Gap Analysis

Fort Worth Alliance Airport (AFW) Safety Management System

Submitted to:

Alliance Air Services (AAS)

Submitted by:

Jacobs Engineering Group Inc.

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Fort Worth Alliance Airport (AFW)

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EXECUTIVE SUMMARY

In February 2007 the FAA issued Advisory Circular, AC 150/5200-37, *Introduction to Safety Management Systems (SMS) for Airport Operators*, to introduce the concepts of SMS. The FAA also initiated a pilot program to assist airports in the development of an SMS specific to their situation and operations, and to share their acquired experience on SMS development and implementation with other airports and the FAA.

Alliance Air Services (AAS), under contract with the City of Fort Worth to manage the Fort Worth Alliance Airport (AFW), has decided to take a leadership role in the development and implementation of SMS Fort Worth Alliance Airport by participating in the FAA pilot program.

The purpose of this document is to compare existing safety policies and practices at AFW with SMS program requirements and identify elements that require development for SMS.

As detailed in this report, the gaps between existing safety policies and practices and the FAA's anticipated SMS regulations and guidance material are as follows:

Safety Policies and Objective

- There are no specific aviation safety policies and objectives. These need to be developed for inclusion in the SMS.

Safety Organization

- AAS does not have roles and responsibilities defined specifically for safety. The Gap Analysis details the potential safety organization for consideration for the SMS Manual.

Safety Risk Management

- Because Safety Risk Management (SRM) is an entirely new requirement under SMS, AAS currently does not have a formal SRM process for aviation safety. The SRM process will be developed and documented during subsequent tasks in the project.

Safety Assurance

- AAS has a number of safety assurance mechanisms including self-inspection and wildlife controls.
- Based on new SMS requirements, subsequent tasks of the SMS project will need to develop:
  - Non-punitive reporting.
  - Tracking safety performance indicators.
  - Systematic reviews and audits.
  - Safety oversight.

Safety Training and Communication

- AAS currently provides mandated training programs required by CFR Part 139, as well as training in ramp safety, aircraft fueling, aircraft marshalling and the use of aircraft ground support equipment.
- Gaps include:
  - SMS training.
  - Formal training program manuals.
  - Aviation safety promotional programs.

Subsequent project tasks will develop the SMS based on the gaps identified.

I. INTRODUCTION

Background

In February 2007 the FAA issued Advisory Circular, AC 150/5200-37, *Introduction to Safety Management Systems (SMS) for Airport Operators*, to introduce the concepts of SMS. The FAA has also opened a rulemaking project to consider formal requirements for SMS at certified airports. In support of this rulemaking effort, the FAA has initiated a pilot program to assist airports in the development of an SMS specific to their situation and operations, and to share their acquired experience on SMS development and implementation with other airports and the FAA.

Alliance Air Services (AAS) has decided to take a leadership role in the development and implementation of SMS at the Fort Worth Alliance Airport (AFW) by participating in the FAA pilot program.

As part of the pilot program, AAS has retained the services of Jacobs Engineering Group Inc. (Jacobs), to provide consulting services for the development of a Safety Management System (SMS) Program.

Objectives

The specific objectives and deliverables of the SMS development project include:

1. A Gap Analysis: The gap analysis will identify procedures, policies, documentation, and actions that need to be developed as part of an SMS.

2. A Draft Plan: A draft of the complete SMS Manual and Program Plan.

3. The Final Plan: The final copy of SMS Manual and Program Plan ready for implementation by AAS.

4. Training of AAS employees in SMS and Safety Risk management (SRM).

This report addresses the Gap Analysis. Subsequent project tasks will develop the SMS for AFW and document it in an SMS Manual and Program Plan.

The Gap Analysis addresses what needs to be developed and implemented beyond the requirements of current Part 139. Our analysis was not an audit of existing AFW policies and procedures as to their adequacy, completeness or compliance with Part 139 requirements. This is the subject of detailed FAA certification audits which is well beyond the scope of this project.

Methodology

Jacobs prepared the Gap Analysis based on:

- ✈ Relevant FAA documentation including:
    - Advisory Circular, AC 150/5200-37, February 2007

- The Draft Statement of Work (SOW) for the SMS Airport Pilot Study (Appendix A)

✈ Relevant AFW and City of Fort Worth documentation;

✈ Selected interviews with AAS managers and supervisors;

✈ Selected interviews with the City of Fort Worth ARFF stationed at AFW;

✈ Guidelines regarding SMS from the International Civil Aviation Organization (ICAO) and other international organizations; and

✈ The consulting team's experience with the preparation of SMS for other airports.

Operations at AFW

The Fort Worth Alliance Airport (AFW) is owned by the City of Fort Worth and is operated by Alliance Air Services. The President of AAS provides the role of an Airport Manager/Director. AFW holds a FAR Part 139, class IV Airport Operating Certificate along with an Airport Rescue and Fire Fighting (ARFF), Index rating of "E". The FAA Airport Traffic Control Tower (ATCT) that provides air traffic control services 24 hours per day, 7 days per week, and 365 days per year. AAS in addition to operating the airport also provides Fixed Base Operations (FBO) serving corporate aviation, the military and general aviation. Major tenants at the airport include: FedEx Southwest Regional Sort Hub, Bell Helicopter/Textron and an American Airlines maintenance facility.

AFW is located approximately 18 miles north of the central business district of Fort Worth. The airport has two parallel runways:

1. Runway 16L/34R 9600 x 150 feet

2. Runway 16R/34L 8220 x 150 feet

In 2007, there were a total of 82,251 operations at the Alliance Airport, which is an average of about 264 operations per day.

Structure of the Gap Analysis

The Gap Analysis is structured to address the four core elements (pillars) of an SMS, as outlined in the FAA's Advisory Circular. Additionally, Jacobs has added a separate element for Safety Organization which the Advisory Circular described under Safety Policy and Objectives. Jacobs believes that this structure is important to emphasize the equal importance of a proper organization structure as well as the policy & objectives, rather than a sub-set of the policies and objectives. In previous FAA pilot projects that we conducted, the FAA SMS Program Office agreed to this structure.

1. Safety Policies and Objectives

2. Safety Organization

3. Safety Risk Management

4. Safety Assurance

5. Safety Promotion

Under each of these five core elements, the Gap Analysis addresses the FAA's detailed SMS Program content outlined in the FAA Advisory Circular, AC 150/5200-37, and the FAA Draft Statement of Work (Appendix A).

More specifically for each element, the Gap Analysis:

1. Summarizes the FAA's SMS guidance documentation, international guidance material where appropriate and Jacobs Engineering Team's SMS experience;

2. Describes what systems, policies and practices exist at AFW; and then

3. Identifies procedures, policies, objectives, organizational issues and documentation (i.e., Gaps) that need to be developed for SMS and how they will be addressed in the subsequent tasks to develop the SMS Manual and Safety Program Plan.

Intent of SMS

The intent of SMS is to improve aviation safety. The elimination of aviation accidents is a desirable goal. However, no human activity or human-made system can be guaranteed to be absolutely safe. Failures and errors will occur, in spite of best efforts to avoid them. Although major air disasters are rare events, less catastrophic accidents and a whole range of incidents occur more frequently. Ignoring these underlying safety hazards could potentially pave the way for an increase in the number of more serious accidents.

The air transportation industry's future viability may well be predicated on its ability to sustain the public's perceived safety while traveling. The management of safety is therefore a prerequisite for a sustainable aviation business.

