

Construction

**Where the landing gear
comes into contact!**

Presented to: **MAMA Conference**

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Discussion Points

Safety Planning:

- Reasons for it
- FAA SOP
- Contents

Price/Cost Analysis:

- Process descriptions
- Sponsor Requirements

Contract Change Orders:

- Purpose
- Requirements

DBE Goals:

- Race Neutral/Conscious
- Tracking and Reporting
- Available Tools

Labor Interviews:

- Contract Requirements
- Guidance Available



Why Emphasize Safety Planning?

Construction Operations on Airfield:

- Disrupts the normal airport environment
- Introduces increased risk to operating aircraft
- Impacts aeronautical operations (i.e. Capacity, approach procedures, navigational aids etc.)

Safety Planning:

- Balances construction and operational safety while maintaining acceptable level of aeronautical operations
- Identifies and quantifies risk as well as adverse effect
- Assists with establishment of mitigating actions and controls

**Failure to Plan is a
Plan to Fail!**



CONSEQUENCES

Wingtip Conflict



Failure to identify and mitigate risk introduced by construction activity can be costly and dangerous.



CONSEQUENCES

Wingtip Conflict



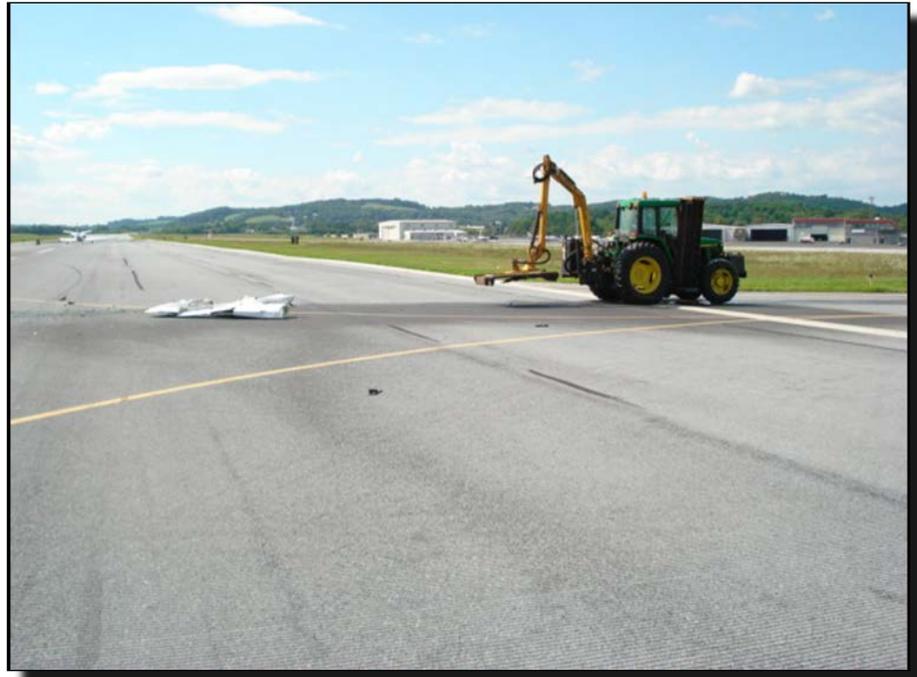
- Direct damage costs to aircraft and equipment can be extreme
- Indirect costs associated with airport operations and project delays may be indeterminate



CONSEQUENCES



Loss of Situational Awareness



Lack of attention puts people at risk for serious injuries!



CONSEQUENCES

WRONG RUNWAY TAKEOFF



Inadequate safety management controls
can have deadly results
Singapore Airlines, October 2000



Addressing Impacts

2 primary processes addressing construction activity in the airfield environment

- 1. Construction Safety and Phasing Plans (CSPP)**
- 2. Part 77 Aeronautical Evaluation (7460-1)**

There is a 3rd process being implemented on an as necessary basis

- 3. Safety Risk Management (SRM)**

These separate processes are complementary to each other



Construction Safety & Phasing Plan

- A comprehensive safety management strategy that identifies and mitigates increased risk due to construction activity on an active airfield
- A CSPP establishes operational safety management strategies for *everyone* associated with the project:
 - Contractor/Subcontractor
 - Construction Inspector
 - ARFF Personnel
 - Airport Operations
 - FBO/ Airlines
 - FAA ATCT
 - FAA Technicians
 - FAA Flight Procedures



CSPP - Clarifications

➤ **CSPPs address all safety aspects of a project**

- Purpose of CSPP is not solely to establish contractor requirements (i.e. Specification)
- Assigning liability is not a CSPP objective
- Establishing responsibilities is a CSPP objective



