FAA
Airports

Part 139 Safety Management System (SMS) Implementation Study

November 2011 Roundtable Meeting Summary

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Executive Summary

On November 2 and 3, 2011, the Federal Aviation Administration (FAA) hosted a Roundtable Meeting for the 14 airports participating in the Part 139 Safety Management System (SMS) Implementation Study. The intent of the study was to examine how airports certificated under 14 Code of Federal Regulations (CFR) Part 139, *Certification of Airports*, apply the elements of the Safety Risk Management (SRM) and Safety Assurance components of SMS to their airfield environments. With most participants nearly finished with the Study tasks, the FAA requested that each airport present its findings, lessons learned, benefits, and challenges. This report summarizes those presentations.

This Pilot Study and Roundtable Meeting Summary is separate from the FAA's ongoing rulemaking project, Safety Management Systems for Certificated Airports (RIN 2120-AJ38, Notice of Proposed Rulemaking published on October 7, 2010, at 75 FR 62008). Findings, lessons learned, and best practices may be incorporated in FAA Advisory Circular (AC) 150/5200-37, Introduction to SMS for Airport Operators, but the FAA does not plan to use information from this pilot study as part of the rulemaking project because the comment period on the NPRM closed on July 5, 2011. Nevertheless, this document is being placed in the rulemaking docket.

Background

In May 2010, the Federal Aviation Administration (FAA) initiated the Part 139 SMS Implementation Study (Study) as a follow-on to the two previous Airport SMS Pilot Studies. The Study was intended to examine how airports certificated under 14 Code of Federal Regulations (CFR) Part 139, *Certification of Airports*, apply the elements of the Safety Risk Management (SRM) and Safety Assurance components of SMS to their airfield environments. For all participants, this meant implementing provisions of their SMS within the movement area (e.g., runways and taxiways) of the airport. Some participants also chose to apply SMS to their non-movement areas (e.g., ramps, aprons, bag-makeup areas).

The Study gave the FAA an opportunity to assess implementation of SMS within various operating environments and to evaluate the validity of SMS documentation developed during the Airport SMS Pilot Studies. The FAA intended to use the Study findings as it developed SMS standards and guidance for certificated airports throughout the nation.

Only airports that participated in the previous Airport SMS Pilot Studies could participate because deliverables developed during those Studies served as the foundation for the Implementation Study tasks.

Fourteen airports chose to participate in the Study. All 14 airports applied for Airport Improvement Program (AIP) assistance and received awards ranging from $78,000 to $500,000.

Participants had 12 months from AIP grant award to complete the study. The final report was due within 13 months of AIP grant award. The FAA granted some extensions on a case-by-case basis. Due to different AIP grant award dates, participants completed their work between October 2011 and February 2012.

Study Tasks

1. Implement SRM procedures, processes, or policies as formulated under the airport's SMS Manual or other documentation developed for the airport during the Airport SMS Pilot Studies.
2. Conduct at least three safety risk analyses/assessments, not including any analyses/assessments required under the FAA Air Traffic Organization SMS.
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 during the Airport SMS Pilot Studies.
4. Collect hazard reports, incidents, accident reports, and other safety-related data/information identified in the airport's SMS Manual or other applicable documentation.
5. Analyze the information collected through the reporting and/or data collection system or applicable processes.

6. Conduct an internal audit/evaluation following the methods and procedures prescribed under the Safety Assurance component of the airport's SMS Manual or applicable documentation.

Documentation

Participating airports first submitted plans detailing how they planned to complete study tasks, including proposed safety risk analyses/assessments. They also submitted monthly reports on the status of Study tasks and deliverables. Each participant was to develop a final report detailing Study findings and deliverables, including copies of changes made to the airport's SMS Manual or other documentation. The Study also required participants to document the usefulness of any software procured; costs associated with development, procurement, or maintenance of software; and any challenges or lessons learned related to SRM and Safety Assurance.

Summary of the Roundtable Meeting

Over the course of the study, the FAA hosted regular teleconferences with participants. The FAA also hosted meetings at FAA Headquarters in Washington, DC, in January 2011 and November 2011. The one-day January meeting permitted participants to report on their mid-point findings and discuss challenges with their peers and with the FAA. The two-day November meeting allowed participants to report on their findings, lessons learned, challenges, and benefits gained through participation in the Study. Both meetings resulted in productive discussions. The following report summarizes the November 2011 meeting sessions, including participant presentations. These presentation are also available at http://www.faa.gov/airports/airport_safety/safety_management_systems/.

Each airport developed a 15-minute presentation. As some participants had not completed all Study tasks at the time of the November 2011 meeting, the presentations did not all follow the same format.

Appendix A includes the meeting agenda. Attendees agreed to combine the two summary sessions scheduled for Thursday, November 3, in the interest of time and to ensure all participants had an opportunity to present their findings.

Appendix B includes the sign-in sheet for both days of the November 2011 meeting. Some attendees participated via teleconference.

Session 1: Welcome, Introductions, Update on FAA Activities, and Meeting Expectations

Presented by: Michael O'Donnell (FAA) and Keri Spencer (FAA)

After introductions and logistical notes, Michael O'Donnell and Keri Spencer thanked the airports and their consultants for attending the Roundtable Meeting and participating in the Study. Citing the importance of the Study, they noted that all of the Pilot Studies have expanded our knowledge of SMS.

Mr. O'Donnell noted the FAA plans to incorporate the findings, lessons learned, and best practices into its update to FAA Advisory Circular (AC) 150/5200-37, *Introduction to SMS for Airport Operators,* which will be the "nuts and bolts" of how to apply SMS. After the anticipated spring 2012 release of a draft version of this AC, interested parties will have 60 days to provide comments.

Attendees were then reminded there would be no discussion related to the Part 139 SMS rulemaking activities during the meeting. Ex parte communication rules prohibit the agency from discussing the rule once the comment period closes. One attendee asked how the industry could hear about the status of the rulemaking. An attorney with the FAA's Office of Chief Counsel explained that once the rulemaking package leaves the agency, the FAA has less control over timelines. Anyone interested in the rulemaking status can view it on the Department of Transportation's website at http://regs.dot.gov/rulemakings/index.htm.

Session 2: Hartsfield-Jackson Atlanta International Airport
Presented by: Scott Ayers (Hartsfield-Jackson International Airport)
PowerPoint Presentation (available for public viewing)

After providing an overview of the ownership, physical layout, and statistics of the Hartsfield-Jackson Atlanta International Airport (ATL), Mr. Ayers summarized ATL's SMS implementation.

Safety Risk Assessments
ATL chose to expand the five-step SRM process (describe the system, identify the hazards, determine the risk, assess and analyze the risk, and treat the risk) described in FAA AC 150/5200-37, *Introduction to SMS for Airport Operators,* by including a sixth step: risk management and risk reduction. The airport believed that "tracking" risk and mitigations, including their implementation and effects, was as important as the other SRM steps. Hence, ATL added "Risk Management and Reduction" and multiple sub-steps to its SRM process. (See Figure 2.1)

Step 6 Risk Management and Risk Reduction					
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

Figure 2.1: Excerpt from Hartsfield-Jackson Atlanta International Airport's Safety Risk Assessment Process (Courtesy of Hartsfield-Jackson Atlanta International Airport)

ATL completed three safety risk assessments (SRAs), analyzing hazards associated with vehicle traffic, foreign object debris (FOD), and the Taxiway D conversion from movement to non-movement area access. All three SRAs used subject matter expert panels, but two had FAA facilitators and one was facilitated by ACE/ESIS, the airport's consultant on the Study.

The airport noted that SRA panels require a substantial amount of time. Of its three SRAs, ATL did not complete any of them within a six-hour, one-day session. ATL believed a better format would be four-hour, two-day sessions. Scheduling conflicts of key participants was also a challenge. During the Taxiway D Conversion SRA, the airport discovered that without key stakeholders and experts on the panel, the airport had to delay panel meetings or reconvene the panel at a later date.

ATL chose to use an SRM process similar to that used by the FAA Air Traffic Organization (ATO) and found it challenging to determine who was responsible for accepting known risks for shared areas under the SRA. FAA's ATO SMS Manual clearly identifies signature and authority levels for FAA personnel, but not for non-FAA organizations. Based on the SRAs completed during the Study, ATL found that similar responsibilities must be assigned for the airport interacting with the FAA.

Overall, ATL found the SRA process to be helpful in effectively evaluating hazards with construction projects and changes on the airfield.

Information Technology (IT) Solutions

ATL currently uses GCR's Airport Security and Operations Compliance System (ASOCS) to assist with recordkeeping and Part 139 compliance. For this Study, the airport chose to expand the use of ASOCS to include SMS-related data research, report generation, and search capability.

ATL used ASOCS for data analysis and provided examples of its application. For example, the airport isolated areas of the airport to install traps by analyzing wildlife sighting information recorded in ASOCS. They caught three coyotes in a week and attributed that success to the data reporting and analysis functions of ASOCS.

ATL believed the ASOCS database system was beneficial for both Part 139 compliance and SMS reporting.

ATL also created its own forms, including an SMS "dashboard", to provide managers with a visual depiction of key SMS-related performance indicators and targets. (See Figure 2.2) ATL's dashboard reported FOD calls, wildlife sightings/incidents, incident reporting, and HAZMAT spills. ATL liked the dashboard concept and believed it could be an industry standard for regularly communicating SMS information to airport management. ATL admitted that the dashboard is still in its early stages and that the airport is using GCR's program and the dashboard as a "blackboard" for sketching out a future model for reporting, data records, and trend analysis.

The airport planned to use the dashboard in the future to supplement ASOCS data with trend analysis and tracking capabilities.

JANUARY SMS AT A GLANCE DASHBOARD

Hartsfield-Jackson
Atlanta International Airport

	Action Plan				Risk Profile			
	# of findings	% Change	Closure rate %	% change	High Risk (HR)%	% nt chng YTD	% to Goal	YTD?
TOTAL	25	-22%	92%	73%	8.00%	-28%		
SMS (Why?)	0	-100%	N/A	N/A	0%	0%		
Incidents	25	23%	92%	53%	0%	0%		
Special target topic/area								
Special target topic/area								
Special target topic/area								

Location

	Frequency	Percentage	Percent % Change
Gates	5	20%	-51%
Other	7	28%	Not Enough Data
Ramp	4	16%	-46%
Runway	9	36%	872%
Taxiway	0	0%	-100%
Threat Area	0	0%	-100%

Frequency by Location

Contributing Factors

	Frequency	Percentage	Percent % Change
Equipment Failure	9	36%	1052%
Human Factor	3	12%	-57%
Rules/Standards/Policies	5	20%	28%
Work Environment	8	32%	-32%
Supervision	0	0	-100%

Frequency by Contributing Factors

Risk

	Frequency	Percentage	Percent % Change
High	2	8%	28.00%
Medium	15	60%	13%
Low	8	32%	-21.23%

Frequency by Risk

Hazard Category

	Frequency	Percentage	Percent % Change
FOD	9	36%	-25.20%
Fuel/oil/toxin	4	16%	28.00%
Mechanical	8	32%	824%
Personal	0	0%	-100%
Structural	0	0%	-100%
Wildlife	4	16%	2%

Frequency by Hazard Factors

Part 139 Indicator

	Frequency	Percentage	Percent % Change
Handling and storing of h...	4	16%	24.00%
Noncomplying conditions	0	0%	0.00%
Pedestrians and Ground V...	4	16%	148.00%
Self-inspection program	9	36%	-7.00%
Wildlife hazard managem...	4	16%	-0.80%
Aircraft Rescue & Firefight...	4	16%	Not Enough Data

Frequency by Part 139 Indicator

Responsible Party/Dept.

	Frequency	Percentage	Percent % Change
Airlines	5	20%	540%
Airport Maintenance	13	52%	10.90%
Airport Operations	4	16%	-43.11%
Other 3rd Party	3	12%	28.00%

Frequency by Dept.