The accident rate in the air transport industry has decreased dramatically between the early 60's and the mid 80's from 30 to near 2 per million departures. It could be easily argued that this rate was achieved from continuing efforts by the industry to make air travel a safe mode of transportation. Figure 1 – Traffic Growth/Accident Rate[1], illustrates, between the mid eighties and now, we find an 80% increase in air traffic and a 73% increase in the number of accidents. Although the accident rate per million departures remains steady at 2, air travel safety as perceived by the public is likely to decline if traffic growth and accident rate per million departures remain the same. Air travel related accidents make instant worldwide news and there will be more and more reports even while maintaining a relatively low accident rate. Safety management, when well in place within the industry will be a key factor in further reducing the accident rate and achieving actual and perceived improvement in aviation safety.

[1] Source: Jacobs Consultancy for illustrative purposes

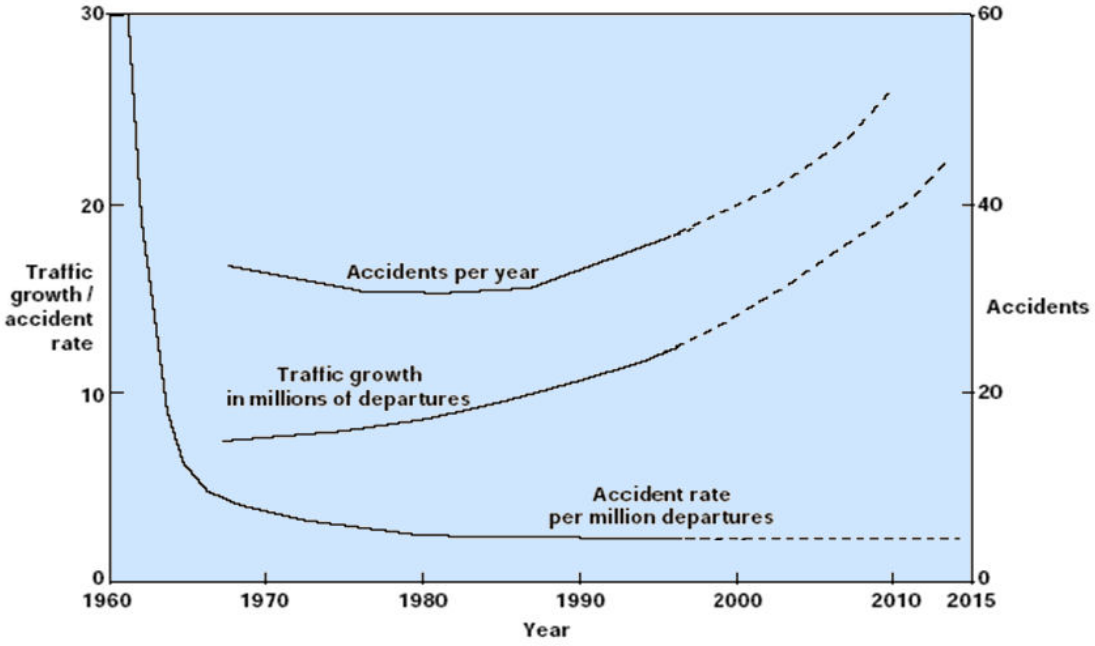

Figure 1 - Traffic Growth/Accident Rate

Some recent statistics from the International Air Transport Association (IATA) for 2008 provide further rationale for the implementation of a SMS program:

- ✈ More than 500 people died in air crashes on Western-built jets in 2008 and safety lapses at airlines contributed to nearly a third of accidents, according to International Air Transport Association (IATA)

- ✈ The industry-wide accident rate, measured in hull losses per million flights, was 0.81, or one accident every 1.2 million flights. This compared with 0.75 in 2007.

- ✈ "Runway excursions", when an aircraft left the runway on take-off or landing, accounted for one-quarter of accidents, and ground damage was reported in another 17 percent.

- ✈ There was an estimated $4 billion worth of damage to aircraft and equipment on the ground.

- ✈ Thirty percent of the accidents had "deficient safety management at the airline level as a contributing factor", according to IATA which represents 230 carriers including British Airways, Cathay Pacific and United Airlines.

II. SAFETY POLICIES AND OBJECTIVES

Key Features

The FAA SOW for SMS states that Safety Policies and Objectives should include:

- A written safety policy statement(s) and a description of how it is communicated to airport employees; and
- Identification and description of the airport safety goals.

The FAA Advisory Circular under Safety Policy indicates that management's commitment to safety should be formally expressed in a statement of safety policy that reflects the airport's safety philosophy and that is signed by Top Management.

Key attributes of the policy could also include the following:

- The commitment of senior management to implement SMS;
- The airport's intentions, management principles and commitment to continuous improvement to safety at the airport;
- Communication of the policy to all employees;
- Implementation of the policy at all levels of the airport;
- Confirms that safety is everyone's responsibility; and
- Recognizes that there will always be threats to safety and that the airport will provide the highest reasonable standard of safety. The Advisory Circular refers to a commitment to make safety the highest priority which may have a different meaning.

The Advisory Circular under Safety Objectives (Section 2.2.2) does not address objectives but deals with the organization for safety. The Advisory Circular does refer to safety performance indicators and targets under Safety Assurance (Section 2.4).

SMS guidelines, including the FAA Advisory Circular, give very little practical advice on safety goals or objectives. The terms "goals" and "objectives", as well as "targets" are frequently used interchangeably. The intent in the guidelines; nonetheless, is to have measurable indicators of safety.

Existing Policies and Objectives

AAS does not currently have a written safety policy endorsed by the AAS President (Top Management) to indicate their commitment to aviation safety which is a key element of an SMS program.

Gaps and Development Required

Safety Policies

The SMS project will develop and document an aviation safety statement and set of safety policies that should be adopted by AAS, the contract operator of AFW for the City of Fort Worth.

The adoption of a safety policy statement is the fundamental approach to managing safety that is to be adopted within the organization. Furthermore, the AFW Safety Policy would define the organization's commitment to safety and overall safety vision, and empower the organization to fulfill the values and commitments of top management.

Safety Objectives

Safety objectives are required to allow for assessment of safety performance and developments at the airport. Safety objectives should be linked to factors such as:

- Safety hazards identified during inspections; e.g., type and quantity of FOD (Note: the airport's self-inspection program captures this information but does not systematically monitor trends in this information);
- Airside safety violations;
- Aircraft bird strikes;
- Incursions of vehicles, aircraft, or pedestrians on movement areas;
- Accidents and incidents on the AOA and/or the controlled movement area involving air carrier aircraft and/or ground vehicles;
- Operable time of lighting systems;
- Number of AAS employees who have received safety and SMS related training;
- Non-punitive safety reports; and
- Implementation of the SMS.

The safety objectives will need to be included in the AAS President's statement of policy and objectives and then communicated to all of the organization. They should be no different from other organizational objectives in that they should be:

- Specific and measurable;
- Achievable and challenging; and
- Realized within a specific time frame.

More specific safety objectives applicable to AFW will be developed during subsequent tasks of the SMS pilot project. Emphasis will be placed on developing meaningful objectives that can realistically be measured by AAS.

III. SAFETY ORGANIZATION

Key Features

The FAA SOW for SMS describes the following requirement related to the safety organization.

- An organizational chart identifying the names and safety responsibilities of all key personnel, such as the following:
  - Top Management
  - Safety Manager
  - Department Heads/Managers
  - Established Safety Committees and Chairpersons

The Advisory Circular provides considerable guidance on how an airport should be organized for safety. The key features described in the Advisory Circular are as follows:

- SMS requires that Top Management in the organization (also referred to in the Advisory Circular as Senior Management), one with the authority to adequately control resources, be assigned SMS responsibilities.

- Defined safety authorities and responsibilities for all key personnel that are assigned to the airport.