CSPP - SOP

➤ Standard Operating Procedure

- Effective October 1, 2013
- Available on the Sponsors Guide

http://www.faa.gov/airports/northwest_mountain/airports_resources/sponsor_guide/

➤ Uniform Procedure Addressing

- Receiving
- Evaluating
- Processing
- Approving/Disapproving
- Archiving



CSPP - Receiving

➤ **Must Conform to AC 150/5370-2**

- Submit once phasing and construction activities are known
- Include Appendix 3 Safety and Phasing Plan Checklist

➤ **FAA Project Manager Actions**

- Reviews for Conformance with AC
- Coordinates with other FAA Lines of Business (LOB)
- Submits to Airport Safety Inspector (ACSI) for project located within Aircraft Operation Area (AOA) of Part 139 Airports
- Initiate Safety Assessment Screening if Required
- Issues Approval, Conditional Approval, or Disapproval Letter



CSPP – Approving/Disapproving

➤ **Approved/Conditionally Approved**

- Identifies action taken by the FAA
- Includes explicit language conveying conditions of FAA approval
 - May require the Sponsor's written annotated response indicating how conditions were resolved
- Identifies limitations of FAA actions
- Indicates the required Sponsor actions

➤ **Disapproved**

- Reasons for not approving will be provided and require correction by the Sponsor or Consultant.



CSPP Elements

CSPP is a self-contained document the Sponsor incorporates into their bid package

AC 150/5370-2 outlines required CSPP elements

- Coordination
- Phasing
- Affected Areas
- Navaid Protection
- Contractor Access
- Wildlife Management
- FOD Management
- Hazardous Material
- Notifications
- Inspections
- Underground Utilities
- Penalties
- Special Conditions
- Visual Aids
- Marking/Signing Access
- Hazard Marking/Lighting
- Aeronautical Areas and Surfaces
- Limitations



Coordination

Introduce stakeholders to safety concepts early.

- ✓ Predesign Conference
- ✓ Preconstruction Conferences
- ✓ Prebid Conference

Address safety and coordinate throughout development as necessary.

- ✓ Contractor Progress Meetings
- ✓ Air Traffic Operations Coordination
- ✓ Scope or Schedule Changes



Phasing

Balance between Construction and Airport Operations without compromising safety:

- ✓ Areas closed to aircraft
- ✓ Schedule/durations
- ✓ Critical work
- ✓ Constraints (i.e. work hours)
- ✓ Sequencing Information
- ✓ Work Areas
- ✓ Taxiway Routes
- ✓ Navaid Impacts

**Generally No One Solution
for Every Situation!**

Iterative Process

- Constraints may impact pavement design selection
- Reconstruct verse rehab
- Open verse closed



Affected Areas and Operations

Goal is to Identify all impacts to airfield operations due to construction activity

Compare existing state and temporary state conditions

- Address both direct impacts (Taxiway closure) and indirect impacts (ARFF, Airport Maintenance, etc.)
- Establish mitigating measures (i.e. limit aircraft)
- Best Practice: Operational Impact Table



Protection of Nav aids

Identify existing navigational aid (NAVAID) equipment and temporary impacts due to construction activity

- Impacts to FAA owned equipment fall into 2 categories:
 1. Physical relocation of equipment (Reimbursable Agreement–1 Yr)
 2. Temporary Outage (Submit SEC form 45 days in advance)
- Protect of existing equipment and underground cables
- Pothole locations of possible conflict during design phase
- Flag limits of critical area if work activity is in close proximity to critical area boundary



Work Site Access and Use

Emphasize V/PD avoidance (Part 139)