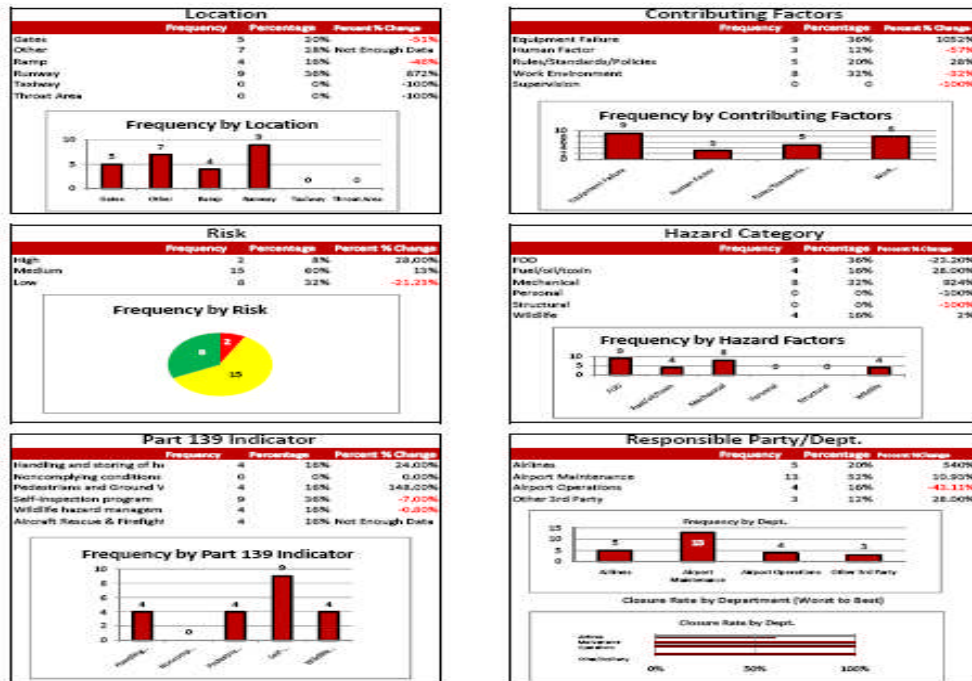Closure Rate by Department (Worst to Best)

Closure Rate by Dept.

Figure 2.2: Sample Dashboard (Courtesy of Hartsfield-Jackson Atlanta International Airport)

Reporting

ATL reported that while airport staff had been forthcoming in reporting under the SMS, corporate tenants viewed data reporting differently. Due to the tenants' vested interest in their companies' reputations and a view that data shared with the airport would become publicly available, some tenants openly chose to not participate in data sharing or reporting. However, tenants still participated in SMS-related workgroups.

ATL found that while the use of data in SMS is critical, most entities are still reluctant to share data unless it can be sanitized. ATL had to persuade tenants that data sharing is important to the success of SMS.

Safety Assurance

To complete the Study's Safety Assurance tasks, ATL used a performance assessment tool developed by ESIS, its insurance carrier. ESIS based the tool on the FAA's Notice of Proposed Rulemaking for SMS for Certificated Airports.

Other Lessons Learned

The significance of stakeholder engagement was one of the airport's most important lessons learned. ATL identified its stakeholders, including local government, federal government, airport

tenants, and airport staff. The airport believed having all tenants participate in the development of SMS was essential to a successful program. At ATL, stakeholders worked together through the ATL SMS Working Group, which encouraged participation in SMS initiatives and the sharing of safety information. ATL also believed the airport's SMS Committee provided a structured forum for discussion and engaged stakeholders in specific areas of interest so their concerns could be raised and taken into account. ATL believed these working groups provided cohesive business relationships in the development and refinement of the SMS.

ATL believed the airport now has a robust SMS with more resources and tools, a refined SMS Manual, and an informed staff. ATL believed this initiative will enhance safety and allow the airport to realistically and efficiently balance safety and operations.

Session 3: Dubuque Regional Airport
Presented by: Allen Parra (Applied Research Associates (ARA))
PowerPoint Presentation (available for public viewing)

Mr. Parra gave an overview of the ownership, physical layout, and statistics of the Dubuque Regional Airport (DBQ) and then summarized DBQ's SMS implementation.

Safety Risk Assessments
Before conducting its SRAs, DBQ reviewed, assessed, and updated the SMS Manual it developed during the Airport SMS Pilot Studies. To determine what three hazards/issues to assess, ARA initiated discussions with the airport's SMS Coordinator (Airport Operations Supervisor) and DBQ staff.

The three completed SRAs analyzed hazards associated with the airport's Airport Operations Area (AOA) Driver Training Program, aircraft towing operations, and construction safety for its new terminal, ramp, taxiways, and service road. DBQ used a subject matter expert panel for analysis.

DBQ identified the following lessons learned for SRAs:
- The need to limit scope and time when conducting an SRA. General topics like "construction" are more difficult to analyze using the five-step SRM process. Third-party facilitation helps maintain focus.
- A combination of key stakeholders and subject matter experts is essential to success.
- Stakeholders/subject matter experts should be briefed on the hazard/issue and the SRM process before starting.
- During the first panel meeting, subject matter experts should receive a preliminary list of hazards.

DBQ discovered panels helped participants view their jobs in different ways. For example, brainstorming activities helped participants understand the impact their work had on other activities and organizations.

While DBQ invited FAA organizations to participate in the SRA panels, FAA staff did not attend. A Representative from the airport's contract Air Traffic Control Tower did participate in the SRA.

IT Solutions
DBQ said the backbone of its SMS safety reporting system is an asset management system. Through an SMS Module, which ARA developed with Cartegraph, the existing system provides SMS recordkeeping and reporting functions, including reporting for incidents, hazards, and safety concerns. (See Figure 3.1) The system includes location information (via Geographical Information System) and tracking capability. DBQ explained it also uses the system for enhanced

Part 139 discrepancy reporting and tracking, and since other city departments use the asset management, it offers economies of scale.

Upon completing the Study, DBQ identified the following best management practices for IT solutions:

- Begin coordinating the SMS portal development, schematic framework, and software solution early in SMS development/implementation if an IT solution is used for hazard reporting, analysis, or tracking.
- Explore potential conflicts before deploying the system if the SMS portal will interface with other airport systems.
- Link hazard reporting fields/data to work order fields for immediate action by maintenance departments to provide time efficiencies.
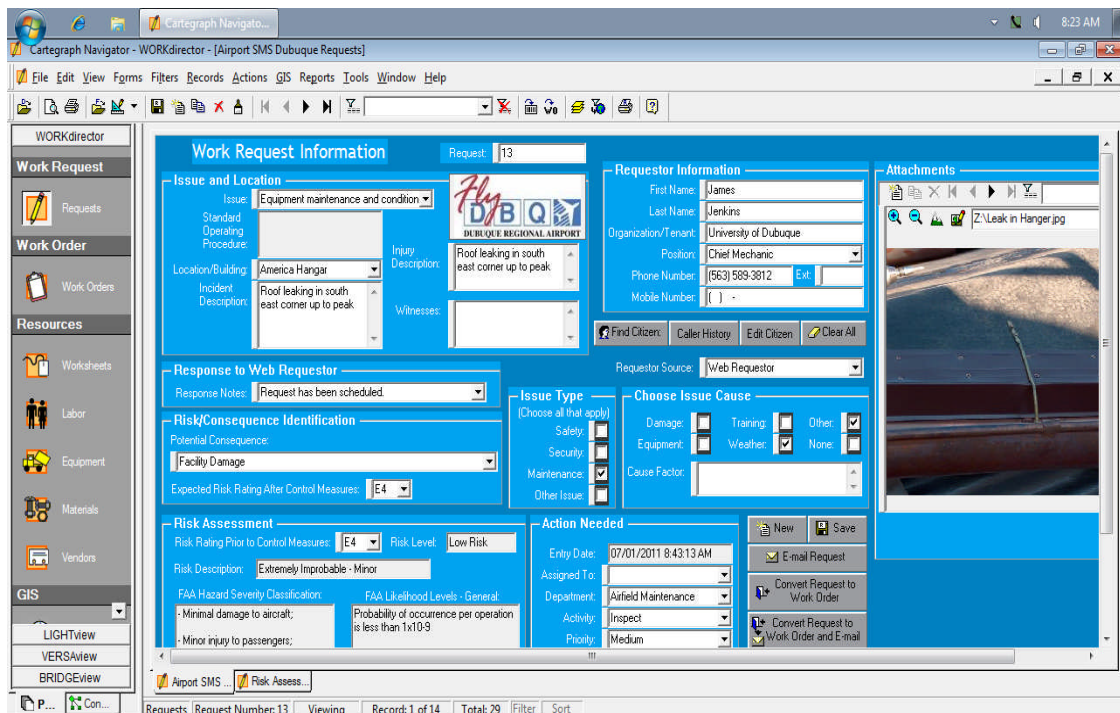
Figure 3.1: DBQ Screen Shot, Hazard Data, and SRM (Courtesy of ARA)

Reporting

DBQ's old method for incident and hazard reporting focused on reactive reporting through paper or electronic transmission. The airport stored documents in multiple locations, which made distribution for management review cumbersome, labor intensive, and at times inconsistent. This reactive process challenged effective trend analysis.

Under SMS, DBQ automated its hazard and incident reporting. The airport explained it now works in a virtually paperless environment, which allows for consistent formatting, archiving, and permanent recordkeeping. The system:

- Allows hazard reporting via smartphone by airport operations employees.

- Links locations to the airport's Geographic Information System (GIS).
- Allows image uploads where appropriate.
- Provides the general public the ability to report hazards, although these reports are typically not airside related.
- Will include an anonymous reporting capability with the next software upgrade.

DBQ said supervisors review all reports and determine the course of action for response. With this centralized data repository, DBQ believed it had moved to a more proactive response capability that enabled hazard mitigation.

Safety Assurance

In July 2011, ARA conducted the internal program evaluation for the Study's Safety Assurance task. ARA used the methodology described in the Airport Cooperative Research Program *Report 1, Safety Management Systems for Airports, Volume 2: Guidebook* (2010). ARA came to several conclusions during this evaluation:

- Positive attitudes provided evidence of staff awareness of SMS and SRM.
- There were signs of a positive safety culture.
- The SMS efforts in the airport's operations and maintenance programs are highly visible.
- Hazards are reported and analyzed, including the use of trend analysis and/or investigation.
- Management understanding of SMS (or the military's Operational Risk Management) helps buy-in and support.

The evaluation identified areas for improvement, including continuing implementation efforts and integrating SMS concepts into the airport's existing safety programs.

Other Lessons Learned

The airport planned to continue evolving its SMS. DBQ said it planned to further revise its SMS Manual and develop a training program for all airport staff, tenants, and stakeholders. DBQ developed its Safety Policy and incorporated it into the SMS Manual. The airport believed its Safety Policy encouraged employees to report safety issues.

Session 4: Dallas/Fort Worth International Airport
Presented by: Julie Schreacke (Dallas/Fort Worth International Airport)
PowerPoint Presentation (available for public viewing)

After providing an overview of the ownership, physical layout, and statistics of the Dallas/Fort Worth International Airport (DFW), Ms. Schreacke summarized DFW's SMS implementation.

At the start of the Study, DFW dedicated a position, the SMS Administrator, to SMS implementation/oversight; Ms. Schreacke holds this position. Although she did not have a staff during the Study, Ms. Schreacke stated the airport anticipates needing additional personnel for data management analysis. She explained that under DFW's organizational structure, the SMS Administrator is involved in the investigative process, collects information, and follows up as appropriate but operates on a "peer" management basis. DFW identified the Executive Vice President of Operations as the airport's Accountable Executive.

Safety Risk Assessments
Before conducting its three SRAs, DFW reviewed its SRM processes as defined in the SMS Manual developed during the Airport SMS Pilot Studies. ARA, the airport's consultant for the Study, initiated discussions with the SMS Administrator to determine which hazards/issues the airport would analyze for the Study. Topic selection was a collaborative effort.

The airport's SRAs identified the hazards and associated risks associated with surface incidents in the movement area, winter weather operations, and ramp construction safety. DFW used a subject matter expert panel for these assessments due to the complexity and integrated nature of the issues. However, DFW also used a "screening" process to conduct proactive, formalized SRM on simpler issues or hazards. The SMS Administrator conducted this screening.

Upon completion of the SRAs, the airport identified several lessons learned and best practices:
- When using a subject matter expert panel, panel members must consistently attend meetings.
- Panel participants should be familiar with the risk matrix before coming to meetings. DFW used an introductory program to give participants an idea of what to expect.
- Scheduling conflicts make it difficult to arrange meetings with subject matter experts.
- Each meeting should last no more than four hours and be held over multiple days.
- Panels should be small or split participants into sub-panels for analysis.
- General topics, such as winter weather operations, were much more difficult to analyze. Topics should be narrowed for meaningful analysis.
- Developing an initial preliminary hazard list prior to panel meetings can save time and help guide panel discussion.

During the Study, ARA suggested the use of a risk-based approach to analyze wildlife hazards at DFW. As this topic still requires further industry research, guidance, and standardization, the

airport said it is open to investigating a risk-based approach to wildlife hazard management for high-risk prioritization of management activities.

