SMS Implementation Study for Jacksonville Aviation Authority (JAA)

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EXECUTIVE SUMMARY

Jacksonville Aviation Authority (JAA) and ESIS will develop, implement and report a comprehensive and operable SMS Implementation Study as defined in the FAA Participant's Guide, Part 139 SMS Implementation Study of June 2010. The services will be performed for the Airport under the Federal Aviation Administration (FAA) pilot program described in FAA Advisory Circular AC 150/5200-37, ICAO Safety Management Manual Second edition, and ACRP Report 1, Safety Management Systems for Airports Volumes 1 and 2 (Overview and Guidebook, respectively).

There are six Study Tasks specifically requested by the FAA Guideline:

1. Implement Safety Risk Management procedures, processes, or policies as formulated under the airport's SMS Manual or other documentation developed for the airport under the first pilot studies.
2. Conduct at least 3 safety risk analyses/assessments within 6 months of AIP grant award or study start. These analysis/assessments should not include analysis/assessments required under FAA Air Traffic Organization SMS. The analysis/assessments can address hazards in the movement or non-movement areas of the airport.
3. Implement a safety reporting and/or data collection system or applicable processes in conformance with the airport's SMS Manual or other documentation developed for the airport under the first pilot studies.
4. Collect hazard reports, incident and accident reports, and other safety related data/information under the airport's SMS Manual or other applicable documentation within 2 months of AIP grant award or study start.
5. Analyze the information collected through the reporting and/or data collection system or applicable processes within 5 months of AIP grant award or study start.
6. Conduct an internal audit/evaluation following the methods and procedures prescribed under the Safety Assurance component of the airport's SMS Manual

IMPLEMENTATION STRATEGY

TASK 1- *Implement Safety Risk Management*

Risk Management is the second component of the 4 SMS components, and includes, per the FAA Circular, five phases:

- **Phase 1.** Describe the system
- **Phase 2.** Identify the hazards
- **Phase 3.** Determine the risk
- **Phase 4.** Assess and analyze the risk
- **Phase 5.** Treat the risk (i.e., mitigate, monitor and track)

Additionally, FAA SMS concepts also expect a Risk Management process to:

- apply, track, and monitor the mitigation strategy and
- assess and modify strategies as necessary.

This is also described in the FAA Circular.

For this Task, the ESIS approach will be to:

- Review the existing SRM procedures, processes and policies as developed under the first pilot study. Determine if it fully meets and documents the SMS process.
- Ensure roles and responsibilities are clearly defined, both in terms of input and outputs, indicators and targets and accountabilities to ensure Risks are managed and abated and managed by the right part of the organization. This will involve not only reviewing the organizational relationships but may include interviewing responsible parties to verify roles, responsibilities and accountabilities.
- Ready these documents for the following Study Tasks.
- Modify and adjust the inspection criteria (See Study Task 2)

In particular, the ESIS Risk Assessment Process is systematized and documented to ensure technical accuracy, reproducibility and sustainability. The ESIS approach is consistent with the approach described in the references. As illustrated below in Table 1, our typical approach for risk assessment is a 6 step process.

Table 1. Risk Assessment Methodology

Step 1: Identify your Tasks		Step 2: Identify your Risks, Threats and Hazards					Step 3: Identify your Preferred Controls		Controls: Refer to Part 139 if Applicable: Less Effective Controls		
Department	Task	Hazard Category (What could go wrong)	Hazard Aspect (Types)	Scenario (outcome)	Severity Description	Part 139 Task Applicability	Controls: Elimination/Substitution	Controls: Engineering	Controls: Administrative/warning	Controls: Personal Protective Equipment (PPE)	Description of Controls

Step 4: Determine Risk Factors and Evaluate Risk			Step 5: Corrective Action and Implementation		Step 6 Risk Management and Risk Reduction					
Residual Severity	Residual Probability	Residual Risk Total	Corrective Actions	Corrective Action (CA) Assigned to (by Department)	Critical Control (Y if Residual Severity is Catastrophic or Serious, or if Residual Risk is High)	Describe the Critical Control? (add to inspection, testing or observation)	Critical Control Owner (by Title)	Control Category (based on Corrective Action)	Hierarchy/Defense in Depth Met (If No, then add additional controls via CAs is Step 5)	Risk Reduction Target

This approach and associated plan will be completed and reviewed by JAA stakeholders before moving on to Study Task 2.

Deliverables:

- Written Procedure re-drafted and edited to be fully inclusive of the process, roles and responsibilities and assessment methodologies.
- Risk Assessment Methodology (and Excel table)
- Revised inspection criteria methodology process (See Task 2).

TASK 2- *Conduct at least 3 safety risk analyses/assessments*

For this Task, the ESIS Team will work with JAA to identify three areas or tasks for risk assessment. Typically these are performed in higher risk areas, one each in the movement and non-movement areas, the other can be a collective involvement of multiple stakeholders. The first risk assessment will involve hazards associated with "Wildlife". We will expect to involve numerous stakeholders in each risk assessment itself; preceding the assessment with some training in the process while soliciting stakeholder input into hazard and control identification, severity and likelihood determination. The ESIS Team will lead and facilitate these assessments face to face, the first one to coincide with the first of the four required quarterly site visits.

The typical outline of each 6-8 hour risk assessment effort is:

- A two hour introduction to the risk assessment process with the stakeholder group
- Preliminary risk assessment to include control selection
- Risk and mitigation strategy determination.

After mitigation strategies have been implemented; one of the ESIS team members will perform a field walkthrough and verification of hazard and controls and finalize the risk assessment document.

