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Operational Safety During Airport Construction

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Module 1. Planning an Airfield Construction Project

Learning Objectives


By the end of this section, you will be able to:

- **Identify** the five core steps required to develop a comprehensive Construction Safety and Phasing Plan (CSPP).
- **Evaluate** the distinct safety responsibilities of the airport operator, construction contractor, and airport tenants during airfield projects.
- **Select** the appropriate FAA Safety Risk Management (SRM) procedures and documentation based on project scope and location.

Executive Summary: The ultimate goal of the planning effort is the creation of a Construction Safety and Phasing Plan (CSPP), which assesses adjustments to construction activities—often through phasing—to maintain airfield safety.

Design Fundamentals: Operational Overview

Airports represent high-complexity environments where construction-related conditions often impact aircraft operations and jeopardize safety. While safety is the paramount consideration and may necessitate unavoidable operational impacts, **careful planning, scheduling, and coordination** can minimize disruptions. As a professional, you must understand the reciprocal relationship between construction activities and aircraft movements to develop a functional project plan.

 **Design Tip:** Many of the safety concepts and methods used for construction can also be applied to enhance day-to-day maintenance tasks like snow removal or lighting repairs.

Strategic Safety Planning

Safety, operational continuity, and project costs are intrinsically linked. Because safety is non-negotiable, you must assist the airport operator in balancing operational needs with construction expenditures. This balance requires **early coordination** with airport users and the FAA.

The Five Steps of CSPP Development

1. **Identify Affected Areas:** Define the geographic footprint impacted by construction, including haul routes and material stockpiles.
2. **Describe Current Operations:** Establish a baseline by identifying normal operations in affected areas, including typical users, **Aircraft Reference Codes (ACRC)**, and approach/departure procedures.
3. **Allow for Temporary Changes:** Prioritize critical operations in consultation with users, ARFF, and FAA ATO personnel. Revisions may include temporary approach procedures, weight restrictions, or runway suspensions.



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4. **Take Required Measures:** Determine the specific safety measures and associated costs (including lost revenue) required to conduct revised operations.
5. **Manage Safety Risk:** Coordinate early with the FAA to determine the level of **Safety Risk Management (SRM)** documentation required.

⚠ **Safety Constraint:** Construction activities are strictly prohibited in safety areas while the associated runway or taxiway remains open to aircraft.

Developing the Construction Safety and Phasing Plan (CSPP)

A CSPP is mandatory for on-airfield projects funded by the **Airport Improvement Program (AIP)**, **Passenger Facility Charge (PFC)** program, or those at airports certificated under **Part 139**.

Requirements and Compliance

- **Excluded Projects:** Generally, facilities entirely outside the air operations area (AOA) that do not impact line-of-sight or require AOA access do not require a CSPP.
- **Safety Plan Compliance Document (SPCD):** The contractor must define specific details (e.g., equipment heights, contact points) in an SPCD, which acts as a subset of the CSPP.
- **Responsibility:** The airport operator is responsible for establishing and enforcing the CSPP and **cannot delegate** its authorship to the contractor.

Safety Responsibility Matrix

Maintaining safety requires a robust "Safety Culture" where communication begins at the project scoping meeting and continues through completion.

Airport Operator's Mandates

The operator holds overall responsibility across all phases, from predesign to inspection. Key duties include:

- **Convening preconstruction meetings** to review safety with all stakeholders.
- **Notifying users and FAA** of hazardous conditions via **Notices to Airmen (NOTAM)**.
- **Ensuring prompt submittal of Form 7460-1** (Notice of Proposed Construction or Alteration) for potential obstructions like cranes or stockpiles.

Construction Contractor's Mandates


The contractor is responsible for executing the project in strict compliance with the CSPP and SPCD. Key duties include:



- **Certifying** that they will not deviate from approved plans without written approval.
- **Providing on-site employees** responsible for monitoring compliance whenever construction is active.
- **Restricting movement** of vehicles and personnel to permitted areas using flagging, barricades, or escorts.

Tenant Responsibilities

Tenants (e.g., airlines or FBOs) sponsoring construction must develop project-specific CSPPs and ensure their contractors adhere to all airfield safety regulations.

 **Calculation Note:** When determining the need for an aeronautical study, consider the **maximum equipment height** of all vehicles, including concrete pumps and cranes, to ensure they do not penetrate protected surfaces.

Checkpoint Quiz

- 1. Who is responsible for the authorship and enforcement of the Construction Safety and Phasing Plan (CSPP)?**
 - a) The Construction Contractor
 - b) The Airport Operator
 - c) The FAA Air Traffic Organization
 - d) The Lead Engineering Consultant

Answer: (b). While a consultant may assist, the airport operator is responsible for establishing and enforcing the CSPP and cannot delegate writing it to the contractor.

- 2. Under what condition must a contractor file a separate FAA Form 7460-1 for equipment?**
 - a) Only if the equipment is painted yellow
 - b) If the equipment height exceeds what was originally evaluated in the airport's filing
 - c) Only for projects exceeding \$1 million in federal funding
 - d) If the equipment will be on-site for more than 48 hours

Answer: (b). A separate form must be filed for any object that is higher than or located beyond the originally evaluated area/height.

- 3. What is the purpose of the Safety Plan Compliance Document (SPCD)?**
 - a) To replace the CSPP for small-scale projects
 - b) To allow the contractor to propose deviations from FAA safety standards



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- c) To detail how the contractor will comply with the CSPP, including specifics like equipment heights and contact points
- d) To serve as a contract between the contractor and the FAA

Answer: (c). The SPCD details the contractor's compliance and provides details that cannot be determined until after the contract is awarded.



Module 2. Construction Safety and Phasing Plans

Learning Objectives

By the end of this section, you will be able to:

- **Identify** the core requirements and submission milestones for the Construction Safety and Phasing Plan (CSPP) and the Safety Plan Compliance Document (SPCD).
- **Evaluate** the mitigation strategies for potential hazards including navigation aids (NAVAID) interference, wildlife attraction, and Foreign Object Debris (FOD).
- **Select** appropriate visual aids, markings, and lighting for temporary runway and taxiway closures according to FAA standards.
- **Identify** the protection requirements for safety areas, including the Runway Safety Area (RSA) and Taxiway Safety Area (TSA), during active construction.

Executive Summary: Aviation safety is the primary consideration during airport construction. The CSPP (developed by the operator) and the SPCD (developed by the contractor) are the fundamental tools used to identify hazards and outline mitigation procedures to protect aircraft operations.

Section 1. Basic Considerations

Overview

Aviation safety is the primary consideration at airports, especially during construction. The CSPP and the SPCD ensure safety compliance when coordinating construction activities with airport operations. These documents identify potential safety hazards and outline respective mitigation procedures. They must provide necessary information for the Airport Operations department to conduct airfield inspections and correct unsafe conditions expeditiously. All aviation safety provisions in project drawings and specifications must be reflected in the CSPP and SPCD.

Assume Responsibility

- Operational safety remains the airport operator's responsibility at all times.
- The airport operator must develop, certify, and submit each CSPP for FAA approval.
- The operator is responsible for applying the requirements of the approved CSPP.
- The operator must revise the CSPP when conditions warrant and submit it to the FAA for approval.
- The operator must require and approve an SPCD from the project contractor.



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