IT Solutions

DFW developed its integrated safety report and SRM process software in-house. The airport learned that selection of SMS software early in implementation is a key to success.

Like other airports, DFW used its asset/fleet management software (Infor EAM) as the base platform for SMS hazard reporting and tracking. DFW added fields to help report incidents, choosing to require only key information so as not to overload staff and managers when reporting and reviewing. The SMS fields allowed staff and management to highlight reports and flag those that represented hazards and safety significant events. The system could automatically generate email notifications to eliminate variability in user-generated emails.

DFW purchased laptops for field reporting, although they were not yet in use at the time of the meeting. Once deployed, reporters will be able to include location information using the airport's GIS technology.

Reporting

DFW developed an integrated four-step process associated with hazard identification, reporting, analysis, and decision-making. (See Figure 4.1)

Before adopting this integrated approach, DFW recorded incident or hazard reporting on paper or as "free text" in a simple database. Documentation and narrative incident reports were often stored in multiple places, which contributed to a cumbersome, labor-intensive, and inconsistent reporting system. DFW had no streamlined ability to collect, compare, analyze, and manage incidents and hazards.

The airport explained that hazards are now identified throughout the airport environment and relayed to the Airport Operations Center(AOC)/Call Center by phone, radio, web/network, or the Airport Traffic Control Tower (ATCT). AOC/Call Center Staff record the hazard, which the SMS Administrator then screens. The SMS Administrator determines the level of analysis required and passes the issue along to an SRM panel when necessary.
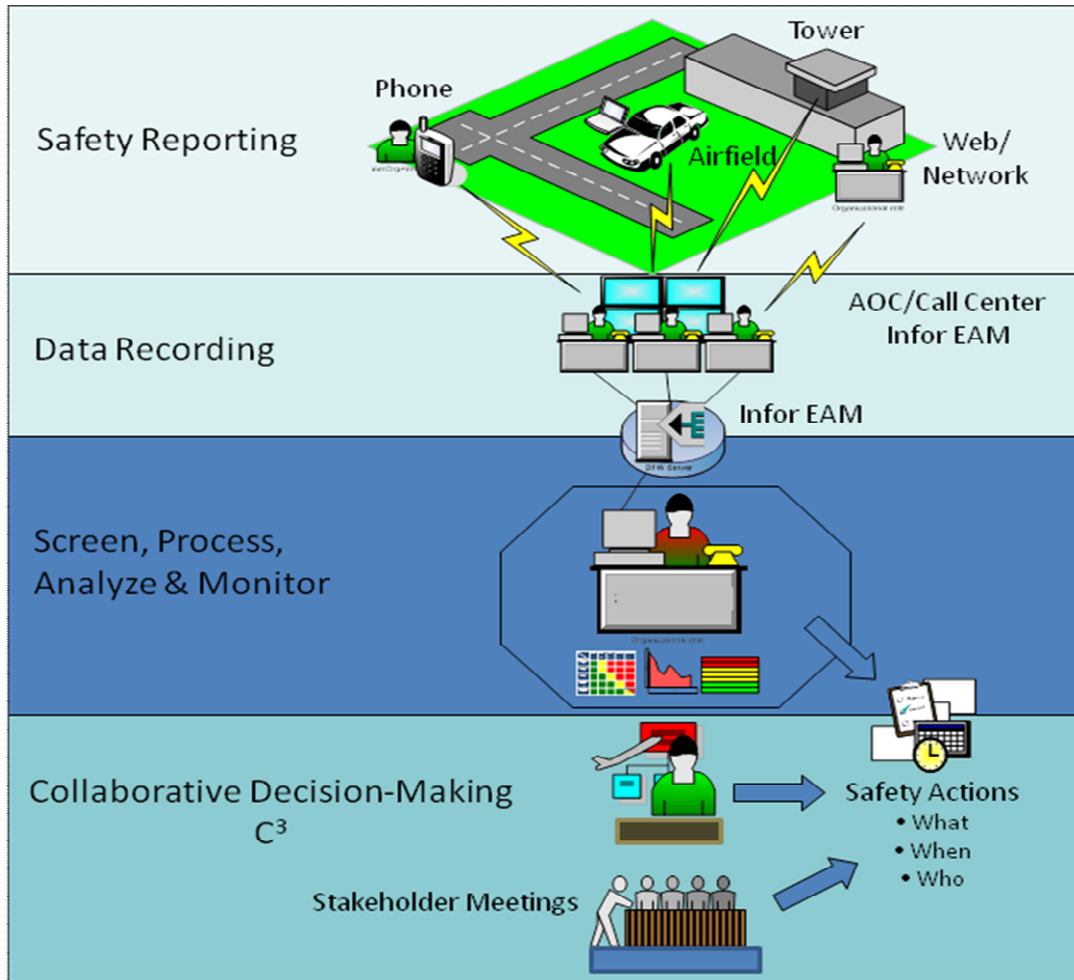
Figure 4.1: DFW Safety Reporting (Courtesy of Dallas/Fort Worth International Airport)

With this integrated approach, DFW moved to a paperless, green reporting process that provides a consistent ability to archive permanent records. DFW realized workload and operational efficiencies and now has an incident and hazard data warehouse that allows for analysis and incident/hazard management.

Safety Assurance

ARA conducted internal program evaluations using the methodology described in the Airports Cooperative Research Program *Report 1, Safety Management Systems for Airports, Volume 2: Guidebook* (2010). ARA reached several conclusions from these evaluations:

- There was evidence of staff awareness of SMS and SRM.
- SMS was highly visible in the Operations Department; other departments were interested in integration.
- There were signs of safety culture transformation.
- Safety data was being reported, analyzed, trended, and investigated.

The evaluations also identified areas for improvement, including the need to continue implementing the airport's SMS Manual and to integrate SMS concepts into existing safety programs and other airport departments. DFW said it plans to integrate SMS concepts into its ramp activities and generate an online SMS indoctrination training program.

Other Lessons Learned

At the time of the meeting, portions of DFW's SMS, including its Safety Policy Statement, were still in draft. However, the airport was continuing SMS implementation and had developed a "roadmap" for its future under SMS. DFW said it views SMS as a transformation of the business and not just a possible future regulation. To help with implementation, DFW planned to establish SMS points of contact in each department.

Session 5: Indianapolis International Airport

Presented by: Trisha Sqrow (Indianapolis Airport Authority) and Dave Fleet (Dave Fleet Consulting)
PowerPoint Presentation (available for public viewing)

After offering an overview of the ownership, physical layout, and statistics of Indianapolis International Airport (IND), Ms. Sqrow and Mr. Fleet summarized the status of the airport's SMS implementation. IND appointed its Chief Operating Officer as the Accountable Executive. The Senior Airport Duty Manager and Health, Safety, and Claims Manager shared responsibilities for implementing the SMS, supported by a team made up of representatives from each division (e.g., engineering, fire, IT, planning, and operations).

Safety Risk Assessment

IND conducted four SRAs, identifying hazards associated with landside terminal escalators and moving walkways, commercial ramp operations (e.g., use of ramp for activities not originally intended), the airport's Capital Improvement Program processes, and line of sight issues from the ATCT.

As a result of the first assessments, the airport modified its likelihood and severity classifications and risk matrix. The new risk matrix, which the airport planned to use for the fourth SRA, included three additional "yellow" boxes to represent airport experience and no longer split the bottom right corner into two risk levels. (See Figures 5.1 and 5.2) IND found that formulating definitions was an important best practice in developing the SMS and SRM processes. IND believed airport-centric severity and likelihood definitions and risk matrices made SMS scalable.

Likelihood:				
Frequently	Occurs once every <u>month or 5,600 commercial operations or 336,000 enplanements</u>			
Probable	Occurs once every <u>year or 68,000 commercial operations or 4,000,000 enplanements</u>			
Remote	Occurs once every <u>5 years or 340,000 commercial operations or 20,000,000 enplanements</u>			
Extremely Remote	Occurs once every <u>10 years or 680,000 commercial operations or 40,000,000 enplanements</u>			
Extremely Improbable	Occurs once every <u>20 years or over 1,360,000 commercial operations or 80,000,000 enplanements</u>			

Severity:				
	People	**Assets**	**Environmental**	**Reputation**
Catastrophic	Fatality+	Loss of an aircraft/or over $1,000,000 dollars in damage/or loss of critical system(s) for an extended period of time	A spill or release that is not contained and results in long-term damage to the environment and fines to the airport	An event or a series of events resulting in the community NOT using IND for an extended period of time
Hazardous	Severe injury, requiring hospitalization	Damage to an aircraft taking it out of service for an extended period of time/or damage in excess of $500,000/or disruption of critical services for extended period of time	A reportable spill or release that requires mitigation	An event or a series of events resulting in the community lessoning the use of IND causing negative (annual) financial or operational impacts
Major	Minor injury requiring medical treatment	Damage to an aircraft that is repairable/or damage to equipment or facility that is reparable within a short period of time.	A reportable spill or release that is contained	An event or a series of events resulting in the community lessoning the use of IND for a short period of time
Minor	Minor injury not requiring medical treatment	Minor damage to an aircraft, equipment, or facility not requiring it to be taken out of service	A spill or release that does not require a report	An event or a series of events resulting in the community questioning the reliability of IND
No Safety Effect	No injury	No Damage	No Impact	No Impact

Figure 5.1: IND's Revised Likelihood and Severity Classifications/Definitions (Courtesy of Indianapolis Airport Authority)

		Severity				
		No Safety Effect	Minor	Major	Hazardous	Catastrophic
Likelihood	Frequently	green	yellow	red	red	red
	Probable	green	yellow	yellow	red	red
	Remote	green	green	yellow	yellow	red
	Extremely Remote	green	green	green	yellow	yellow
	Extremely Improbable	green	green	green	green	yellow

Low	Medium	High
No Action Required	Monitor, Determine if Risk can be Mitigated to a Low Risk	Must be Mitigated to a Medium Risk

Figure 5.2: IND's Revised Safety Risk Matrix (Courtesy of Indianapolis Airport Authority)

Although not complete by the November 2011 meeting, the fourth SRA of the ATCT line of site issues already presented challenges. Both the airport and ATCT staff questioned whether simulations should be conducted before the SRA and who should initiate or "own" the SRA. Also, this was the first such Safety Assessment led by the airport instead of FAA's ATO.

IND had good participation in the SRAs, including by FAA offices. The airport found it beneficial to have good relationships with stakeholders when conducting these assessments.

IT Solutions

The airport selected TRA Industry Safe software and used the safety performance metrics provided by the platform. TRA provided a wide range of internet-based options, so data security was critical. IND planned to integrate the software into its maintenance system.

The software allowed anyone to report a hazard—even the general public—through the main airport website. It also allowed hazard coding so the airport could flag Part 139 compliance-related hazards and discrepancies for immediate resolution.

Previously, data was kept in a file cabinet in the Health, Safety and Claims Manager's office and on an electronic spreadsheet. Under SMS, the airport planned to host the new system off-site to

better protect the data. The airport negotiated dedicated server space and the ability to retrieve data from TRA's servers if the airport chooses to contract with a different vendor in the future.

The airport said it is exploring tablet technology for its operations staff to allow remote, real-time reporting.

Reporting

To find meaningful information, IND believed:

- Reporting should be integrated with existing programs and IT where possible.
- Managers should review data to find key performance indicators for use in SMS reporting and trend analysis.
- Airports should use periodic reviews—weekly, monthly, or annually—to accomplish this data review.

IND found some stakeholders better at reporting and documenting issues than others. They also experienced challenges in getting stakeholders to formally document hazards instead of just taking action. IND planned to use its Call Center as one point of report collection.

Other Lessons Learned

IND intended to continue evolving its SMS Manual. For example, it planned to add key performance indicators to the Manual as a way to "keep the pulse" on overall safety assets at the airport.

Session 6: Jacksonville International Airport
Presented by: Roger Studenski (Jacksonville Aviation Authority)
PowerPoint Presentation (available for public viewing)

Mr. Studenski began with a brief overview of Jacksonville International Airport's (JAX's) SMS development and implementation. JAX adopted SMS immediately and started implementation in May 2008, before the Part 139 SMS Implementation Study. Mr. Studenski noted that the Chief Executive Officer supports SMS unequivocally and thinks SMS makes good business sense. JAX applied its SMS to the airside, landside, parking areas, and adjacent roadway environments. Mr. Studenski noted that Jacksonville Aviation Authority decided to deploy SMS to its other system airports, including Cecil Airport, a general aviation airport recently designated as a spaceport.