- Identification within the airport of someone responsible for administration of the overall SMS. This person reports to the highest level of management to assure appropriate consideration of all reports, recommendations, and issues.

- At many airports, operations may support the Safety Manager being a full-time permanent employee and in some cases having a support staff. At smaller airports, the size of the airport may not support a full time Safety Manager.

- The responsibilities of the Safety Manager are clearly defined along with identified lines of communication within the organization.

- Depending on the size and complexity of the airport's operation, it may be useful to establish an Airport Safety Committee (ASC).

The SMS should also address how, and to what extent, tenants at the airport such as air carriers are integrated into the airport SMS. At AFW, AAS acts as an FBO providing fueling and ground support services. ICAO has made very strong reference to the inclusion of tenants at an airport. ICAO's Safety Management Manual, Doc 9859 A/460, First Edition – 2006, chapter 18, – AERODROME OPERATIONS, states that:

> **Subsection 18.3.1**
>
> *Within the framework of an aerodrome SMS, the aerodrome management must oversee the activities of all the service providers, tenants, contractors and others to ensure the safest and most efficient performance of the aerodrome.*

Subsection 18.3.8

Given the complexity of the factors creating risk potential at aerodromes, the aerodrome management must coordinate the activities of the diverse stakeholders at an aerodrome – often with conflicting expectations and priorities. The sharing of a common focus among the stakeholders, most of whom are employees of agencies other than the aerodrome authority, needs to be fostered. In addition, resource commitments from the airlines and other service providers must be obtained.

The FAA Circular does not address this organizational requirement to any extent. Tenants and Air Traffic Control may be major contributors to accidents at an airport and if they are not integrated into the airport's SMS, then the SMS may not be very effective. Yet at the same time, the airport does not have direct accountability for tenant or Air Traffic Control operations. There are number of means that these stakeholders could be included or participate in the airport SMS including:

- The City of Fort Worth's Rules and Regulation dealing with activities at the airport;
- The airport's self inspection program;
- Participation in Safety Committees;
- Safety audits; and
- New and revised airport tenant use and lease agreements.

Existing Policies, Practices and Systems

The organizational structure for AFW is depicted in Figure 2 - AFW Organization Structure. The key positions that have a direct impact on aviation safety at AFW include:

- Airport President
- Operations & Safety Manager
- Service Coordinator
- Lead Operations Specialists (2)
- Operations Specialists (4)
- Airfield Maintenance Technician
- Airfield Electrical Technician
- Airport Firefighting and Rescue (ARFF)

There are job descriptions in place for these positions which have been summarized below to highlight where responsibilities and duties have a direct impact on aviation safety. These descriptions given below also include the results of interviews with AAS managers and supervisors.

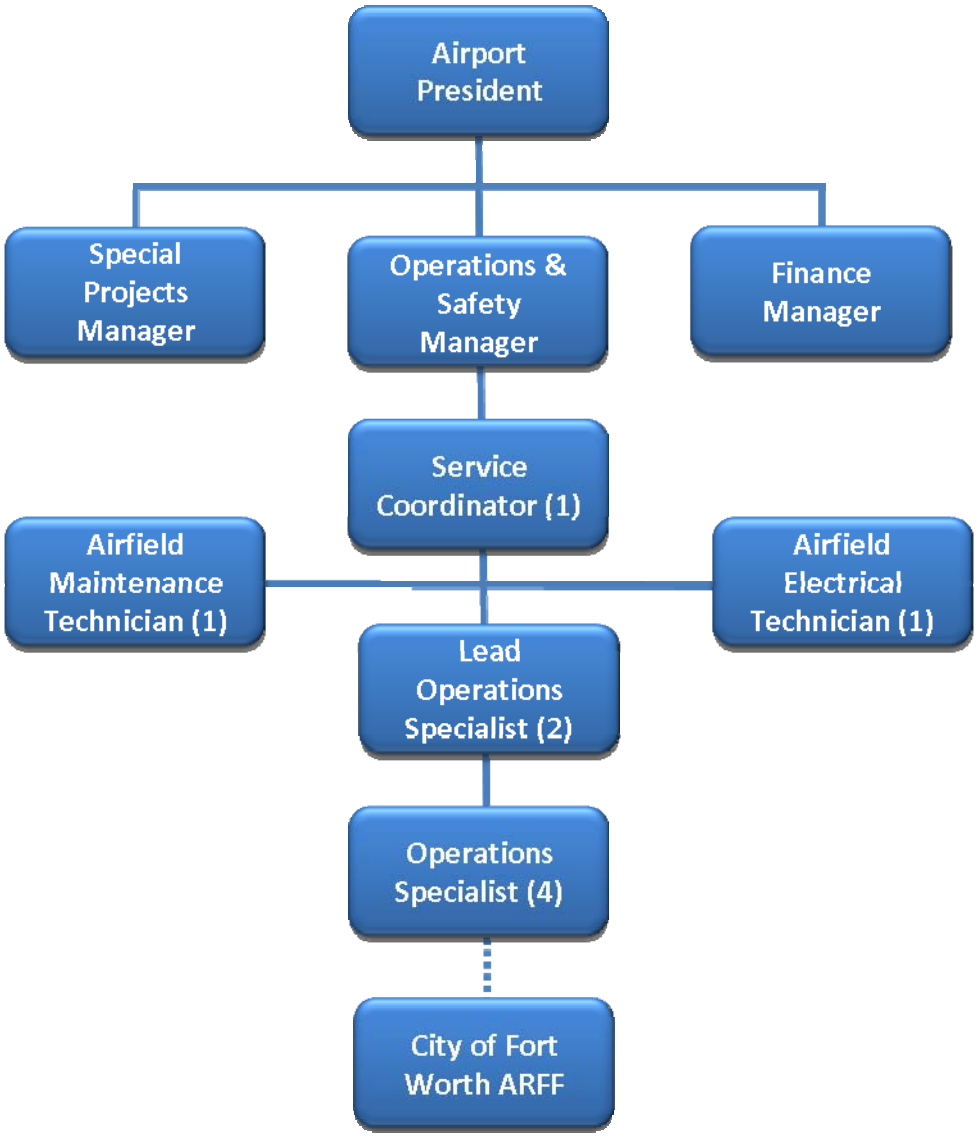

Figure 2 - AFW Organization Structure

Airport President:

The Airport President has overall safety responsibility for operations at AFW. The Airport President also has an overall safety consultation, facilitation and monitoring role for Alliance Airport's business partners, suppliers and service providers.

The Airport President's key areas of responsibility include the following:

- Establish, approve, and implement the AFW Safety Policy and Safety Management System (SMS) manual.
- Take a leadership role in the airport's safety management system program.
- Ensure the annual business plan (i.e. including the capital program) is sufficiently addresses compliance with AAS safety policies and management system.
- Appoint safety conscious direct reports, monitor their performance and ensure that safety is given a reasonable priority within their training and development plans.
- Ensure that full consideration is given to the integrity of changes in the airport's organization structure and business processes as it relates to safety.
- Clearly define safety performance, accountability, and responsibility for all staff.
- Ensure policies, standards and procedures are established in a manner that contributes to the success of the airport's SMS.

Operations & Safety Manager:

The Operations & Safety Manager is accountable to the Airport President for administrating AFW SMS strategy and compliance processes.