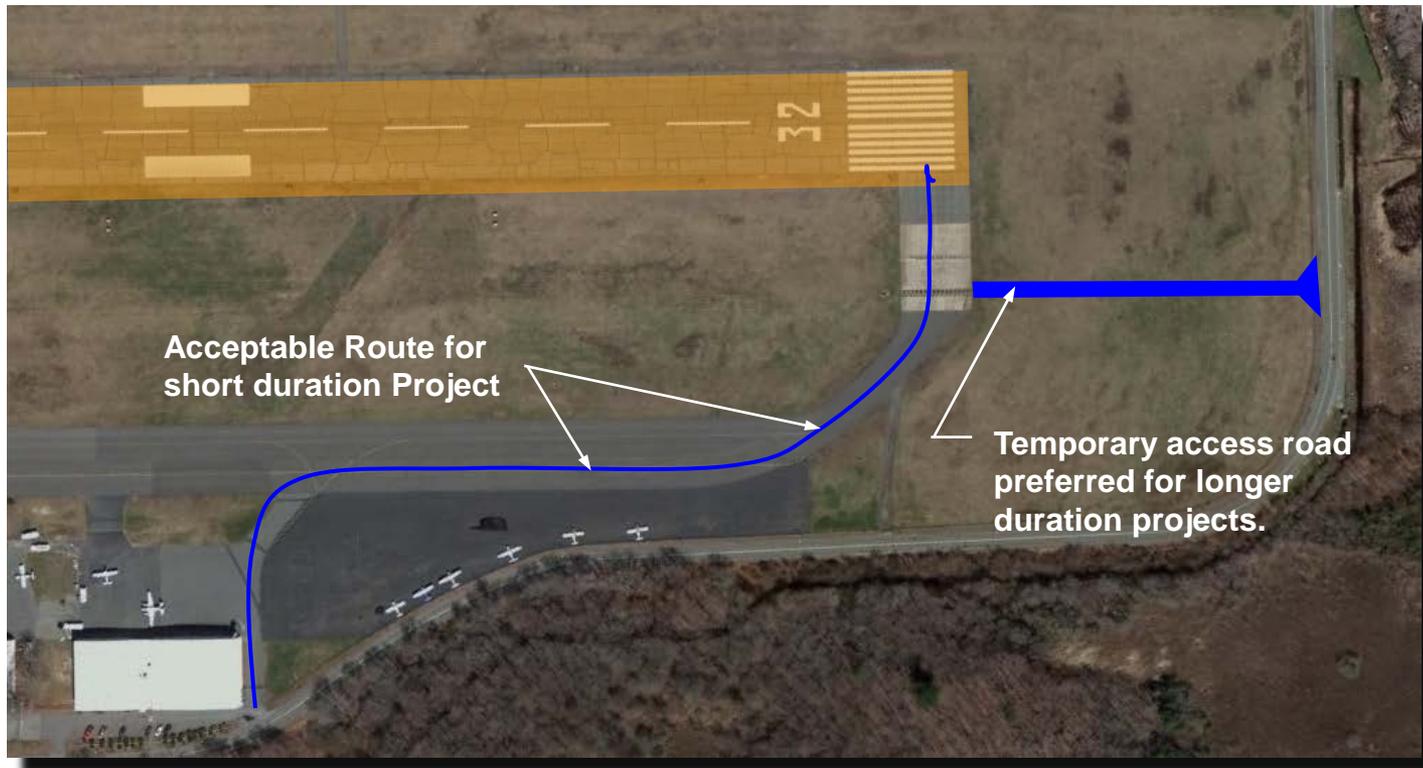
V/PD - Unauthorized access by a vehicle or pedestrian

Incursion – Incorrect presence of vehicle/person in landing area

Surface Incident – Unauthorized access onto active taxiway



Access Routes



Minimize interaction of construction equipment and aircraft



Vehicle Procedures

Pedestrian and Ground Vehicle Operations



The establishment of procedures for safe pedestrian/ground vehicle operations, enforcement of those procedures and implementing comprehensive training programs will reduce the potential for V/PDs and vehicle/aircraft collisions.



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Work Area Limits

Demarcate allowable work area boundaries with Flags, Fencing, lathes,



Supplement with
Warning Signs



Airport Operator Actions to Reduce the Potential for Pedestrian and Ground Vehicle Deviations



On construction projects, install signs to prevent inadvertent entry onto active portions of the movement area by construction vehicles and pedestrians.



Communication/Security



**Maintain operating radios
when working on active airfield**

**CSPP should establish
protocols for contacting ATCT**

**Only authorized personnel
should have access to the
airfield construction site**



Employee Parking



Set aside space for employee parking at a location outside of the AOA fence



Wildlife

Construction activity should not create wildlife attractants

- Grass height
- Food/Debris
- Ponding water



Maintain integrity of wildlife fence

- Require contractor to notify Airport Operations of wildlife sightings



Debris Management

Monitor and remove debris from airfield pavement due to a construction operations

- Sweepers/brooms
- Tarp trucks
- Water truck
- SPCD Element (How?)