Stakeholders
At the time of the Study, there were 251 airport employees operating at the airport. Delta Airlines, the airport's principal airline, declined to participate in the airport's SMS activities due to data protection issues. Other airlines appeared cooperative in the beginning, but hazard reporting has since slowed significantly. One fixed base operator (FBO) has not used the reporting system because of corporate direction.

The airport took what it called a "holistic approach" to SMS, attempting to include various stakeholders—such as air carriers, charters, and FBOs—in the development and implementation of its SMS. During implementation, JAX found that turnover within these stakeholder organizations made SMS training a challenge.

JAX believed that Safety Promotion within the airport and among its stakeholders should be constant. Airport staff discussed safety information during monthly station manager meetings, safety committee meetings, and airline meetings. JAX also believed that tenant participation was crucial for SMS success.

Safety Risk Assessments
JAX used two methods for conducting SRAs. For simple hazards or issues, the SMS Manager conducted the basic analysis. For more complex issues, the SMS Manager looked at the data and decided whether a formal SRA should be conducted. JAX believed the SMS Manager should be well trained to gather data, conduct analyses, and run the formal safety risk assessments to conduct this type of screening.

While conducting its SRAs, JAX questioned the reasonableness of mitigating all "high risk" hazards. JAX believed that some hazards may require extreme remedies to mitigate to a medium or low risk. For example, to mitigate the issue of burrowing animals, the airport would need to install 18 miles of buried fence, a costly remedy.

IT Solutions/Reporting

As of November 2011, JAX used an online hazard reporting system by eRisk that allowed anyone to report hazards using a pre-defined form with drop-down menus. (See Figure 6.1) For the general public, JAX included pictures of common airport items for easier reporting and consistency. The SMS Manager received immediate notification when a report was submitted and could enter the system to screen the hazard, determining the level of analysis or action required.

Figure 6.1: JAX SMS Online Reporting Form (Courtesy of Jacksonville Aviation Authority)

Reporters could see the status and resolution of an issue using the Bulletin Board function. (See Figure 6.2) After the system's next update, reporters will be able to identify the hazard's location using an airport layout plan.

Figure 6.2: JAX SMS Public Bulletin Board (Courtesy of Jacksonville Aviation Authority)

JAX used the eRisk software to create the SRA and to develop its dashboard, which provided a visual depiction of key safety activities on both the airside and landside of the airport. (See Figure 6.3)

Client: Jacksonville Aviation Authority   View Report
Date: 10/27/2011

1 of 3 ▶ ▶| 100% ▼ | Find | Next | Select a format ▼ Export

SMS Monthly Activities Dashboard (Data as of 10/27/11)

New activities created this month.   ▶ = increase from last month

SMS vs Non-SMS

	New Actions			Since last month	Closed Actions			Since last month	Priority			Since last % to year Goal	YTD?
Source	Created	#	%		Closed	#	%		High	#	%		
SMS		4	0	-57%		17	100%	+1%		0	0	-3%	
Non-SMS ▶		31	100	+13%		0	0%	-10%	▶	4	100	+4%	
	0 15 35				0 10 20				0 3 5				

All Sources Summary

Contributing Factors

Top 5 Contributing Factors	Actual	%	Since Last Month
▶ Equipment Failure	12	39	+15%
▶ Work Environment	11	35	+13%
▶ Human Factor	8	26	+13%
Decision Makers	0	0	NA
Supervision	0	0	NA
0 10 15			

Responsible Party/Dept

Top 5 Responsible Party/Dept	Actual	%	Since Last Month
Aviation	22	26	0%
Airlines	4	23	-2%
Contractors	3	10	-17%
▶ ARFF	1	10	+15%
Air Freight	0	10	NA
0 10 15			

Hazards

Top 5 Hazards This Month	Actual	%	Since Last Month
▶ Wildlife	8	26	+15%
Mechanical	7	23	-2%
FOD	3	10	-17%
Environmental	3	10	NA
Electical	3	10	NA
0 5 10			

Part 139 Indicator

Top 5 Part 139 Indicators	Actual	%	Since Last Month
Wildlife hazard management	8	26	NA
Public Protection	6	23	NA
Handling and storing of hazardous substances and materials	6	10	-17%
Marking, signs, and lighting	4	10	-2%
▶ Airport condition reporting	3	10	+15%

Priority

Top Priority This Month	Actual	%	Since Last Month
Medium	13	42	-3%
High	10	32	-2%
▶ Low	8	26	+13%
0 10 15			

Figure 6.3: Sample JAX Dashboard (Courtesy of Jacksonville Aviation Authority)

Other Lessons Learned

The airport admitted its biggest transition was going from a non-punitive reporting system to a confidential reporting system. The airport was exploring the use of its airfield video cameras as tools for training. They believed video could be useful for identifying and showing reported infractions to promote a safety-minded culture.

Session 7: Pittsburgh International Airport

Presented by: Kurt Sopp (Allegheny County Airport Authority)
PowerPoint Presentation (available for public viewing)

Mr. Sopp provided an overview of Pittsburgh International Airport's (PIT's) SMS development and implementation.

Safety Risk Assessments

PIT conducted three SRAs, analyzing hazards associated with jetway safety, operations on closed runways, and wildlife hazard management. Typically, only one airline participated in the airport's SRAs. PIT attributed this lack of participation to a shortage of available airline staff.

PIT conducted initial analysis for the three SRAs using its own staff. The analysis included pre-identifying hazards, existing controls, and consequences, all in an effort to focus panel discussions. However, the airport concluded (see discussion below) that clarifying these findings before stakeholder input may have created confusion and disagreement.

PIT selected jetway safety as its first SRA since nine jetway incidents have occurred since September 2008. PIT analyzed hazards based on interactions between jetways and aircraft, vehicles, and pedestrians. The SRA took nine staff members and two hours to discuss. The airport produced a 33-page final report that identified six new mitigations to address the identified hazards and risks. PIT noted that the investigation and examination associated with this SRA was time consuming.

For its second SRA, the airport analyzed operations on closed runways. In the two months preceding the analysis, the airport experienced two operations on closed runways. PIT staff conducted the initial analysis but later developed a panel of stakeholders to complete the review. FAA staff from ATO and the Office of Airports participated on the panel. The FAA offices were initially hesitant to participate because of the potential for documentation to be made publicly available. For this SRA, panel members were unable to reach consensus on the categorization of risk for the worst credible outcomes of the hazards. Disagreement over severity and likelihood definitions ensued.

The airport drafted a 34-page report and submitted it to panel participants for review. The FAA participants disagreed with the report and expressed concerns about future participation in SRA activities. PIT and ATO staff continued to work through their differences in definitions. PIT made some minor modifications to the report. Additionally, ATO offered PIT the option to participate in a future ATO-led SRA (hazards associated with low-visibility operations) so PIT staff could see how ATO conducts SRM-related activities.

PIT's last SRA, scheduled for completion in November 2011, analyzed hazards associated with its Wildlife Hazard Management Plan.

Based on the SRAs, PIT modified its hazard risk matrix to a 4 x 4 design, which better meshes with the various airport stakeholder definitions and their categorization of risk. PIT also found the need for facilitator assistance when using panels for SRAs.

IT Solutions

The airport selected Eagle Integrated Solutions for incident, hazard, and wildlife reporting. The system allows operations personnel to enter data and risk metrics and perform trend analysis. Using a wireless mesh throughout the airport environment and laptops, the system uploads airport personnel's data to servers and then populates a standardized data entry program with the data. Data can then be mined for trend analysis. PIT explained airport personnel can enter data using a series of drop-down menus and screens that ensure consistency in reporting. PIT planned to integrate work order software and add an airport layout for more precise location identification in future upgrades.

Safety Promotion

Although Safety Promotion was not a required Study task, PIT used numerous methods for communicating SMS and safety initiatives, including monthly safety meetings, newsletters, and Safety Reporting System Incentives. PIT also identified the need for on-going training.

Other Lessons Learned

Based on the Study experience, the airport decided that it would prefer to use consultant services for implementation roll-out and that it would need additional staff to maintain the SMS in the future. PIT also found that staff buy-in was essential but hard to obtain.

Session 8: San Antonio International Airport
Presented by: Tim O'Krongley and John Chase (City of San Antonio Aviation Department)
PowerPoint Presentation (available for public viewing)

Mr. O'Krongley and Mr. Chase began with a brief overview of the San Antonio Airport System. The City of San Antonio Aviation Department applied SMS to both the airside and landside environments at San Antonio International Airport (SAT). They also applied SMS to their general aviation airport, Stinson Airport. By applying SMS to their general aviation airport, the City of San Antonio found SMS to be scalable.

Quite a few SAT tenants had pre-existing or developmental SMSs or had implemented processes similar to those under an SMS, so they were familiar with SMS practices. Unfortunately, some tenants chose not to participate in SMS activities absent a regulatory requirement to do so.

Safety Risk Assessments
SAT used subject matter expert panels to conduct its three SRAs. The airport found it beneficial to break up panel work into two separate days. Doing so also allowed the panel facilitator time to prepare documentation, speeding the panel's review during the second meeting. The airport found some stakeholders came to panel meetings with preconceived outcomes or findings for the SRA (outcome bias).

SAT found it challenging to obtain FAA participants. Some FAA offices attended and participated in the SRAs, but others did not. SAT also found sharing documentation with the FAA participants after panel meetings challenging because of the agency's email file size restrictions.

As more stakeholders became engaged, the airport grew concerned over the variety of risk matrices used throughout the industry. SAT believed this concern could be solved by using a standard risk matrix (e.g., 4 X 4 or 5 x 5) with company-specific definitions based on that standard format. SAT refined its original risk matrix three separate times based on lessons learned from the SRAs and Safety Assurance activities.

One of the SRAs examined hazards associated with visibility in the Airport Operations Area. While the airport led the initial SRA, one of the tenants did not like the outcome of the airport's analysis, particularly the proposed mitigations. The tenant decided to conduct its own SRA. SAT agreed with the findings based on the tenant's unique situation at the airport. In this case, SAT exempted the tenant from implementing the proposed mitigation (safety vests for increased visibility) within its own leasehold.

The airport expanded its triggers for conducting an SRA to include any time the airport receives federal financial assistance for an airport project. Also, airport Division Managers were empowered to start an SRA whenever they thought one necessary, with the Safety Division assisting where possible. SAT was still determining how to decide when to use a formal SRA versus immediately mitigating the hazard.

IT Solutions

SAT purchased the SMS package from Intelex of Canada. This package included customizable forms for SMS and the airport's accident investigation program and offered 19 modules, including:

- Safety incident reporting
- Safety hazards and risk assessment
- Audits management/nonconformance
- Document control
- Records management
- Training management

SAT was refining the documentation process using the Intelex software and required certain types of reporting to be included in the package. The airport expected software roll-out by the first quarter of 2012, with full implementation by mid-2012.

Reporting

The airport's safety reporting system allowed anonymous reporting online or via paper reports placed into drop boxes around the airport. The system contacts all reporters with feedback if they provide contact information.

SAT had received 24 reports since the system went into operation, with most issues involving airlines and ramps. The airlines had been working with the airport thus far, but SAT expressed concern that airlines may not share so freely airport-relevant reports submitted to the airlines' reporting systems.

Safety Assurance

SAT believed that to conduct an audit of the SMS, it would need at least a year's worth of collected data. To meet the tasks of the Study, SAT instead conducted a targeted audit against its SMS Manual, processes, and procedures in place.

Safety Promotion

Safety Promotion was not a deliverable of the Study, but SAT reported on its efforts to deploy elements of its Safety Promotion component. The airport published SMS-related posters based on hazards identified through SMS (e.g., FOD prevention). The airport also published Safety Bulletins advising readers of current safety issues at the airport. The airport reported that SAT leadership was extremely supportive of the SMS and had established the Safety Division, led by a full-time SMS Manager.

Other Lessons Learned

Based on the results of the Study, SAT believed that much of the SMS work can be done in-house. Furthermore, the airport thought SMS brought cohesion to pre-existing safety functions.

Session 9: South Bend Regional Airport

Presented by: Bruce MacLachlan (South Bend Regional Airport) and Dave Fleet (Dave Fleet Consulting)

PowerPoint Presentation (available for public viewing)

Mr. Fleet described the physical layout, service, and statistics of the South Bend Regional Airport (SBN). Mr. MacLachlan then explained the SMS structure at SBN. The airport appointed the Airport Authority Executive Director as the Accountable Executive and assigned collateral duties for developing and managing the SMS to the Manager of Operations and the Airport Security Coordinator.