The Operations & Safety Manager key areas of responsibility include the following:

- Provide a leadership role in the Airport's SMS program.
- Champion safety at all AFW meetings.
- Define meaningful, measureable, and obtainable safety performance indicators and the processes to track them.
- Ensure that operations and maintenance standards, procedures and practices contribute to the success of AFW's Safety Policy and Safety Management System.
- Hire safety conscious employees, monitor safety performance, and ensure safety is given a reasonable priority within their training and development plans.
- Incorporate system safety during all maintenance and construction projects.
- Issues Notice to Airmen (NOTAM) and closes or restricts portions of the Airport as required.
- Ensure compliance with all safety related legislation applicable to the management of the airport and facilities.

Service Coordinator

The Service Coordinator position is accountable to the Operations & Safety Manager for deploying, monitoring, and reporting on the organization's overall SMS strategy and compliance process.

The Service Coordinator key areas of responsibility include the following:

- Monitors the activities and performance of, and has oversight responsibility of the Operations Leads and Specialists
- Track, maintain records of and report on established safety performance indicators.
- Perform internal audits of safety assurance processes, records, and related programs
- Participate with the Airport's Safety Management System including emergency planning and co-ordinate resources during emergency incidents, aircraft recovery operations, adverse weather conditions, equipment service issues and unscheduled movements.
- Apprise AAS management of all operational and programmatic matters that may influence or impact their areas of control.

- Maintain and develop constructive relationships with all stakeholders in the safe and efficient operation of the airfield.
- Follow “best practice” operational standards and procedures.

Lead Operations Specialist

The Lead Operations Specialist positions are accountable to the Service Coordinator for monitoring, inspecting, and reporting on the organization’s SMS strategy and compliance process. The Lead Operations Specialist is responsible for maintaining a safe and efficient operating environment at the Airport.

The Lead Operations Specialist key areas of responsibility include the following:

- Perform inspections and monitor all airfield activities to ensure compliance with AOA safety, maintenance, and construction rules and regulations.
- Monitor the performance of the Operations Specialists on an assigned shift, and assist with duties and assignments as may be necessary to ensure a safe and efficient operation.
- Report to the Service Coordinator on documented safety performance indicators.
- Participate with the Airport’s Safety Management System including emergency planning; and co-ordinate resources during emergency incidents, aircraft recovery operations, adverse weather conditions, equipment service issues and unscheduled movements.
- Apprise management of all operational matters that may influence or impact their areas of control.
- Performs safety inspections of the airport in accordance with established policies and procedures.
- Maintain and develop constructive relationships with all stakeholders in the safe and efficient operation of the airfield.
- Follow “best practice” operational standards and procedures.
- Ensure the safe throughput of aircraft movements by liaising with the FAA Airport Traffic Control Tower, tenants, airport fire/rescue, especially when affected by adverse weather conditions, incidents, emergencies or other disruptions.

Operations Specialist

The Operations Specialist positions are accountable to the Service Coordinator for monitoring, inspecting, and reporting on the organization’s SMS strategy and compliance process. The Operations Specialist is responsible for maintaining a safe and efficient operating environment at the Airport.

The Operations Specialist key areas of responsibility include the following:

- Ensure compliance with established AOA safety, maintenance, and construction rules and regulations for AFW.
- Performs safety inspections of the airport in accordance with established policies and procedures.
- Report to the Lead Operations Specialists on documentation of safety performance indicators.
- Participate with the Airport’s Safety Management System including emergency planning; and co-ordinate resources during emergency incidents, aircraft recovery operations, adverse weather conditions, equipment service issues and unscheduled movements.
- Apprise management of all operational matters that may influence or impact their areas of control.

- ✈ Maintain and develop constructive relationships with all stakeholders in the safe and efficient operation of the airfield.
- ✈ Follow “best practice” operational standards and procedures.
- ✈ Ensure the safe throughput of aircraft movements by liaising with the Airport Traffic Control Tower, tenants, airport rescue and fire fighting, especially when affected by adverse weather conditions, incidents, emergencies or other disruptions.

Airfield Maintenance Technician

The Airfield Maintenance Technician is accountable to the Service Coordinator for the repair of airfield components, equipment, and assets.

Airfield Electrical Technician

The Airfield Electrical Technician is accountable to the Service Coordinator for the repair of airfield electrical components, equipment, and assets.

(NOTE: Alliance Air Services positions and safety responsibilities are subject to change without notice.)

ARFF Services

The City of Fort Worth Fire Department (COFWFD) is responsible for providing ARFF services at the airport. In addition, COFEFD provides the training and operations at the Airport, in accordance with CFR Part 139. The Airport has been designated as an Index “E” for ARFF services. The Fort Worth Fire Department Captain and two Lieutenants (who are ARFF certified) are assigned to the ARFF station at the airport. One Officer and at least three ARFF certified Firefighters are assigned to each shift. ARFF is also responsible for conducting and documenting inspections of fuel farm/storage and mobile fuelers every three months.

Airport Committees

AAS currently does not have formalized meetings with airport tenants or employees that focus on aviation safety other than for special events such as air shows.

Gaps and Development Required

AAS does not have roles and responsibilities defined or documented specifically for safety at AFW. As detailed above, AAS does, of course, have positions with responsibilities that have a direct impact on the safety of aviation operations.

Considering the size of AFW, particularly in terms of staff members, the Airport President should be the senior manager responsible for SMS. This position has the authority to control resources within the mandates set out by the City of Fort Worth to manage and operate AFW.

At this stage of developing the SMS, Jacobs recommends that the responsibilities of the Airport President for SMS would include:

- ✈ Overall safety responsibility for operations
- ✈ Establish, approve, and implement SMS for AFW;
- ✈ Approval of safety policy, goals and objectives;
- ✈ Periodic reviews and updates of the SMS, safety policy and goals for AFW; and
- ✈ Deploying financial and human resources, within their control, for proper execution of the SMS.
- ✈ Co-Chair Airport Safety Committee

SMS development will need to:

1. Confirm that the Operations & Safety Manager will be responsible for administering the SMS. The responsibilities for this position would include:
    - ✈ Serve as vice-chair to the Airport Safety Committee;
    - ✈ Leading safety risk management analysis & assessments of hazards, incidents and accidents to determine the precursors (cause) and required actions;
    - ✈ Conducting trend analysis of safety concerns, hazards, incidents and accidents and determining action required, in consultation with other airport staff;
    - ✈ Ensuring appropriate action is taken in response to safety concerns, hazards, incidents and accidents;
    - ✈ Keeping records of all safety related reports, incidents and accidents, and conducting trend analysis;
    - ✈ Providing and coordinating safety promotion;
    - ✈ Ensuring the provision of safety training for airport employees and tenants located or working in the AOA;
    - ✈ Implementing a non-punitive reporting system;
    - ✈ Ensuring that safety audits are conducted when required;
    - ✈ Measuring safety performance in relation to safety objectives; and
    - ✈ Annual review and revisions (as required) of the safety policy and safety objectives.

2. Describe the composition and role of the Airport Safety Committee (or Airport Safety Council) in addressing aviation safety issues.

3. Define how tenants would be integrated into the SMS. For example, participation in the Airport Safety Committee, audits of tenant safety plans or programs.

In consultation with AAS managers, Jacobs will develop the organization structure for safety and will define safety responsibilities for key organizational positions at AFW.

IV. SAFETY RISK MANAGEMENT

Key Features

The FAA Scope of Work (SOW) for SMS describes the following requirements related to Safety Risk Management (SRM).

- Description of the safety risk management process, including application of "The Five Phases of Safety Risk Management", as discussed in AC 150/5200-37;
- Guidance on the use of SRM and trend analysis;
- Defined process for documenting the results of SRM, including a description of how documents will be stored, i.e., electronic or paper; and
- Descriptions of how top management will follow up on SRM to ensure safety mitigation strategies are appropriate.