- Wind blown material
- Tracked on mud and rock
- Slurry dust



Hazardous Material

Identify hazardous materials sources and establish protocols for spill recovery

- Fuel/Lube trucks operation
- Restrict areas for fueling and equipment maintenance
- Spill Notification
- Containment protocol
- MSDS Sheet readily available
- Discovery of USTs
- SPCD Element



Notifications

- **NOTAM issuance**
 - Advance Coordination and Procedures
- **Part 77 Notification (Cranes)**
 - Equipment not studied during design phase notification
- **NAVAID Outages**
 - 45-day **Strategic Event Coordination (SEC)** notice,
 - 7-day notice
 - 72-hour confirmation
- **Airport Operations Protocols**
 - Phase transition
- **Emergencies**
- **ARFF Operations**



Inspection

Maintaining Safety requires VIGILANCE!

Address inspection responsibilities for both the contractor and the airport

- Identify responsible individuals
- Frequency of Inspections
 - Daily and evening checks, storm events, Shutdown periods
- Appendix 4 Checklist
 - Barricade placement, Flasher operation, FOD, Idle equipment outside of OFA, NOTAMS, Drop-offs, Communications....
- Requirement for immediate corrective action
- Re-opening pavement to aircraft operations



Inspection – Problem Identification

Construction activity cannot occur within an active RSA



Idle equipment cannot reside within an active ROFA



Inspection – Problem Identification

Inoperative Hazard Warning Device



Dislodged surface closure marking



Underground Utilities

There may be multiple utility owners or parties responsible for utility locates

- Explain how existing utilities will be located
- Identify procedures required for their protection

Be prepared for the unexpected

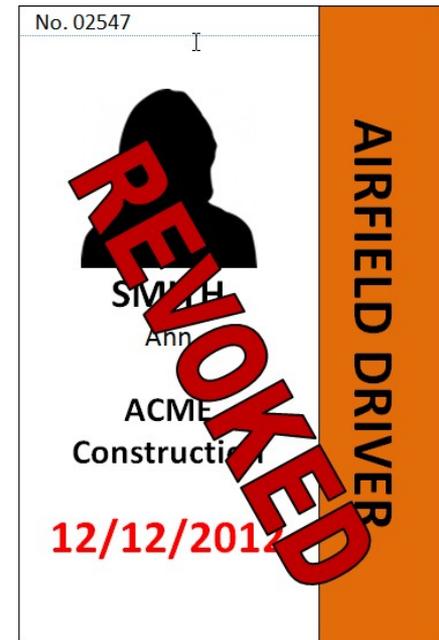
- Develop master list of owners and contacts for each utility
- Address emergency response procedures



Penalties

Impose penalties for non-compliance with safety requirements

- Not necessarily a monetary fine
- Immediate removal from work area
- Loss of driving privileges
- Revoke their SIDA badge
- Suspend all construction activities
- Detention by Airport Security/LEO



Special Conditions

CSPP should address provisions for special circumstances that may occur during Construction

- Low visibility (heavy fog)
- Rain/Snow Events
- Aircraft emergency
- Life safety emergencies



Visual Aids – Runway/Taxiway

Provide temporary marking, lighting and signage for affected airfield pavements

- Closed Runway
 - Partially Closed Runway
 - Displaced Threshold
 - Closed Taxiway
- De-energize lights and signs that do not serve a purpose during temporary state
 - Establish maintenance requirements



Access Route - Marking & Signing

Demarcate airfield access routes

- Channelizer
- Signage

Limitations

- Safety Area & Object Free Area



Access Road – Taxiway Crossing

Establish Positive Control

- Flag-person
- Stop, Observe, Yield/Proceed



Hazard Marking and Lighting

Purpose

- Dual Purpose
 - 1) Limits access of aircraft to hazardous areas
 - 2) Limits work personnel accessing active aircraft operational areas
- Delineates limits of hazardous and critical areas.

The Challenge

Plan for the purpose the device will be serving.

- Select device type and spacing to address the most probable risk
- Spacing is based upon what is being restricted



Protection of Airport Surfaces/Areas

Address requirements and restrictions to protect active aeronautical surfaces and areas such as:

- Safety areas
- Object Free area
- Obstacle Free Zone
- Approach and departure surfaces

Graphically depict surfaces on safety drawings



Runway Safety Areas

RSA criteria must be met if runway is open to aircraft operations



Active RSA must be clear of hazardous ruts, humps, depressions, or other surface variations



Approach and Departure Surfaces

Runway approach/departure surfaces

- Must be clear of all objects (equipment, material, etc.)
- Closure of Runway - Preferred approached



Taxiway Safety Area

- No construction operations in an active TSA
- TSA criteria must be met
 - No open excavations
- TSA limits may be temporarily adjusted if aircraft type is restricted
- Include erosion control measures to limit rutting, surface variations



Material & Equipment Storage



Material may not be stored in active RSAs

Limited storage may occur in ROFA based upon necessity

Idle Equipment must be parked outside of OFA and lowered.