Safety Risk Assessments

SBN conducted three SRAs prior to the Study and chose to use subject matter expert panels for analysis. The SRAs identified hazards and analyzed risk associated with the following:

- Operational impacts during events (e.g., Notre Dame football games). SBN conducted the SRA in concert with the FBO's plan for increased traffic and parking of transient aircraft on game day/weekends.
- Safety impacts to commercial ramp operations resulting from the new concourse. Mitigations identified during the analysis included making the entire ramp area into a non-movement area (which FAA ATO agree to during the SRA). This action required an addition to Taxiway B that would remove the movement area from the ramp edge. The presenters said SBN is pursuing a capital project to facilitate this change.
- Snow removal operations on the commercial ramp. The third SRA analyzed snow removal operations related to the new concourse and identified new mitigations, including a designated snow box (for stacking and storing snow), a new staging area for ground support equipment, and triage for snow removal.

SBN identified both positive and negative aspects of subject matter expert panels. Panels helped participant understand the roles of others at the airport, but as a small facility, the airport only had a limited pool of individuals to draw from for the meetings. For example, during the SRA meeting focused on airline procedures, only one airline attended. The airline most impacted by the procedures was unable to send anyone because airline management was filling in for employees who were out due to illness.

The airport stated it received good participation from tenants in the panels but was concerned their participation might decline once the novelty of the process was gone.

For its risk matrix and definitions of severity and likelihood, SBN used a 5 x 5 matrix with its own definitions. (See Figure 9.1) For example, SBN linked likelihood to enplanement figures that were more in line with SBN's actual operations. (See Figure 9.2) While SBN initially used the sample risk matrix from FAA AC 150/5200-37, the airport found additional medium risk (yellow) was

appropriate based on its environment and governance. SBN also expanded its five-step SRM process to include a sixth and final step: monitoring mitigations.

		Severity				
		No Safety Effect	Minor	Major	Hazardous	Catastrophic
Likelihood	Frequently	🟩	🟨	🟥	🟥	🟥
	Probable	🟩	🟨	🟨	🟥	🟥
	Remote	🟩	🟩	🟨	🟨	🟥
	Extremely Remote	🟩	🟩	🟩	🟨	🟨
	Extremely Improbable	🟩	🟩	🟩	🟩	🟨

Low	Medium	High
No Action Required	Monitor, Determine if Risk can be Mitigated to a Low Risk	Must be Mitigated to a Medium Risk

Figure 9.1: SBN Risk Matrix (Courtesy of Saint Joseph County Airport Authority)

Likelihood:				
Frequently	Occurs once every <u>month or 3,000 aircraft operations or 25,000 enplanements</u>			
Probable	Occurs once every <u>year or 34,000 aircraft operations or 300,000 enplanements</u>			
Remote	Occurs once every <u>5 years or 170,000 aircraft operations or 1,500,000 enplanements</u>			
Extremely Remote	Occurs once every <u>10 years or 340,000 aircraft operations or 3,000,000 enplanements</u>			
Extremely Improbable	Occurs once every <u>20 years or over 700,000 aircraft operations or 6,000,000 enplanements</u>			
Severity:				
	People	Assets	Environmental	Reputation
Catastrophic	Fatality+	Loss of an aircraft/or over $1,000,000 dollars in damage/or loss of critical system(s) for an extended period of time	A spill or release that is not contained and results in long-term damage to the environment and fines to the airport.	An event or a series of events resulting in the community NOT using SBN for an extended period of time.
Hazardous	Severe Injury, requiring hospitalization	Damage to an aircraft taking it out of service for an extended period of time/or damage in excess of $500,000/or disruption of critical services for extended period of time	A reportable spill or release that causes short-term damage to the environment and requires mitigation.	An event or a series of events resulting in the community lessening the use of SBN causing negative (annual) financial or operational impacts.
Major	Minor Injury requiring medical treatment	Damage to an aircraft that is repairable/or damage to equipment or facility that is reparable within a short period of time.	A reportable spill or release that is contained.	An event or a series of events resulting in the community lessening the use of SBN for a short period of time.
Minor	Minor injury not requiring medical treatment	Minor damage to an aircraft, equipment, or facility not requiring it to be taken out of service	A spill or release that does not require a report.	An event or a series of events resulting in the community

				questioning the reliability of SBN.
No Safety Effect	No injury	No Damage	No Impact	No Impact

Figure 9.2: SBN Severity and Likelihood Definitions (Courtesy of Saint Joseph County Airport Authority)

IT Solutions

The airport purchased Incident Reporter from Omni-Air Group and self-hosted the software on two servers (to provide redundancy). Users could access the software via links on both the airport's intranet and internet sites. The airport said it maintains control of the data received and can choose to use other systems (e.g., other companies' products) in the future. While the airport originally intended to use in-house resources to handle the technical operation and daily maintenance of the software, it later chose to contract with Pinnacle, a South Bend-based company, for its IT needs.

Reporting

The Incident Reporter system provided the electronic vehicle for reporting. SBN's website included a link to report hazards. The airport believed the software provides a good reporting system for smaller airports as it allows users to report hazardous conditions, accidents, and safety concerns. Drop-down boxes further assisted users in reporting and aided data analysis by ensuring the consistency of certain elements. After launching the software, SBN re-evaluated the software's drop-down options based on lessons learned.

The staff was used to reporting issues directly to airport authority personnel, so SBN found it challenging to convince them to use the software to formally document issues. SBN believed other similarly sized airports will also face this challenge. SBN rolled out the software to its entire staff in March 2011 to enhance formal reporting. The airport said it plans to roll out reporting to tenants in 2012.

Additionally, SBN developed new language for airport leases, contracts, rules, and regulations requiring the use of any tools provided by the Airport Authority for compliance with the SMS, including the use of formal reporting.

Safety Assurance

SBN identified over 2,000 data points for analysis under the Study's Safety Assurance task. Those data points included:
- Aircraft accident or incident reports
- Airfield inspection logs
- Terminal inspection reports
- Emergency response debrief reports
- Fuel/oil spill reports

- Property damage reports
- NOTAMs
- Inclement weather condition reports

The airport committed through its SMS Manual to an annual review of the SMS and key performance indicators, including:

- Part 139 inspections and self-inspection reports
- Airport Authority staff medical runs
- OSHA reportable incidents or accidents for Airport Authority staff
- Passenger medical runs
- Tenant medical runs
- Vehicle accidents (for landside and airside operations)
- Equipment damage reports

Other Lessons Learned

During the Studies, SBN recognized that it already had many formalized and documented practices and procedures in place that could support the SMS. These pre-existing programs included Airport Information Meetings, a Safety Committee, and Airport Authority weekly manager meetings. SBN already collected information about accidents, incidents, damage, and injuries. It planned to analyze this information and use it as key performance indicators for future Safety Assurance activities.

Session 10: Seattle-Tacoma International Airport

Presented by: David Crowner (Port of Seattle) and Joanne Landry (Landry Consultants)
PowerPoint Presentation (available for public viewing)

After showing a short video illustrating the importance of Safety Awareness on the airport, Mr. Crowner described Seattle-Tacoma International Airport's (SEA's) SMS and the airport's successes. Mr. Crowner also explained SEA's innovative way of looking at SMS and its components and how it integrates SMS with existing processes and procedures at the airport. (See Figure 10.1)
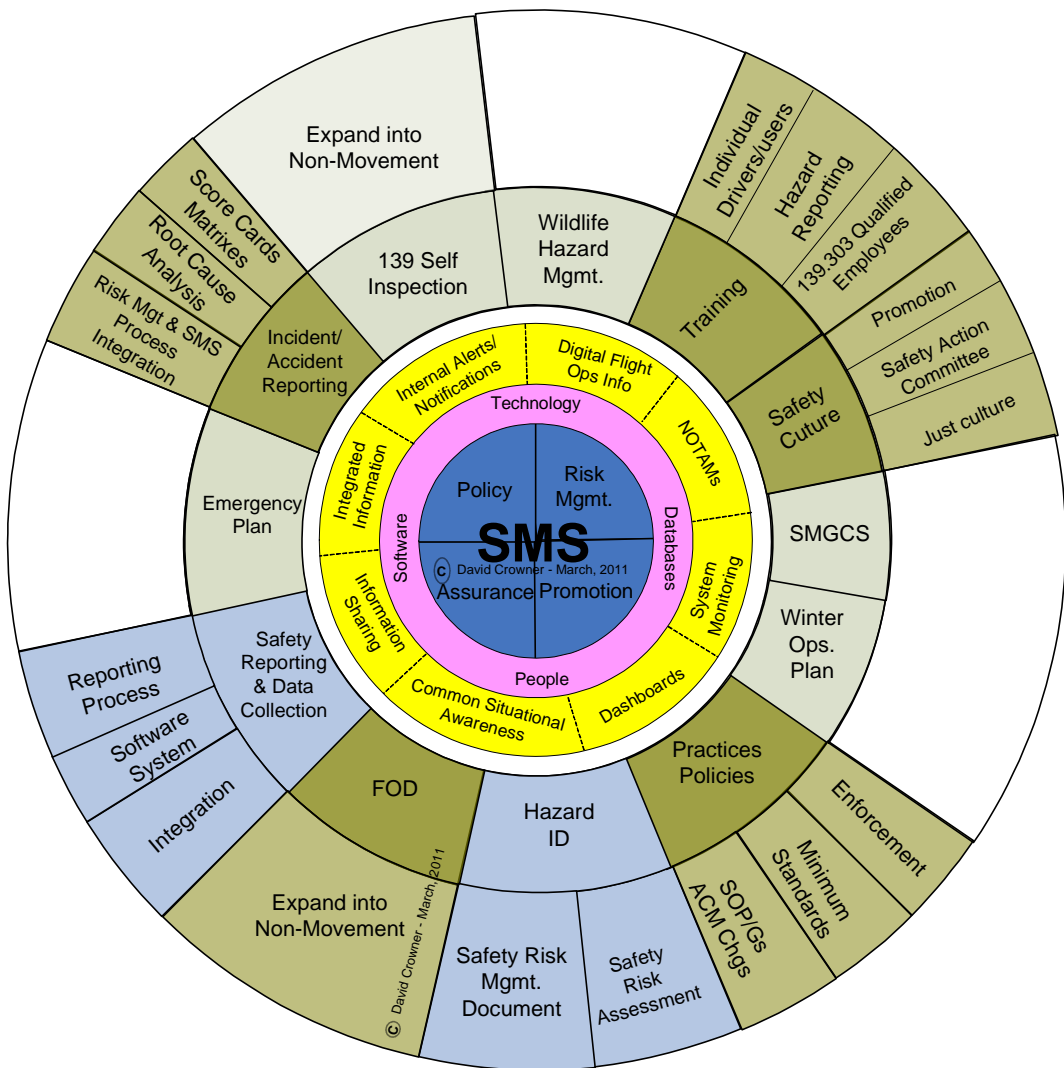
Figure 10.1: SEA SMS Wheel (Courtesy of David Crowner)

Safety Risk Assessments

SEA conducted four SRAs under the Study. These SRAs identified hazards and risks associated with changing a movement area to a non-movement area, winter operations communications, wildlife hazards, and consistency of ramp markings. While the airport chose to use subject matter expert panels for analysis, SEA believed that airports constantly conduct informal SRM activities through "hazard triage." When field personnel conduct self-inspections or maintenance activities, they identify hazards or issues and determine whether the risk needs to be immediately mitigated. The difference, he explained, was that the airport will now document those informal decisions. When more analysis or systematic analysis is needed, the airport will use a more formalized panel of subject matter experts and document the panel's findings.

SEA chose a diverse yet complementary set of experts for its formal SRA panels. The airport also discovered the facilitator should understand the subject matter but be independent of the issue analyzed. SEA believed the facilitator should allow conflicting positions but ultimately guide discussions back to consensus. SEA thought panels should keep consequences credible and be faithful to the process (e.g., follow the five-steps).

