MOS review, SRM Safety Assessment, and FAA approval
Process to Modify FAA Airport Design Standards - 1

1. Sponsor submits request for modification of standards.  
   • Use the right Modification of Standards (MOS) form  
   • Justify the need.

2. Region/ADO reviews justification for MOS, including sponsor’s documentation.

3. If Region/ADO supports the requested MOS, they forward to HQ/AAS.
**Process to Modify FAA Airport Design Standards - 2**

4. AAS reviews MOS request for justification and technical sufficiency.

5. AAS takes one of two actions:
   - Disapproves.
   - Approves subject to conditions including satisfactory SRM.

6. Region/ADO SAS analysis (SAS-2 form) and appropriate level SRM.
• Region/ADO responds to sponsor with MOS approval.
• Include conditions and required mitigation identified by AAS and the SRM process.
• An Airport Sponsor can request the FAA review and approve its noise exposure maps (NEMs) and Noise Compatibility Program (NCP).
• Measures proposed in the NCP that could affect safety critical elements of the NAS may require further Safety Assessment.
Part 150 Noise Compatibility Planning Projects - 2

• NCP measures that may require Safety Assessment
  - Preferential runway systems
  - Use of flight procedures
  - Noise abatement takeoff/landing procedures

• NCP measures do not require Safety Assessment if:
  - Flight procedures are not used
  - Landside or off-airport implementation (e.g. land use controls, noise monitoring, and acoustical treatments)
Non-Construction Changes - 1

- Changes that can occur on an airport that may introduce risk but do not require an ALP update, modification of FAA standards or other SRM Safety Assessment trigger events
- The triggering event for a non-construction change is submission of FAA Forms 7480-1, Notice of Proposed Landing Area and 7460-1, Notice of Proposed Construction or Alteration
Non-Construction Changes - 2

- Changes to runway and taxiway designations
- Changes to airfield pavement marking and signage (excluding maintenance)
- Changes for which the FAA believes a SRM Safety Assessment is necessary to document a FAA approval action
Facilitator Selection

- Facilitators must be neutral/unbiased
  - Facilitators cannot be provided by the design/planning consultant or airport staff
  - Normally provided by the sponsor via consultant
- Appendix F of the ARP SMS Implementation Guidance details facilitator qualification requirements and can be used as a guide for preparation of consultant scope of work
AIP/FPC Funding Eligibility

• Airport sponsors are responsible for costs associated with conducting the safety assessment
  - Preparing proposal documents
  - Arranging meeting location for the SRM panel
  - Consultant participation
  - Procurement of a facilitator

• Generally, if the projects causing the need for ARP SRM activity is AIP/PFC eligible then SRM costs are eligible
  - In cases where the SRM costs are incurred before a grant, the cost is considered “project formulation cost” in accordance with the AIP handbook.

• ADOs consider using mitigations as AIP Grant “Special Conditions”
The Role of the Airport Sponsor

- **Airport Sponsor (Change Agent)**
  - Coordinate with ADOs to identify projects during project formulation and scoping to allow sufficient time to complete safety assessment and SRM panel if required
  - Develop Project Proposal Summary
  - Contracting facilitation and technical writing services
  - Participate in the safety assessment and SRM panel and sign SRM documentation
  - Comply with all mitigation measures that fall under their area of responsibility identified during the SRM panel
Project Proposal Summary

- Clear, concise description of the proposed project or change
- Sponsor’s consultant usually develops in coordination with project development
- Facilitator disseminates to SRM Panel SMEs
- The standards narrative report may be used as the Project Proposal Summary for Master Plan and ALP updates
ARP SMS Training - eLMS

• Two eLMS courses
  – **ARP SMS Overview Course** (Course 06000005)
    • Background for ARP’s SMS process
    • All ARP members should complete
  – **ARP SMS Practitioner’s Course** (Course 06000006)
    • Instructor led course at MMAC
    • Highly encouraged for all PMs
    • PMs for Large Hub airports have priority
ARP SMS Training - IDLE

• One IDLE Course - **ARP SMS Facilitator’s Course**
  • Overview of ARP SRM Facilitation (not facilitator qualification training)
  • Targeted at facilitators or potential facilitators (e.g. sponsors/consultants)

![Selected Section Details]

- **Course:** ARP Safety Management (SMS/SRM) Courses
- **Location:** Online
- **Status:** Already enrolled in this section
- **Date:** Online Course: Start at anytime.
- **Cost:** $0.00
Resources - 1

- AC 150/5200-37, Intro to SMS for Airport Operations (2/28/2007)
- Safety and Standards Guidance Letter 08-1, Interim Guidance for SMS/SRMD Activities Requiring ARP Participation (7/2/2008)
- FAAO 8000.369, FAA SMS Guidance (9/20/2008)
- FAAO 5200.11, Change 1, ARP SMS System (5/31/2011)
- FAA ARP SMS Desk Reference (6/1/2012)
- ASO Regional Guidance Letter (8/29/2012)
Resources - 2

- ICAO Integrated Safety Management,
  http://www2.icao.int/en/ism/default.aspx

- Aviation Safety Management System,
  http://www.faa.gov/about/initiatives/sms/

- Safety Management Systems for Airports,
  Public: http://www.faa.gov/airports/airport_safety/safety_management_systems/
  Employees Page: https://employees.faa.gov/org/linebusiness/arp/programs/sms/

- FAA Airports National SMS Website,
  http://www.faa.gov/airports/airport_safety/safety_management_systems/

- Airports GIS / IDLE Website,
  https://airports-gis.faa.gov/
Questions?

For questions or more information, contact:
  • Brian Creasy, ASO-620