The FAA's Advisory Circular indicates that safety risk management is a fundamental component of SMS. The principal steps in the safety risk management (SRM) process include: identification of a potential hazard, analysis of the risk, evaluation of the risk and development of an action plan to mitigate the risk if necessary.

The Advisory Circular goes on to say that SRM hazard identification stage should consider all the possible sources system failures of the system (i.e. operations, equipment, people, and procedures). Possible sources of system failure could include:

- Equipment (example: construction equipment on a movement surface);
- Operating environment (example: cold, night, low visibility);
- Human element (example: shift work);
- Operational procedures (example: staffing levels);
- Maintenance procedures (example: nightly movement area inspections by airport electricians); and
- External services (example: ramp traffic by Fixed-Base Operator (FBO) or law enforcement vehicles).

Existing Practices and Systems

Although AAS informally considers many elements of SRM in management decisions, AAS currently does not have a formal Safety Risk Management process for aviation safety.

Gaps and Development Required

The Safety Risk Management (SRM) process will need to be developed and documented during subsequent project tasks.

Jacobs will develop a practical approach to SRM appropriate to the size of AFW that will be qualitative in nature and understandable by AAS management and employees. For example, Jacobs will develop simple paper-based forms for conducting a safety risk assessment and a simplified risk evaluation matrix for summarizing the results of an assessment. Jacobs will provide training in SRM to AAS managers and employees at the end of the SMS development project.

V. SAFETY ASSURANCE

Key Features

The FAA SOW for SMS describes the following requirements related to safety assurance:

- A plan and description of employee non-punitive reporting systems, existing and planned.
- A description of the airport quality management and/or risk management program (if applicable) and its integration into the airport SMS.
- Description of a plan to integrate apron safety management into the airport SMS. (The FAA's review of the plan will be limited to measures for preventing accidents or incidents involving aircraft.) The plan could include the following:

    a. Description of current apron safety management practices, such as reporting requirements to the National Transportation Safety Board (NTSB), Flight Standards, or the Occupational Safety Health Administration (OSHA).

    b. An explanation of how current apron safety management practices meet the intent of SMS. This could include the safety plans and practices of tenants and operators at the airport, which should complement the airport SMS.

- A detailed method to document self-auditing processes and their findings. Self-auditing may be part of the airport self-inspection process. If it is, explain how the self-inspection process addresses systems safety, i.e. if the self-inspection program identifies a hazard on the airport the process should document the process utilized to determine, assess & analyze the risk, develop mitigation and follow-up to ensure the effectiveness of the mitigation.
- A detailed method to document self-inspection reviews, analysis, and findings.
- Process to document and review lessons learned from within the organization.

The Advisory Circular states that safety assurance includes self-auditing, external auditing and safety oversight. According to the Advisory Circular safety oversight can be achieved through auditing and surveillance practices.

The Advisory Circular also says that in addition to the airport operator's existing responsibilities for self-inspection and correction of discrepancies in accordance with 14 CFR Part 139, an effective airport SMS audit program should:

- Develop identified safety performance indicators and targets;
- Monitor adherence to safety policy through self-auditing;
- Allocate adequate resources for safety oversight;
- Solicit input through a non-punitive safety reporting system;
- Systematically review all available feedback from daily self-inspections, assessments, reports,

safety risk analysis, and safety audits;

- Communicate findings to staff and implement agreed-upon mitigation strategies (NOTE: 14 CFR Part 139 already requires this for actions covered by that regulation); and

- Promote integration of a systems approach to safety into the overall operation of the airport.

The Advisory Circular also provides further guidance on non-punitive safety reporting, self-auditing and safety performance monitoring. This guidance material is provided below and generally follows international SMS guidance material.

- "The SMS should include a visible non-punitive safety reporting system supported by management. The safety reporting system should permit feedback from personnel regarding hazards and safety-related concerns. The SMS should use this information to identify and address safety deficiencies. The safety reporting system may also identify and correct non-conformance to safety policy."

- "Safety auditing is a core safety management activity. Similar to financial audits, safety audits provide a means for systematically assessing how well the organization is meeting its safety objectives. Top (senior) management may choose to have an external agency audit the system (e.g., by a consultant or another airport operator). The safety audit, together with other safety oversight activities, provides feedback to managers concerning the overall safety performance of the organization."

- "Safety performance monitoring validates the SMS, confirming the organization's safety objectives. Through regular review and evaluation, management can pursue continuous improvements in safety management and may revise safety objectives to ensure that the SMS remains effective and relevant to the organization's operation."

Existing Practices and Systems

Airport Self-Inspection Program

AAS has established a self-inspection program in accordance with the requirements of CFR Part 139 and the Airport Certification Manual (ACM.) The reporting system requires Operations Specialist to complete daily *Airfield Inspection Reports* (Appendix B) and *Airfield Lighting Inspection Reports* (Appendix B) in order to document Part 139 discrepancies that are found during the inspections.

The Part 139 elements that are to be inspected daily include: paved areas, safety areas, marking and signs, navigational aids, fueling operations, any construction, wildlife hazards, and generator fuel levels.

Inspections by AAS personnel are conducted as follows:

- Daily daytime and nighttime inspections (see Appendix B for forms used);

- During low-visibility (SMGCS) conditions;

- During and after construction or maintenance activity;

- ✈ During and after storms, high winds freezing precipitation, and other major meteorological events;

- ✈ Immediately after an incident or accident.

According to the ACM as part of the self-inspection program, the City of Fort Worth Airport Rescue and Firefighting (ARFF) Section is responsible for conducting quarterly inspections of fuel farm/storage and mobile fuelers using a Fuel Farm Fire Safety Inspection Report Form (see Appendix D). The Lead Operations Specialists and/or Operations Specialists conduct daily inspections of fueling facilities and equipment.

Conditions that could affect air carrier operations are disseminated to the air carriers via NOTAMs.

Airspace and Obstruction Management

AFW is like many airports with frequent development and maintenance projects. AAS personnel appear to understand the basic concepts and requirements of FAR Part 77, Objections Affecting Navigable Airspace. AAS personnel are required, under Part 139, to manage & mitigate obstructions along with ensuring protection of their airspace. AAS personnel are not always actively involved in the planning or airspace process to ensure the safety of the process is met. FAA Airspace Determination Letters provided to AAS are not fully understood in their aeronautical mitigation requirements, the process to activate those requirements, stakeholder coordination and active management during the mitigation period.

Apron Safety

Aircraft movement on the apron is under the control of AAS personnel as part of the company's Fixed Base Operations (FBO) services. Personnel responsible for the handling and marshalling of aircraft receive training through the use of on-the-job demonstrations and observed performance, verbal instructions, and written guidance. The appearance of ramp operations and the cleanliness of the facilities and ramp give the impression that aircraft handling safety and FOD management is a high priority for all AAS employees.

Other leased tenant ramps and facilities do not fall within the direct purview of AAS, and as such are not inspected by them.

The City of Fort Worth does have "Rules and Regulations" governing airports and aircraft. Article V of these Rules and Regulations address the operation of vehicles and aircraft on the Airport.

Wildlife Management

The ACM addresses wildlife control in Article 4, Section 4.05, Wildlife Hazardous Management. This section outlines guidance and reporting requirements if any event occurs on or near an airport where an aircraft experiences a bird strike, or where wildlife populations are noted in numbers capable of causing an aircraft strike.

AAS Operations Specialists provide harassment of hazardous wildlife in accordance with CFR Part 139.337 to discourage the presence of animals on and near runways and taxiways. Monitoring

hazardous wildlife by Operations staff is accomplished through the self-inspection program.