SEA also identified the importance of monitoring solutions (e.g., mitigations). While the airport did not identify a sixth SRM step as some airports did, SEA did develop a figure illustrating the importance of the closed loop. (See Figure 10.2)
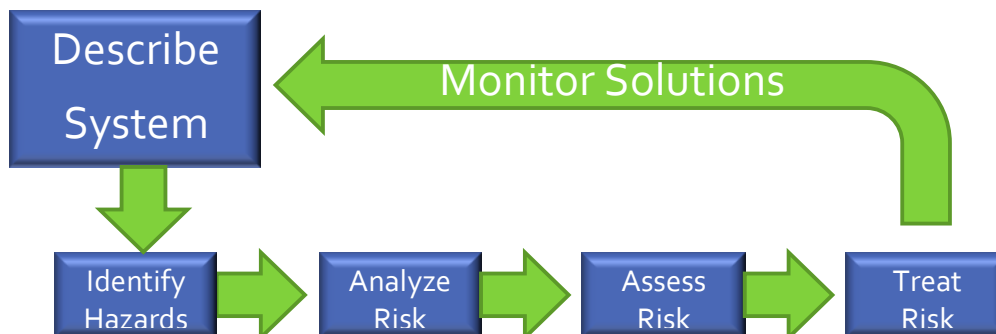

Figure 10.2: SEA SRM Process (Courtesy of David Crowner)

The airport adopted a new risk matrix with similar category titles to those used by the FAA but a different distribution of risk levels. (See Figure 10.3)

Likelihood	Minimal 5	Minor 4	Major 3	Hazardous 2	Catastrophic 1
Frequent A	Green	Yellow			Red
Probable B	Green		Yellow		Red
Remote C		Green		Yellow	Red
Extremely Remote D			Green		Yellow**
Extremely Improbable E				Green	Yellow**

Figure 10.3 – SEA Safety Risk Matrix (Courtesy of David Crowner)

SEA stated it is developing a Comprehensive Ramp Assessment Plan following the same philosophy as SRM. The Plan will identify hazards and mitigate risks where appropriate. SEA explained this effort dovetails with the airport's proactive approach to mitigating hazards like FOD in the non-movement area.

SEA believed it will be able to conduct some SRAs in-house in the future, while others will require third-party assistance for facilitation or analysis. SEA stated it is also examining the use of other airports to help conduct SRA facilitation.

IT Solutions

The airport purchased SMS-Pro for its hazard reporting software. However, at the time of the presentation, the airport was conducting a Tech Integration Study to see whether it could leverage existing programs, like Maximo, or use some other external systems. SEA said its goal was to have software that guides users through the necessary processes and steps. For example, the same software would guide the field personnel through self-inspection, identification of hazards, maintenance requests, SRA development, trend analysis, and evaluation. Because the airport was still investigating software, it contracted with its software developer on a month-to-month basis.

Safety Assurance

SEA identified key performance indicators for 2012, 2013, and 2014 to assist in its Safety Assurance activities. (See Figure 10.4)

Figure 10.4: SEA's Key Performance Indicators (Courtesy of David Crowner)

As the first airport to adopt International Air Transport Association Safety Audit for Ground Operators (ISAGO)requirements, SEA took proactive steps to require third-party ground service providers to participate in the ISAGO audit program. SEA included the requirement in the airport's licensing program.

Safety Promotion

Safety Promotion was not part of this Study, but SEA discussed its SMS training program. The airport divided this training into three parts:

- Safety orientation
- SMS introduction and hazard management
- Risk and quality management

SEA grouped all individuals working on the airport into four categories and then determined the appropriate level of training for each category. The four categories were:
- All airport badge holders
- Airport staff
- Executives and leadership
- Airport ground handlers and airlines

SEA promoted its SMS by developing a newsletter, which it made available to all employees and tenants. SEA explained the newsletter identifies incidents or issues and provides recommendations for resolution (e.g., wingwalkers are a good way to avoid aircraft damage).

Other Lessons Learned

SEA stated that it was already safety-focused before SMS and had previously adopted many of the components and elements of an SMS. However, it believed SMS was the new "standard of care."

The airport identified several benefits of an SMS:
- Formalizing the airport's safety program
- Ensuring regulatory compliance
- Reducing risks
- Holding staff and tenants accountable for safety performance
- Establishing safety performance goals
- Facilitating safety ownership through participation

SEA believed a safer environment would lead to improved opportunities and increased revenue.

Session 11: Tallahassee Regional Airport

Presented by: David Pollard (Tallahassee Regional Airport)
PowerPoint Presentation (available for public viewing)

Mr. Pollard provided a brief overview of Tallahassee Regional Airport's (TLH's) approach to SMS, including contracting for consultant services and soliciting stakeholder input.

Safety Risk Assessments

TLH conducted three SRAs addressing water intrusion and terminal improvements (terminal building roof replacement), commercial ramp operations, and irregular airport operations.

The first SRA focused on contractor safety. Mitigations developed through the SRA included morning and evening check-ins to ensure the project area was left in proper condition and twice-daily FOD checks. The airport retained these measures after the project's completion because of their effectiveness. The airport evaluated the data from the check-ins and FOD checks to identify trends, the types of FOD, and the amounts in the location. TLH said this additional analysis continues to identify hazards, and it mitigates where appropriate during ongoing operations.

The airport established an "SMS on the fly" concept as a result of the irregular operations SRA. This approach helped airport staff understand unanticipated conditions and prepared them to respond on no or short notice. It empowered staff to make judgment calls on handling unexpected events in a safe manner. The airport explained the concept is now a feature of its SMS and has used it when severe weather events have forced air carriers to use TLH as an alternate airport.

TLH also proactively identified the need for employees to wear reflective vests on certain areas of the airport. TLH explained the airport provides the vests, maintains them, replaces them as necessary, and conducts weekly checks to verify usage. While this activity was not associated with an SRA, the airport considered it a part of its SRM procedures to proactively identify hazards on the airport.

TLH believed that the SRAs increased visibility and awareness of TLH's participation in the Pilot Studies.

IT Solutions/Reporting

TLH established the "Safety Alert" Program to encourage employees to report safety concerns without fear of reprisal. TLH explained that any of its 1,100 badge holders can submit reports via a dedicated phone number, email, or Voluntary Safety Report drop boxes around the airport. As of November 2011, the airport had received between 15 and 20 reports; none were submitted to the drop boxes.

TLH identified as a best practice management through mingling and walking around airport, listening to employees, collecting ideas and thoughts, and generally staying up-to-date on what is

happening. At TLH, personal transmission of information and casual conversations with tenants seemed to produce more "reporting" of safety issues.

Safety Assurance

TLH said its SMS Manual requires both internal and external audits. However, the airport found more benefit through external audits since they identify alternate ways of doing things.

Safety Promotion

Although Safety Promotion was not part of this Study, TLH identified its various means of communicating safety issues with tenants, including safety council and station manager meetings, the Tenant Assistance Program, and the Notice of Violation Program. The airport put up a poster and reflective vests in all facilities to remind employees to wear vests and report safety issues. The airport developed rewards programs for doing things right.

TLH also established a cross-training program for the exchange of ideas and education of staff. The airport explained it invites other airports to participate, which brings people with different areas of expertise to TLH and helps generate alternate perspectives.

Other Lessons Learned

TLH noted that its exposure to similar military programs and the airport's proximity to Naval Air Station Pensacola helped ease understanding and development of the SMS. The airport made awareness of its Safety Policy statement a key element of SMS and Safety Promotion activities. TLH believed the SMS had improved visibility of the safety program, improved reporting of unsafe conditions, and helped promote a team approach. However, the airport still faced challenges such as employee turnover, reduced budgets, and consistent formalized hazard reporting (due to the airport's culture and size).

Session 12: Toledo Express Airport

Presented by: Ken Ibold (RS & H)
PowerPoint Presentation (available for public viewing)

Mr. Ibold provided an update on the status of Toledo Express Airport's (TOL's) SMS, focusing on the airport's reorganization after it completed its original SMS Manual. Implementation lagged because the airport had to wait until the project team updated applicable materials to fit the new organizational structure and resources. The SMS team developed new appropriate and manageable SMS practices.

Safety Risk Assessments

After reviewing internal and supplemental studies, TOL chose to conduct three SRAs, analyzing hazards associated with sports car events on the airport, snow removal operations, and pavement marking operations. The SRAs used subject matter expert panels and included broad participation from stakeholders, including the FAA, the ATCT, the Ohio Air National Guard, airlines, and corporate tenants.

While the first SRA required two sessions and a total of six hours, the second and third SRAs were completed in one-day, four-hour sessions. Due to the large number of participants, the snow removal operations SRA employed small group exercises. The airport believed this strategy was optimal for analyzing a large number of hazards with a large number of participants.

The second SRA had the unintended consequence of airing out differences and issues between the ATCT and airport maintenance crews. What started out as a panel meeting, developed into an understanding between the two groups. They realized that their communication problems represented safety hazards.

During the third SRA, TOL decided to simplify its risk matrix. (See Figure 12.1) Initially a 5 x 4 matrix, it evolved into a 4 x 4 with new severity categories and simplified definitions for likelihood and severity.

The airport also developed a new procedure to review changes to airport processes or equipment and identify potential hazards before the changes become operational.

Hazard and Risk Assessment Matrix

	Frequent – Likely to Occur Repeatedly	Occasional – Likely to Occur Sometime	Remote – Unlikely, but Possible	Improbable – Very Unlikely to Occur
Catastrophic – Multiple Deaths, Critical Damage, Aircraft Destruction	Red	Red	Red	Yellow
Serious – Serious Injury or Death, Major Damage to Facility or Aircraft	Red	Red	Yellow	Yellow
Minor – Minor Injury, Minor Damage to Facility or Aircraft	Yellow	Yellow	Yellow	Green
Negligible – Superficial Injury, Cosmetic Damage or Inconvenience Only	Yellow	Green	Green	Green

High Risk (Unacceptable)	Medium Risk (OK with Adequate Defenses)	Low Risk (Acceptable)

Figure 12.1: TOL's Simplified Hazard and Risk Assessment Matrix (Courtesy of Toledo Express Airport)

IT Solutions

The airport modified its existing open source self-inspection software (DRACONi AIRS) to enhance hazard identification and tracking. While the program had a proprietary component, it was tailored to the airport's needs to allow reporting options through drop-down boxes. The locally developed software provided better sorting mechanisms and standardized descriptions.

The software prompted employees to think about what they might identify as a hazard and, later, how to address the hazard. TOL stated the features in the software became crucial to a "sea-change" in attitudes about safety and provided the genesis of a safety culture.

Reporting

TOL added an anonymous hazard reporting function to its website. Originally, users needed a login and password to access the reporting function. However, employees worried about the airport using the login information to track their reporting, so TOL removed the security feature. By moving the reporting function to the public website, the airport made reporting available to the general public.

Safety Assurance

TOL explained it conducts daily inspections of reports for hazards and non-complying items but that Safety Assurance reviews have multiple components, including:

- Internal self-inspection by managers
- Internal evaluations by the Safety Coordinator
- An annual effectiveness measurement
- Annual external audits

In addition, TOL said it plans to conduct annual Maturity Assessments for the next three years as it continues to implement the SMS. As of November 2011, TOL was reviewing the safety indicators list developed during the initial SMS gap analysis to determine its future applicability.

Safety Promotion

Although Safety Promotion was not part of the Study, TOL added SMS elements to the initial and recurrent training most workers and supervisors received on hazard identification and root cause analysis. The airport's Safety Coordinator measured the effectiveness of this training.

In addition, TOL added safety briefings to meetings.

Other Lessons Learned

SRA activities led to an increased awareness of hazards and a re-evaluation of the airport's risk matrix. The airport believed the simplified risk matrix will help reduce the subjectivity of risk assessment.

Session 13: Cheyenne Regional Airport

Presented by: Dave Haring (Cheyenne Regional Airport) and Heidi Benaman (Faith Group)
PowerPoint Presentation (available for public viewing)

After providing an overview of the ownership, physical layout, and statistics of the Cheyenne Regional Airport (CYS), Mr. Haring and Ms. Benaman summarized CYS's SMS implementation status.