Deliverables:

- Two face-to-face risk assessment meetings (one to coincide with the quarterly visit. The other two will be scheduled back to back to minimize travel expenses)
- Three risk assessments (in Excel).
- Risk assessment training PowerPoint.

TASK 3- *Implement a safety reporting and/or data collection system*

ESIS will evaluate and make recommendations on the JAA SMS hazard reporting system to verify that it meets the SMS Manual and FAA SMS expectations.

There are two parts to Study Task 3. One is the safety (hazard) reporting, the other is the data collection.

From a safety hazard reporting standpoint, the SMS should include a visible non-punitive safety reporting system supported by management. The safety reporting system should permit feedback from personnel regarding hazards and safety-related concerns. The SMS should use this information to identify and address safety deficiencies. The safety reporting system may also identify and correct non-conformance to safety policy. This includes not only safety reporting of personnel concerns, but safety reporting as identified by existing inspection and other systems. Some of these inspections may include the Part 139 FAA required inspections as well as other inspections performed by airport operations and their tenants.

Finally, the ability to collect and analyze this data is imperative to a functioning SMS, along with developing indicators and targets for these data points.

The ESIS Team approach will be to inventory the existing data collection media and collection systems, both on the part of airport and tenant operations and SMS expectations. Our evaluation will help JAA to develop both incentives and management accountably for the encouragement of concern reporting, and help JAA develop and implement incentives and management metrics and accountabilities so that reporting is encouraged and rewarded. In addition, SMS expects the data to not only be collected, but trended and analyzed (Study Step 5).

Deliverables:

- Lists of data collection media
- Categories of safety concerns
- Develop indicator and targets for the organization to encourage reporting
- Incentive or recognition approaches that organizational management can use to encourage data collection.

TASK 4-*Collect hazard reports, incident and accident reports, and other safety related data/information*

The ESIS Team will conduct an analysis of the JAA SMS hazard reporting system and making recommendations for improvements. It is our expectation that there are numerous existing inspections that occur within the airport. Some of these are required by regulation (e.g., Part 139, OSHA). Others, such as preventative maintenance activities, may also identify hazards associated with critical control equipment (alarms, sensors, vehicles, etc.). Thus, there are a number of organizations within the airport that help identify hazards, i.e., fire dept, security, etc. These hazard identification sources will be inventoried and collected.

From an incident and accident report standpoint, again, a number of organizations perform these activities. These sources will be inventoried and collected.

Deliverables:

- List of Hazard Reports / Sources
- List of Incident and accident reports / Sources
- Lists of improvement recommendations

TASK 5- *Analyze the information collected*

The ESIS Team approach will be to demonstrate and document an analytical process that sorts and trends the:

- inspection data,
- reporting data
- conformance to high risk controls
- hazards identified
- closure rate on corrective actions and mitigations and
- achievement of indicators and targets.

The ESIS Team will review, collate and analyze the first three months of data and present it in a systematic scorecard type approach many of our clients have found beneficial. This approach will be documented so JAA can reproduce it in a sustainable manner.

Deliverables:

- A process for sorting and analyzing data and
- A scorecard of indicators and targets utilizing this data.

TASK 6- *Conduct an internal audit/evaluation (Assessment)*

Conduct an internal audit/evaluation (**Gap Analysis**) of the Safety Risk Management related elements (for example, the ISAGO criteria for Risk Assessment and Safety Assurance), following the methods and procedures prescribed under the Safety Assurance component of the airport's SMS Manual and the other FAA references.

In order to perform this analysis, we use a combination of three methods. Specifically:

- Documentation (Record) review
- Interviews with personnel, both Airport and cognizant stakeholders that impact these SMS elements.
- Physical survey of the three risk-assessed areas

Each of the above helps validate and verify the findings and conclusions of the other.

The physical survey portion is then performed to verify how your existing processes may meet SMS Risk Management expectations. Various records and action plans are tested. Some additional topic-specific interviews may be performed at this time. Again, this survey will coincide with one of the four required on site quarterly meetings.

Scoring Process

ESIS uses a qualitative and quantitative gap analysis/audit process. This component consists of a number of elements, for which we will also evaluate, score and describe any findings. The scoring process is consistent with a methodology used for over 20 years, which helps benchmark site programs and efforts against equivalent level programs. Thus, for each criterion, there are five possible answers and points awarded:

- Does Not Meet — 0 points = Not found
- Under Development — 1 point = Beginning, documented but not implemented
- Partially Meets — 2 points = implemented but missing in either documentation, consistency, thoroughness or effectiveness
- Meets — 3 points, and
- Not Applicable — null

Findings are recorded, as are Responses (R), Points Received (PR), and Points Available (PA). The points received are divided by the points available to yield a percentage score, based on a 0-100 scale.

Within each Element, points are totaled, and compared to the total points available, yielding a score from 0-100%. Based on over 300 surveys performed over the last 18 years, the scoring methodology is:

Table 2 Scoring Methodology	
0-50%	Gaps exist in the program, process, or effectiveness
51-79%	The program or process has some vulnerabilities in providing consistent, sustainable results
80-100%	While there still may be some recommendations for improvement, the overall program or process is effective in design and implementation.

Our customers have found that by combining a qualitative and quantitative gap analysis, relative strengths and weaknesses are not only better determined, it creates a baseline against which true continuous improvement can be measured. This information is extremely valuable as a baseline for future assessment so true SMS progress can be evaluated and verified.

Deliverables

- Gap Analysis Score
- Gap Analysis Narrative Report