When a wildlife strike occurs on the airport, Operations personnel are required to complete an online bird strike report (FAA Form 5200-7 (Electronic), Revised 7-14-2008). Where an avian species can not be identified, AAS will send remains to the *Feather Identification Lab, c/o Smithsonian Institution* for proper identification.

Currently, AAS has no Wildlife Control or Management Plan or formal training program for personnel who are responsible for the control of wildlife on the Airport (NOTE: Class IV airports are not required to have such a plan in accordance with Part 139).

Gaps and Development Required

AAS has a self-inspection program in place. Self-inspection deals primarily with ensuring compliance with detailed FAA standards but can form a key component of safety assurance; for example, trend analysis of reported deficiencies.

Gaps that will require development to meet the FAA's detailed SMS guidance material referred to previously include:

- Creating safety related performance benchmarks;
- Non-punitive safety reporting;
- Systematic reviews of feedback from self-inspection, assessments, reports, safety risk analysis and audits which will allow the monitoring of adherence to safety policy and the monitoring of safety performance indicators related to safety objectives;
- Auditing for safety, performance, and compliance; and
- Safety oversight which Jacobs would define as regular Top (Senior) Management reviews and evaluations of the implementation of safety policies, progress to meeting safety objectives and lessons learned as means to continuous improvements in safety management.

The FAA Advisory Circular says that non-punitive reporting systems should permit feedback from personnel regarding hazards and safety-related concerns. However, if it is to apply only to *hazards and safety-related concerns*, then Jacobs question why does it need to be *non-punitive?* Jacobs' understanding is that a non-punitive system is a way to safeguard employees from disciplinary action when reporting incidents and accidents in which they are directly or indirectly involved. Deliberate or unlawful actions are excluded of course. This is consistent with a *systematic, explicit, and comprehensive approach for managing safety risk (AC, Paragraph 3).* Jacobs has discussed this issue with FAA and have concluded that incidents and accidents should be included.

The development of the non-punitive reporting system should also consider whether tenant employees should be part of this system, or whether the system should be limited to AAS employees. Jacobs has discussed this issue with the FAA and they have indicated that each airport is unique and should set up practices particular to their airport.

VI. SAFETY PROMOTION - TRAINING

Key Features

The FAA SOW for SMS describes the following requirements related to safety promotion, and training specifically.

- A plan for employee SMS indoctrination and training. SMS indoctrination training should provide an outline of proposed curriculum and resources.
- Documented process to identify training requirements for systems safety.
- A plan to validate training effectiveness and the process to gain training feedback, including useable metrics.

The Advisory Circular in addition to the above states that training and education should include:

- Initial (general safety) job-specific training;
- Recurrent safety training;
- Training that includes human factors and organizational factors ; and
- A training file for each employee to identify and track employee training requirements and verify that the personnel have received the planned training.

Existing Policies, Practices and Systems

Existing training programs at AFW include:

- Pedestrians and vehicles on the AOA;
- Airport familiarization and Part 139;
- New employee training;
- Ramp safety; and
- ARFF.

Pedestrians and Vehicles on the AOA

AAS's training material consists of a document entitled, "Vehicle Operating Procedures". This document, dated March, 2004, is augmented by "An FAA Guide, Airport Ground Vehicle Operations" which deals with airport markings and signage, and communications with the tower. Although these training documents meet the intent of Part 139, it could be augmented and improved by training material, especially audio-visual, available from the American Association of Airport Executives (AAAE). The training material could also be improved by using pictures of actual signage and markings at AFW. Jacobs also noted that the FAA Guide on Airport Ground Vehicle

Operations, dated 1990, is not the latest publication available. The latest guide is available electronically from the FAA at the following address;

http://www.faa.gov/airports_airtraffic/airports/airport_safety/call_to_action/*Airport Familiarization and Part 139*

This training is accomplished annually in a classroom environment. Records are maintained in hard copy as part of personnel training records/files. The training is conducted by the Operations & Safety Manager.

New Employee Training

All AAS employees must successfully complete a series of classroom and on-the-job training before they are allowed to perform duties independent of direct supervision. The degree to which an employee is trained and the timeline they are given to complete the assigned training program depends on the individuals' demonstrated level of experience and knowledge of the business. The Operations & Safety Manager has the final authority for certifying the competency of new employees.

Ramp Safety Training

AAS utilizes the National Air Transportation Association (NATA) "Safety First PLST Program" and Exxon Mobile Premier Care Safety online training modules. AAS alternates these training modules every other year. Operation's personnel must complete all modules annually including passing tests for each module. There is a test and then a Practical Exercise/Applied Learning test administered by the Operations & Safety Manager. Training records for the course work are maintained online. The modules are available 24/7 for students & administrators. Modules include:

1. Introduction and Ground Servicing
2. Safety
3. General Fuel Servicing
4. General Towing Procedures
5. Fuel Farm Management
6. Customer Service
7. Fire Safety
8. Aviation Security

Non-Operations personnel receive an abbreviated version of basic safety classes so that they are familiar with aviation operations topics.

ARFF Training

The City of Fort Worth ARFF personnel receive instruction in accordance with AC 150/5210-17A, Programs for Training Aircraft and Fire Fighting Personnel, from certified ARFF Trainers.

Gaps and Development Required

With regard to SMS, given that there is no SMS in place, there is a gap in SMS requirements for SMS indoctrination and training. SMS training will be developed and provided during subsequent tasks of this project. More specifically the SMS will outline a plan for SMS indoctrination and annual refresher training to:

- ✈ Ensure everyone in the organization is involved in SMS and their participation in the training is tracked and documented.
- ✈ Incorporate SMS practices into everyday tasks in order to internalize SMS values and concepts.
- ✈ Airspace processes, management, operations and mitigation

VII. SAFETY PROMOTION - COMMUNICATIONS

Key Features

The FAA SOW for SMS describes the following requirements related to safety promotion, and specifically for communications:

- A defined process to communicate safety policies and objectives throughout the organization including examples of how information will be communicated and any processes for follow-up.
- Procedures to promote safety awareness and participation in non-punitive reporting systems. Documented plan for training and education, safety communication, competency, and continuous improvement processes.

The Advisory Circular essentially reiterates the requirements above but also provides some examples including:

- Safety seminars;
- Safety letters, notices and bulletins;
- Safety lessons-learned;
- Bulletin boards, safety reporting drop boxes, and electronic reporting through web sites or email;
- A method to exchange safety-related information with other airport operators through regional offices or professional organizations; and
- In the future, voluntary posting of safety-related information on an existing FAA web-based safety reporting system currently being used by air operators.

Existing Policies, Practices and Systems

AAS informal safety promotion relies on required training. There is no formal policy for safety promotion beyond that. However, the purpose of this project is to introduce SMS concepts to the organization and provide a roadmap for them to incorporate SMS into their safety culture.

Gaps and Development Required

- Development of the SMS will include an aviation safety promotion program.
- A documented process to identify training requirements
- A validation process that measures the effectiveness of training

- ✈ Initial (general safety) job-specific training
- ✈ Recurrent safety training
- ✈ Indoctrination/initial training incorporating SMS
- ✈ Training that includes human factors and organizational factors
- ✈ Training that includes airspace analysis & management and obstruction management & mitigation
- ✈ Wildlife identification and management

Appendix A

Draft Statement of Work

FAA SMS Airport Pilot Study

Requirements for the Final Plan

DRAFT STATEMENT OF WORK
FAA SMS AIRPORT PILOT STUDY

1. OBJECTIVE

The FAA is conducting a pilot program to evaluate the implementation of Safety Management Systems (SMS) at airports of varying size and complexity. The pilot program will allow airports and the FAA to gain experience establishing airport specific SMS that are tailored for the individual airport. This information will provide FAA information on SMS best practices and lessons learned that will be helpful as FAA considers development of a Notice of Proposed Rulemaking to incorporate SMS into 14 C.F.R. Part 139, *Certification of Airports*.