Safety Risk Assessments
The airport modified the SRM process to accommodate its unique operating environment. (See Figure 13.1)
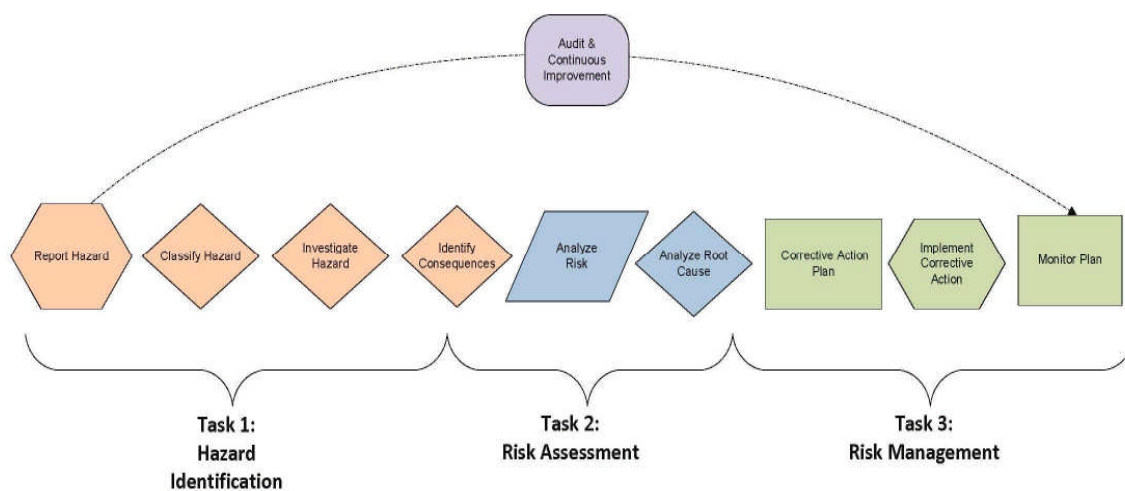

Figure13.1: CYS SRM Process (Courtesy of Cheyenne Regional Airport)

CYS explained the revised process:
- Once submitted, the hazard report is passed along a response chain.
- If the chain determines additional attention is needed, the airport investigates the events surrounding the hazard.
- Using additional research, observations, and/or interviews, CYS determines if more analysis is need. The result is a list of consequences should the hazard occur.
- CYS's SMS Manager calls together the airport's safety action group to review the list of consequences. (See Figure 13.2) Generally, these meetings are four-hour sessions that generate good dialogue and discussion. The group includes subject matter experts in areas related to the hazard's consequences and impacts. The group usually includes representatives from airport operations, maintenance, and the Wyoming Air National Guard operations and safety staff. Members from the ATCT, airlines, and the FAA Airport District Office join as needed.
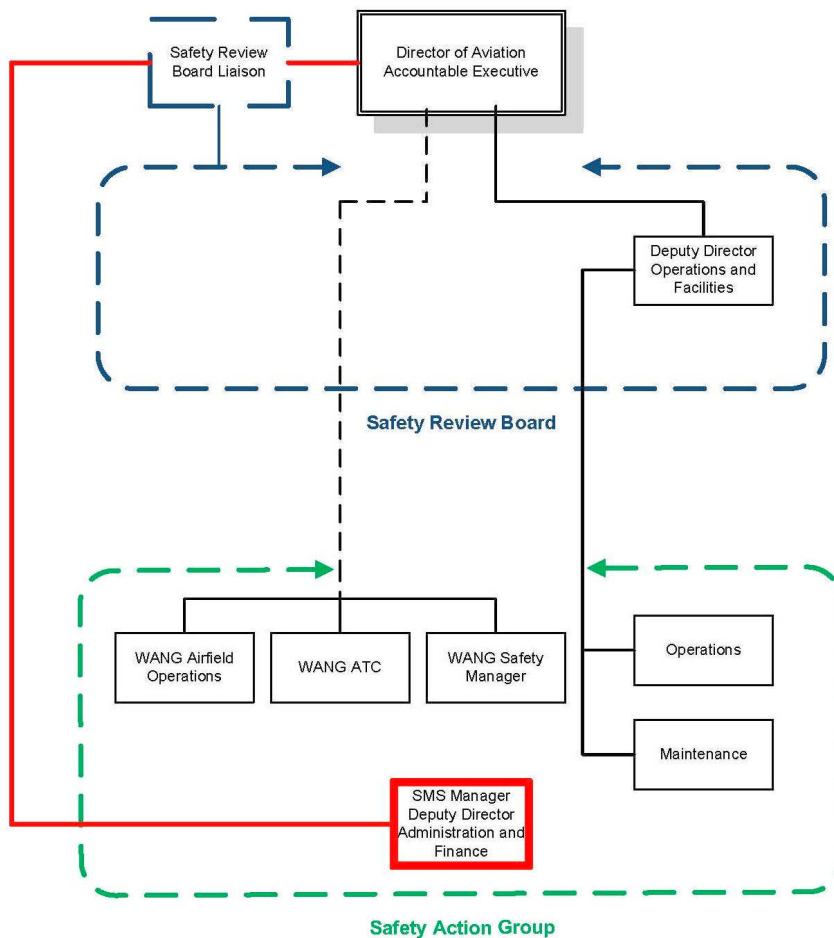
Figure 13.2: CYS's Safety Organization (Courtesy of Cheyenne Regional Airport)

- The airport safety action group reports its findings to a review board.
- The review board provides oversight and accountability for the prioritization of hazards, corrective action plans (including budgets and reviewing outcomes), and post-mitigation work.

CYS explained this SRM process consists of three main tasks:

1. Report, classify, investigate, and identify consequences of the hazard.
2. Analyze the risk and determine root cause.
3. Develop and implement a corrective action plan and then monitor.

CYS applied its SRM process to three hazards during the Study: Runway 27 retaining wall (visual issue in winter conditions), movement area signs, and safety area demarcation.

As a result of the first SRA, the safety action group modified the airport's risk matrix. The group changed definitions to foster a better understanding of hazard/outcome placement within the matrix. The second SRA involved the airport's signage plan. It gave the airport an opportunity to work with the FAA's Airport District Office.

The findings of the third SRA surprised the airport. When querying airport maintenance and ATCT personnel about safety areas, the airport discovered that neither group had a good understanding of the physical boundary or demarcation of the safety areas. The safety action group conducted further analysis and researched areas of responsibility, noting the airport's ownership of the safety areas and ATCT's responsibility for clearing approved vehicles to cross the movement area. The group identified two mitigations: enhanced training and mowing grass along the safety area boundary at varying heights. The maintenance personnel were surprised to learn that the actual demarcation was different from where they thought it was.

During all the SRAs, the airport benefited from the communication among all stakeholders. Stakeholders communicated with each other instead of the airport communicating with individual stakeholders, which had been the norm before SMS.

IT Solutions

CYS invested in SMS Pro, a software platform that can be customized to fit the airport's needs. Due to minimum startup costs, the airport chose a temporary software license. In some cases, the airport needed to use additional integration software.

Reporting

The airport originally envisioned a non-punitive reporting system for hazard and safety issues. In fall 2009, it instead implemented a confidential and/or anonymous reporting system. Reporters can remain anonymous by submitting hazard reports to one of the drop boxes around the airfield or mailing reports with a self-addressed, stamped envelope.

CYS explained that the Air National Guard unit on base has data sharing restrictions for much of its reported hazards, but the unit's process can be shared or discussed to ensure compatibility. CYS believed the unit will conduct its own SMS or similar proactive risk management activities.

Safety Assurance

The airport's SMS Manual identified a variety of processes to evaluate the SMS, including:
- Quarterly self-audits
- Internal audits two weeks after each quarterly self-audit

CYS said members of the airport's Administration and Operations Divisions serve as the "auditors." The airport develops corrective action plans associated with audit findings when appropriate.

If the FAA issues a final rule for SMS, CYS said it would consider the FAA's periodic inspection described in the NPRM as an external audit.

Other Lessons Learned

Through SMS, CYS said it now has data to show that money is saved over time by tracking and managing activities on the airport. The airport had seen improvements in communications and a corresponding knowledge transfer. Further, through increased communications, the airport had improved its maintenance work order process, training tracking tools, and equipment management.

Session 14: Southern Illinois Airport

Presented by: Gary Shafer (Southern Illinois Airport)
PowerPoint Presentation (available for public viewing)

After providing an overview of the ownership, physical layout, and statistics of the Southern Illinois Airport (MDH), Mr. Shafer summarized the status of MDH's SMS implementation.

Safety Risk Assessments

MDH used the SRM process and SRAs as vehicles for discussion of topics and brainstorming. An SRA team leader/facilitator, usually personnel from Southern Illinois University (SIU) or a consultant, organized and led the panel of stakeholders, which included tenants, the ATCT Manager, SMS team members, airport staff, and aviation students. During the meeting, the panel appointed a team member as note taker. The SRA team leader drafted each SRA report.

The three SRAs analyzed topics identified through hazard and accident reports, safety inspections, and employee/user feedback or perception. The SRAs addressed blind spots in the non-movement area (vehicle/vehicle, vehicle/aircraft, aircraft/aircraft, vehicle/aircraft/pedestrian), Southern Illinois University's Transportation Education Center Development and landside issues, and airport wildlife issues.

For each of the SRAs, the team developed a list of recommendations, which they categorized as either "must do" or "should do."

IT Solutions/Reporting

MDH made available a formal, confidential reporting program to all tenants, users, and the public via the airport's website. (See Figure 14.1) MDH also provided drop boxes around the airport. The airport received fewer than 50 reports during the program's first three months; as of November 2011, reporters used online versus paper reporting 10:1.

The airport explained the intake and analysis process. The Airport Manager received online reports immediately via email and then exported them to Microsoft Excel. An SIU graduate student assisted with analysis.

The airport said it expects a reporting-rich environment over time because:
- SIU teaches SMS, with emphasis on hazard reporting, in every aviation class.
- The system allows reporters to get feedback on the resolution of their reports.
- MDH frequently updates its website with safety-related news and asks for recommendations on how to solve safety issues.

Figure 14.1: Snapshot of MDH's SMS public website (Courtesy of Southern Illinois Airport)

Safety Assurance

MDH said its SMS includes the following Safety Assurance-related activities:

- Annual SMS Manual review
- Monthly safety committee meetings
- Annual safety audit

Other Lessons Learned

MDH listed its successes through SMS:

- A proactive, formalized safety program with "buy-in" from the top levels of airport management and tenants
- Increased safety awareness.
- Formalized safety committees encouraging communication.

MDH believed the university community was receptive to the safety message critical to SMS efforts.

Session 15: The Ohio State University Airport

Presented by: Seth Young (The Ohio State University Airport)

PowerPoint Presentation (available for public viewing)

Dr. Young provided an overview of the ownership, physical layout, and statistics for the Ohio State University Airport (OSU) and then summarized the status of SMS implementation at the airport. The airport is owned and operated by The Ohio State University. At the time of the meeting, OSU had completed approximately 90 percent of the Study tasks at the time of presentation.

Safety Risk Assessments

OSU used its 11-member SMS Safety Committee to conduct its preliminary hazard analysis. The committee comprised airport, FBO, and University Flight/Maintenance department personnel; tenants; the ATCT; and USDA Wildlife Services

OSU selected three issues to analyze through its SRM process: airfield incursions, wildlife hazards, and ramp operations. Completed over time instead of during structured sessions, the SRAs were developed in-house by OSU faculty and students. OSU used a standard approach to the SRAs, which involved brainstorming sessions, data collection, and data analysis.

Most SMS Safety Committee members participated in the brainstorming sessions or review of the preliminary hazard analysis. Many members of the group were surprised by the results of this work, especially findings about migratory birds and the complacency of ground vehicle operators and pedestrians on ramp areas during good weather.

OSU staff selected the SRA topics using past incidents or reported hazards. For example, the airport selected airfield incursions as its first SRA because of past runway incursions. The configuration of runways requires crossing various portions of the movement area to reach a destination. The airport explained that high traffic volume during university events, frequent training operations, and operations by those less familiar with the airfield leads to the increased likelihood of runway incursions. Similarly, OSU selected wildlife hazards for its second SRA because of the airport's proximity to large animal populations associated with university research.

The SMS Safety Committee also modified the risk matrix after finding that the subjectively of the matrix significantly impacted analysis.