2. BENEFITS ANTICIPATED

For airport operators, the application of a systematic, proactive, and well-defined safety program as is inherent in SMS allows an airport to continue to improve safety in the face of significant forecasted growth in air traffic activity. The use of SMS at airports can contribute to this effort by increasing the likelihood that Airport Operators will detect and correct safety problems before they result in an aircraft accident or incident.

The FAA benefits from the opportunity to assimilate the experience of airport operators in developing an SMS for airports of widely varying activity levels and operational complexity. The FAA anticipates moving to a more formal requirement for the use of SMS at U.S. airports, consistent with the recent ICAO amendment to Annex 14 to make SMS a mandatory standard at international airports. Experience gained through review of the SMS plans developed under this pilot program will be extremely useful in development of a general U.S. standard.

3. APPROACH

Because SMS is currently not a regulatory requirement in the U.S. at this time, the SMS Manual and program developed under the pilot program should remain separate from the Airport Certification Manual (ACM) required in 14 CFR Part 139. (FAA would need to approve any changes to the ACM itself). FAA Airport Certification Safety Inspectors may ask to review the airport's SMS documents, but will not consider the SMS (or lack of an SMS) a factor in compliance with Part 139.

The SMS Manual and program plan should not simply apply existing guidance that has been developed in other countries with their own safety oversight rules, or duplicate SMS plans of airports subject to those rules. Rather, the SMS Manual and plan should complement existing U.S. safety requirements in 14 C.F.R. Part 139, and be consistent with Part 139, FAA Advisory Circulars, and the Airport Certification Manual specific to the airport's current operation. Therefore, the SMS Manual and program plan should address which elements of the airport operator's existing practices and guidance materials currently meet SMS requirements, which elements do not, and how these practices and documents will be revised in the future for consistency with the SMS plan.

4. DELIVERABLES

The development of the SMS Manual and program should be completed 6 months after award of the AIP grant. To help FAA evaluate the SMS airport specific development process, copies of the

following documents must be provided to the FAA as they are completed. The FAA encourages sponsors and their consultants to refer other interim draft documents, questions, and comments to the FAA at any time in the process for consultation and information exchange.

a. Gap Analysis

The gap analysis should identify procedures, policies, documentation, and actions that the airport needs to implement as part of its SMS that go beyond the current Part 139 requirements addressed by the airport's ACM.

Estimated completion date: 2 months from project start

b. Draft Plan

A draft of the complete SMS Manual and program. The draft should address the gap analysis and describe safety risk management, risk mitigation strategies, and documentation processes.

Estimated completion date: 5 months from project start

c. Final Plan

A copy of the final SMS Manual and program to be implemented by the sponsor.

Estimated completion date: 6 months from project start

The contents and scope of the SMS Manual and Program plan should address the following:

1) Written safety policy statement and description of how it is communicated to airport employees.
2) Identification and description of the airport safety goals.
3) A plan for employee SMS indoctrination and training. SMS indoctrination training should provide an outline of proposed curriculum and resources.
4) Documented process to identify training requirements for systems safety.
5) A plan to validate training effectiveness and the process to gain training feedback, including useable metrics.
6) A defined process to communicate safety policies and objectives throughout the organization. Include examples of how information will be communicated and any processes for follow-up.
7) A plan and description of employee non-punitive reporting systems, existing and new.
8) An organizational chart identifying the names and safety responsibilities of all key personnel, such as the following:
   - o Top Management
   - o Safety Manager
   - o Department Heads/Managers
   - o Established Safety Committees and Chairpersons
9) Description of the safety risk management process, including application of "The Five Phases of SRM," as discussed in the FAA Advisory Circular 150/5200-37, Introduction to Safety Management Systems for Airport Operators.
10) Guidance on the use of SRM and trend analysis.

11) Defined process for documenting the results of SRM to include a description of how documents will be stored, i.e., electronic or paper.
12) Description of how top management will follow-up on SRM to ensure safety mitigation strategies are appropriate.
13) A description of the airport quality management and/or risk management program (if applicable) and its integration into the Airport SMS.
14) Description of a plan to integrate apron safety management into the Airport SMS. (FAA review of the plan will be limited to measures to prevent accidents or incidents involving aircraft.) The plan could include:
    a. A description of current apron safety management practices already in place such as reporting requirements to the NTSB, Flight Standards, or the Occupational Safety Health Administration (OSHA).
    b. An explanation of how current apron safety management practices meet the intent of SMS. This could include the safety plans and practices of tenants and operators at the airport, which should complement the airport SMS.
15) A detailed method to document self-auditing processes and their findings. Self-auditing may be part of the airport self-inspection process. If it is, explain how the self-inspection process addresses systems safety, i.e. if the self-inspection program identifies a hazard on the airport it should determine the risk and document the process for follow-up.
16) A detailed method to document self-inspection reviews, analysis, and findings.
17) A description or plan to integrate the tailored SMS program plan into the overall operation of the airport.
18) Documented plan for training and education, safety communication, competency, and continuous improvement processes.
19) Procedures to promote safety awareness and participation in non-punitive reporting systems.
20) Process to document and review lessons learned from within the organization.
21) Schedule for implementation and anticipated associated costs.

5. INFORMATION FURNISHED TO THE GOVERNMENT

All documents submitted by a sponsor or its agent to the FAA for review under this grant remain the property of the sponsor.

Final SMS documents and plans will be considered public information. Gap analyses, draft SMS manuals and plans, and other interim documents may be submitted with a request for confidentiality. The Freedom of Information Act requirements of 5 U.S.C. § 552, as amended, will apply to any such request.

Appendix B

Inspection Forms Used by AFW Operations Specialists

EXHIBIT E

FORT WORTH ALLIANCE AIRPORT

Airfield Inspection Report

DATE:	DAY:	v Satisfactory
TIME:	INSPECTOR:	X Unsatisfactory

	A	CONDITIONS	✓		B	CONDITIONS	✓
Paved Areas	1	Pavement Lip over 3"		Obstructions	1	Cranes or Other Objects Obstructing Navigation	
	2	Hole 5" in diameter / 3" deep / 45° Slope			2	Trees Obstructing Navigation	
	3	Cracks / Bumps / Etc.		Fueling Operations	3	Fuel Farm Fencing / Gates / Signs	
	4	FOD : Gravel / Debris / Etc.			4	Fuel Farm Marking / Labeling & Placards	
	5	Rubber Deposits			5	Fuel Farm Fire Extinguishers	
	6	Ponding / Edge Dams			6	Fuel Farm Grounding Clips	
Safety Areas	7	Ruts / Humps / Erosion			7	Fuel Farm Vegetation	
	8	Drainage			8	Fuel Farm Leaks	
	9	Construction Areas			9	Refueling Vehicle(s) Signs & Placards	
	10	Objects			10	Refueling Vehicle(s) Fire Extinguishers	
	11	Frangible Bases			11	Refueling Vehicle(s) Grounding Clips	
Marking and Signs	12	Vegetation Limiting Sign Visibility			12	Refueling Vehicle(s) Hoses / Nozzle Covers	
	13	Water or Soil Erosion Covering Hold Lines			13	Refueling Vehicle(s) Leaks	
	14	Leaning or Broken Frangible Signs		Construction	14	Barricades and Barricade Lights	
	15	Obscured, Dirty or Faded Signs			15	Equipment Placement and Parking	
	16	Damaged or Missing Signs		Public Protection	16	Perimeter Fencing and Gates	
	17	Inoperative Signs			17	Warning Signs	
Aids	18	Rotating Beacon (IMC conditions)		Wildlife Haz.	18	Location and Type Observed	
	19	Wind Indicators Faded, Torn or Not Rotating		CAT II/III Gen.	19	Verify Fuel Level	
	20	REIL(s) when operating, day or night				Notify Tim or Chris if tank is less tham ¾ full	
	21	PAPI(s) when operating, day or night					

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EXHIBIT E-1

FORT WORTH ALLIANCE AIRPORT

Airfield Lighting Inpection Report and Category II/III Lighting Inspection Report

DATE:	DAY:	v Satisfactory
TIME:	INSPECTOR:	X Unsatisfactory

	A	CONDITIONS	✓		B	CONDITIONS	✓
Taxiways	1	Edge Lights		Miscell-	1	Rotating Beacon	
	2	Centerline Lights		aneous	2	Wind Indicators Faded, Torn or Not Rotating	
	3	CAT II/III Centerline Lights			3	REIL's (Runway End Identifier Lights)	
	4	Lighted Signs			4	PAPI's (Precision Approach Path Indicator)	
	5	Vegetation Limiting Sign Visibility			5	Obstruction Lights	
	6	Leaning or Broken Frangible Signs			6	Cranes or Trees Obstructing Navigation	
	7	Obscured, Dirty or Faded Signs			7	Barricades and Barricade Lights	
	8	Damaged or Missing Signs			8	Equipment Placement and Parking	
	9	Inoperative Signs		Wildlife	9	Location and Type Observed	
	10	Runway Guard Lights (Wig-Wag's)		CAT II/III	10	Runway Centerline Lights (RCL's)	
Runways	11	Edge Lights		Lighting	11	Runway Edge Lights (HIRL's)	
	12	Centerline Lights		Inspection	12	Touchdown Zone Lights (TDZ)	
	13	16L Touch Down Zone Lights			13	CAT II/III Generator - Verify start-up	
	14	Lighted Signs			14	Reported Runway Visual Range (RVR):	
	15	Vegetation Limiting Sign Visibility			15	Touchdown Zone:	
	16	Leaning or Broken Frangible Signs			16	Midpoint: Rollout:	
	17	Obscured, Dirty or Faded Signs		# OTS	17	Maximum of 16 out of service (OTS) & 4 consecutive out of Service (OTS)	
		Damaged or Missing Signs					
	18	Inoperative Signs			18	Maximum of 8 OTS w/ a maximum of 4 per side & 2 consecutive OTS	
		Distance Remaining Signs					
	19	Threshold / Displaced Threshold Lights			19	Maximum of 6 barrets OTS w/ a max of 3 barrtes per side & 2 consecutive OTS	

*During CAT II/III conditions a CAT II/III lighting inspection must be completed a minimum of every two hours
*Contact Rick Culver if any component of the CAT II/III lighting system reaches more than 50% O.T.S. of the maximum allowed OTS
*

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Revised 06/20/02

Appendix C

Inspection Forms Used by ARFF

Exhibit L

Date___/____/____

FIRE SAFETY INSPECTION

Fuel Storage Areas and Loading/Unloading Stations

_____Airport FBO_____ Inspector_____

S= SATISFACTORY U= UNSATISFACTORY R= REMARKS	Jet A SECTION			100 LL SECTION					
	S	U	R	S	U	R	S	U	R
FENCING/LOCKS NFPA 407									
"NO SMOKING SIGNS" NFPA 407 4.3.11.1									
EVIDENCE OF SMOKING NFPA 407 4.3.11.2									
FIRE EXTINGUISHER(S) NFPA 407 4.3.9									
DEADMAN CONTROL(S) NFPA 407 4.1.7, 4.3.16									
EMERGENCY CUTOFF(S) NFPA 407 4.3.15									
EMERGENCY CUTOFF(S) TESTED NFPA 407 4.3.9									
SYSTEM BONDED/GROUNDED NFPA 407 4.1.2									
BONDING CABLES NFPA 407 4.1.2.2									
FUEL LEAKS NFPA 407 5.2.6									
PIPING PROTECTED NFPA 407 4.5.4									
PIPING PAINTED/MARKED [redacted]FPA 3.2.3 A[redacted]/5230-4 Para 19 A-3									
CONDITION OF HOSES NFPA 407 4.5.6, 4.2									
HOSE TESTED: DAILY NFPA 407 4.2.2.1 MONTHLY									
PERSONNEL TRAINING REQUIREMENTS IFC 1106.5.3									
RECORDS OF RECURRENT TRAINING A/C 150/5230-4, A-7, 4b.18									
FUELING PROCEDURES OBSERVED IFC 1106.5									

REMARKS:

SOURCES: NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) 407 STANDARD FOR AIRCRAFT FUEL SERVICING 2001 EDITION

FORT WORTH CITY CODE CHAPTER 11 "AIRPORTS AND AIRCRAFT"

INTERNATIONAL FIRE CODE 2003

*- NO aircraft may be fueled whhile parked in a hangar (UFC 24.104)
*- NO fueling operations when lightning is within 5 miles of the airport (Letter of Agreement, June 1997)

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Exhibit L-1

Date___/___/____

FIRE SAFETY INSPECTION
Mobile Fuelers

_____Airport FBO_____ Inspector_____

	TRUCK #																	
	FUEL TYPE																	
	S	U	R	S	U	R	S	U	R	S	U	R	S	U	R	S	U	R
PRODUCT ID SIGNS- EA SIDE & REAR NFPA 407 4.3.18																		
"NO SMOKING" SIGNS NFPA 407 4.3.11.1																		
"FLAMMABLE" SIGNS EA SIDE & RR NFPA 407 4.3.18																		
FIRE EXTINGUISHER, 20B- LEFT NFPA 407 4.3.9																		
FIRE EXTINGUISHER, 20B-RIGHT NFPA 407 4.3.9																		
EXTING./CONTRASTING BACKGROUND NFPA 407 4.3.9.3																		
GROUNDING/BONDING CABLES NFPA 407 4.1.2.2																		
"DEADMAN" CONTROLS NFPA 407 4.1.7.1																		
HOSE: CONDITION NFPA 407 5.16																		
HOSE: RECORDS NFPA 407 4.2.2.2																		
EMERGENCY CUTOFFS- MARKED NFPA 407 4.3.15.3																		
[illegible]GENCY CUTOFFS- TESTED [illegible]A 407 5.3.4 90 Days																		
DOME COVER: FRONT HINGE NFPA 407 4.3.13.1																		
DOME COVER: GASKET NFPA 407 4.3.13.1																		
DOME COVER: LATCH NFPA 407 4.3.13.1																		
VEHICLE PARKING, 10 FT NFPA 407 5.18 (2)																		
VEHICLE PARKING, 50 FT NFPA 407 5.18 (4)																		
SMOKING RESTRICTIONS- CAB NFPA 407 4.3.11.2																		
VEHICLE FLAME ARRESTOR NFPA 407 4.3.4.1 & 4.3.6.6																		
VEHICLE EXHAUST SYSTEM NFPA 407 4.3.4.1 & 4.3.6.6																		
VEHICLE SAFETY; FUEL LEAKS NFPA 407 5.17.2																		
LIGHTS:																		
BRAKES: FOOT																		
EMERGENCY																		
INTEGRAL																		
OVERRIDE																		
TIRES:																		
MIRRORS: LEFT																		
RIGHT																		
HORN:																		

[illegible]KS:

COMPANY REPRESENTATIVE SIGNATURE _____

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