IT Solutions/Reporting

OSU implemented an online and paper-based non-punitive hazard reporting program for airport employees, tenants, and users. OSU staff placed red binders and signs in various places around the airport, including the passenger terminal and check-in desk at the FBO. The binders contained instructions, reporting forms, and submission envelopes. OSU explained that employees and users could also report via the airport's website. (See Figure 15.1)
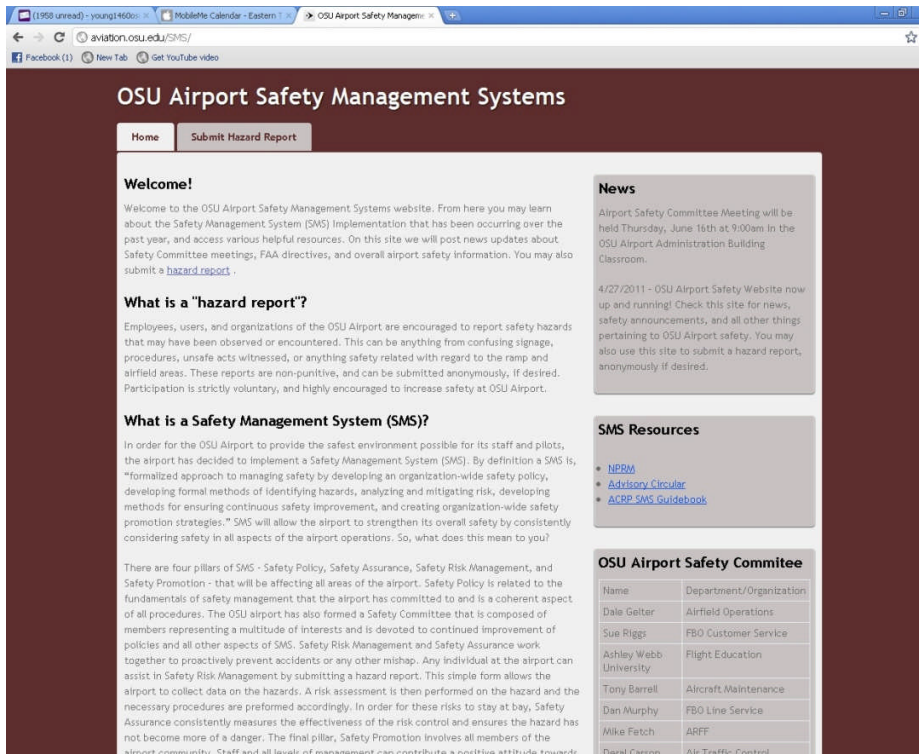
Figure 15.1: OSU's SMS Website (Courtesy of Dr. Seth Young)

Reporters could submit anonymously. Some tenants/operators on the airport declined to submit reports, even anonymously, although they did participate in the airport's SRA activities.

The airport said paper reports outnumbered those submitted online.

Safety Assurance

At the time of the presentation, OSU had not completed its Safety Assurance-related tasks.

Other Lessons Learned

OSU planned to update its SMS Manual, originally developed in 2009, based on its experiences in the Study. The airport also planned to try to speed up culture change to increase hazard reporting and buy-in for the SMS activities.

Session 16: Lessons Learned/Best Practices

Presented by: Keri Spencer (FAA)

Open Discussion

During the last session of the meeting, Ms. Spencer asked the participants to summarize their lessons learned from the Study. The following bullets identify the issues and best practices identified by the group during this session.

SMS Manual

- Pilot Study participants identified common components that should appear in an SMS Manual:
    - Table of Contents
    - Sign-off Form
    - Record of Revisions Grid
    - Definitions and Acronyms Section/Appendix

Safety Policy

- The word "policy" may present challenges for some airport owners. Some municipalities or authorities may require formal review and approval of documents referred to as "policy" which can impact the ability of the airport to make changes over time.
- Before implementing SMS, the airport should develop some elements of the Safety Policy component. At a minimum, airports should develop the Safety Policy statement (or safety commitment) first.
- Developing and implementing Safety Policy elements is an iterative process; the airport may need to revise them over time to reflect changes to the SMS or lessons learned.
- The Safety Policy should be flexible, scalable, and fluid enough to meet the challenges of the airport's unique operating environment.
- Goals and objectives identified under the Safety Policy should be obtainable, realistic, and measurable.

Safety Risk Management

- Pilot Study participants needed to update the SRM sections of their SMS Manuals based on lessons learned. Particularly, they identified the following needs:
    - Allow for updates to risk definitions and categories.
    - Ensure that SRM activities, especially those using panels, take advantage of open communication.
    - Clearly identify triggers for SRA activities. For example, a trigger may be a future change to operations at the airport (proactive) or an after-action analysis from an incident/accident (reactive).
    - Describe if the airport has different levels of SRA/analysis (e.g., analysis completed by airport staff versus panels) and whether someone on staff performs "hazard triage" to determine the level of analysis needed.

- o If the airport uses a subject matter expert panel, identify who on staff has the authority to "call" a panel.
        - o Format documentation consistently to allow for future trend analysis, evaluation under Safety Assurance, use in other SRAs, or litigation.
    - When a panel is used, Pilot Study participants recommended the following:
        - o Subject matter experts for panels should have decision-making capability and expertise related to the issue/hazard analyzed.
        - o Panel participants should respect the formalized SRM process and not let outcomes drive the process. For example, if a panel wants a low risk, it might only identify hazards and outcomes that result in low risk.
        - o When facilitators are used, they should not be involved in the hazard or issue being analyzed.

Safety Assurance

- There are a variety of terms used to describe Safety Assurance activities. The term "audit" implies a more formalized, external review; "evaluation" implies an informal, internal review. Many of the Pilot Study participants found it easier to conduct evaluations for partially implemented programs than audits.
    - o Third-party contractors, other airports, or other airport departments may be resources for independent audit and evaluation.
- Reporting can take various forms and cover various periods of time—from daily, weekly, or monthly dashboards to formal annual reports.
- When building data systems to assist in evaluation, airports should leverage existing tools and data warehouses whenever possible.

Safety Promotion

- Not everyone on the airport needs to understand SMS, but everyone does need to have Safety Awareness. Safety Awareness includes knowing what a hazard is and how to report hazards on the airport.
- Airports should investigate existing training programs/requirements (e.g., Security Identification Display Area (SIDA), Drivers' Training) to determine whether Safety Awareness and/or SMS training can be included or whether they need to be offered separately.
- Marketing, incentivizing, and communicating the SMS are important to building acceptance and raising a safety culture. Examples of program elements include:
    - o Posters and slogans to visually advertise the program
    - o Incentive programs like Safety Bingo
    - o Brown bag lunches or email blasts
    - o Newsletters
- Safety committee meetings can serve dual purposes: communicating promotional information and reporting safety hazards for analysis.

Appendix 1: Meeting Agenda

Part 139 SMS Implementation Study
Roundtable Meeting
Wednesday, November 2, 2011 – Thursday, November 3, 2011
8:00AM – 4:00PM

Location
Federal Aviation Administration
Orville Wright Building (FOB 10-A)
Orange Room (3rd Floor)
800 Independence Ave., SW
Washington, DC 20591

Wednesday, November 2, 2011

8:00AM – 8:45AM	Welcome, Introductions, Update on FAA Activities, and Meeting Expectations
8:45AM – 9:15AM	ATL
9:15AM – 9:45AM	DBQ
9:45AM – 10:00AM	*Break*
10:00AM – 10:30AM	DFW
10:30AM – 11:00AM	IND
11:00AM – 12:30PM	*Lunch*
12:30PM – 1:00PM	JAX
1:00PM – 1:30PM	PIT
1:30PM – 2:00PM	SAT
2:00PM – 2:15PM	*Break*
2:15PM – 2:45PM	SBN
2:45PM – 3:15PM	SEA
3:15PM – 4:00PM	Wrap-up of day (allowance for overages)

Thursday, November 3, 2011

Time	Activity
8:00AM – 9:00AM	Open Discussion
9:00AM – 9:30AM	TLH
9:30AM – 10:00AM	TOL
10:00AM – 10:15AM	*Break*
10:15AM – 11:00AM	Summary of Class I findings and Lessons Learned
11:00AM – 12:30PM	*Lunch*
12:30PM – 1:00PM	CYS
1:00PM – 1:30PM	MDH
1:30PM – 2:00PM	OSU
2:00PM – 2:15PM	*Break*
2:15PM – 2:45PM	Summary of Class II & IV findings and Lessons Learned
2:45PM – 4:00PM	Wrap-up of day (allowance for overages)

Appendix 2: Sign-in Sheets

Part 139 SMS Implementation Study
Roundtable Meeting
Wednesday, November 2, 2011
8:00AM – 4:00PM

	Name	Airport/Company/FAA Routing Symbol	Email
1	DAVE FLEET	SBN/END/DAVE FLEET CONSULTING	SUELFTING.com
2	Bruce MacLachlan	SBN	BRUCEM @ SBNAIR.Com
3	DAVID CROWNIK	SEA/PORT OF SEATTLE	CROWNIC.O @ PORTSEATTLE.ORG
4	Joanne Landry	SEA/SAT Landry Consultants	joanne @ landry.conscittants.com
5	KEVIN VANDEBERG	SEN/Burke Wagoner-Sinner Cannon	kg Vandeberg @ bwsc.net
6	Scott M Ayers	ATL / Hartsfield-Jackson	Scott.ayers @atlanta-airport.com
7	Tim O'Rangley	SAT/ San Antonio Airport System	Tim O'Rangley @ SanAntonio.gov
8	John Chase	SAT/San Antonio Airports System	John. Chase @ SanAntonio. Gov
9	ALLEN Pirlot	DBG APPLIED RESEARCH ASSOC	APIRLOT @ ARA.com
10	MANUEL AYRES	APPLIED RESEARCH ASSOC	MAYRES @ ARA.com
11	Julie Schrenkle	DFW	jschrenkle @dfwairport.com
12	VIRGINIA GRIFFIN	ACE / ESIS	VIRGINIA. GRIFFIN @ ESIS.com
13	Roger Studenski.	Jacksonville /JAA	Roger.Studenski @ Fly.JAX.com
14	PAUL ESPOSITO	ESIS	paul.esposito @ ESIS.com

Continued

#	Name	Organization	Email
15	Seth Young	OSU Airport	young.1460@osu.edu
16	Gary Slaters	Southern Indiana Airport	AIRPORT@MWESTAIRPORT
17	Rob Haddis	FAA Counsel	
18	DAVE HARING	CHEYENNE Reg'l Airport	DHARING@CITYOFCHEYENNEAIRPORT.com
19	Heidi Benaman	Fairchild Group / Cheyenne Airport	Head@fairthgroupllc.com
20	James Dawn	FAA NorthCen Org	James.Dawn@FAA.Gov
21	Matthew O'Donnell	FAA-Acf	Mike.O'Donnell@FAA.GOV
22	Ken Langeent	FAA-ARP	Kenneth.Langeent@faa.gov
23	Trisha Sexton	Indpls Airport Authority (IND)	tsexton@indianapolisairport.com
24	Kurt Sopp	Pittsburgh Int'l Airport	ksopp@pitaipost.com
25	JACOB BOWERS (via phone)	Kimley-Horn (TLH)	jacob.bowers@kimley-horn.com
26	KLYE GARRIS (via phone)	TOL (SMS Coordinator)	
27	KEN IBOLD (via phone)	RS&H/TOL	ken.ibold@rsandh.com
28	KERI SPENCER	FAA ARP	Keri.spencer@faa.gov
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Part 139 SMS Implementation Study
Roundtable Meeting
Thursday, November 3, 2011
8:00AM – 4:00PM

#	Name	Airport/Company/FAA Routing Symbol	Email
1	Bruce MacLachern	SBN	Bruce.M@sbnair.com
2	Virginia Griffin	ACE/ESIS	Virginia.Griffin@ESIS.com
3	Chris Stinger	SLA	AIRPORT@MIDWEST.NET
4	Kevin Vandeberg	Burgwagner Sumner + Cannon	kgvandeberg@bwsc.net
5	David Crowder	Greenville Port of Seattle	crowderk.D@portseattle.ca
6	Rob Huigk	PLH Counsel	
7	Roger Studeuski	JAX	Roger.Studeuski.@Fly.Jax.com
8	Paul Esposito	ACE/ESIS	paul.esposito@CSIS.com
9	Tim O'Rourgley	SAT	Tim.ORourgley@SanAntonio.gov
10	John C Chase	SAT	John.Chase@SanAntonio.Gov
11	Heidi Bergman	Faithgroup/Cheyenne	heidi@faithgroupllc.com
12	Dave Harvig	CHEYENNE REGIONAL AIRPORT	DHARVIG@cheyenneairport.com
13	Julie Schrenke	DFW	jschrenke@...airport.com
14	Joanne Loresley	SEA/SAT/landey casells	joanne@landeycaselhals.com

Continued

#	Name	Airport/Org	Email
15	Scott Mayers	ATL/Hartsfield Jackson Atlanta	scott.ayers@atlanta-airport.com
16	Seth Young	Ohio State University Airport	young.1460@osu.edu
17	ALLEN PARRA (via phone)	ARA/DBQ	aparra@ara.com
18	MICHAEL O'DONNELL	FAA/ARP	
19	JACOB BOWERS (via phone)	KIMLEY-HORN/TLH	jacob.bowers@kimley-horn.com
20	KYLE GAREIS (via phone)	TOL (SMS COORDINATOR)	
21	KEN IBOLD (via phone)	RS&H/TOL	ken.ibold@rsandh.com
22	AMANDA O'KEO-KGLEY (via phone)	KIMLEY-HORN/TLH	amanda.okrongley@kimley-horn.com
23	DAVID POLLARO (via phone)	TLH	
24	Jim Durwin (via phone)	TLH	jim.durwin@tol.gov.com
25	KERI SPENCER	FAA ARP	keri.spencer@faa.gov
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