Other Limitations to Construction

Describe the limitation as well as where and when it will be applied

Limitations may be due to:

- Limits to address operational requirements
- Construction equipment heights
- Impacts simultaneous operations would impose
- Day/Night work restrictions
- Winter construction



Discussion



Price or Cost Analysis Requirement

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Price or Cost Analysis

- **Program Guidance Letter 12-03, January 13, 2012**
 - Requires Sponsors to perform a cost or price analysis per 49 CFR 18.36 (f) for every procurement action that uses AIP funding.
 - Tool to ensure expenditures are justifiable.
 - Used by FAA to verify reasonableness of cost.
 - The website for PGLs is:
http://www.faa.gov/airports/aip/guidance_letters/



Price Analysis

Analysis of proposed total price without evaluating separate cost elements or proposed profit/fee

- Purpose is to solely ensure the end product can be obtained at a fair and reasonable cost.



Cost Analysis

Evaluation of separate elements such as labor, materials, etc., that make up the total price

- Costs must be allowable, allocable, and reasonable.
 - **Allowable:** Comply with the appropriate set of cost principles as identified in FAA Order 5100.038, AIP Handbook, Office of Management and Budget (OMB) Circular A-87 for State, local and Indian tribal governments, and 48 CFR Part 31 when related to “for-profit organizations”.
 - **Allocable:** Costs are logically related to, or required in the performance of the contract.
 - **Reasonable:** Defined by what a prudent business would pay in a competitive marketplace.



Sponsor Requirements

Perform an analysis on each procurement and modification to procurement (Change Order)

Perform Cost Analysis if:

- Procurement does not have competition
- Sponsor is using a negotiated procurement method
- Sponsor is negotiating a contract with sole source
- Sponsor is negotiating a modification to an existing contract (Change Order)
- The proposed price is NOT within +/- 10% of Sponsor's estimate.



Discussion



Change Orders

Don't Deviate... Change

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Change Order Definition

A written order (signed by the owner) to the Contractor authorizing a change in the construction work, materials, contract time, and/or basis of payment which deviates from agreements in the initially executed contract.

Common Causes

Changes in Scope

Unforeseen Conditions

Errors and Omissions



FAA Requirements

Change orders must be reviewed as they are considered noncompetitive proposals.

- Review does not have to occur until ADO issues an amendment or closes the grant.
- Sponsor's may proceed without ADO prior approval, but it is at their risk.

ADO can only approve costs necessary to accomplish the project.

ADO cannot approve costs due to errors and omissions in plans and specifications that were foreseeable at the time of project design.



Discussion



Disadvantage Business Enterprise (DBE) Program

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Disadvantaged Business Enterprise (DBE)

The U.S. Department of Transportation's Disadvantaged Business Enterprise (DBE) program provides a vehicle for increasing the participation by minority and women businesses in state and local procurement.

- It ensures that small DBEs can compete fairly for federally funded transportation-related projects.



Two Types of Goals

Race Conscious: Conscious actions to obtain DBE participation (DBE contract goals).

Race Neutral: Methods to assist all small businesses.

As both Montana and Idaho are in the 9th Circuit Court of Appeals the goals are typically Race Neutral.

- To develop a Race Conscious goal there must be proof that it is warranted. This can be in the form of a disparity study or historical proof.



Race Neutral Methods

- Make Request for Proposals or Bids Attractive to DBEs
- Simplifying or reducing bonding requirements
- Providing assistance to help DBEs obtain financing
- Have gatherings to assist DBEs with networking
- Informing DBEs of opportunities
- Distributing DBE directories to Prime Contractors



Goals – When are they needed?

Grants: Submit a DBE Program/Plan to the FAA by August 1st if the airport will be issuing grants with a total greater than \$250,000 in a fiscal year.

Concessions: Submit a ACDBE Program/Plan to the FAA by October 1st if the airport has annual concession revenue over \$200,000 in a fiscal year.

(Contact FAA DBE Specialist to verify year goals are due.)



Reality – Tracking & Reporting

Grants: Report DBE Awards and Accomplishments through DBE Office Online Reporting System (DOORS) by December 1st.

Concessions: Report ACDBE participation through DBE Office Online Reporting System (DOORS) by March 1st.

Best Practice Recommendations:

- Conduct monthly scheduled and unscheduled visits to federally funded projects.
- Track and verify the Prime Contractor's payments to DBE Subcontractors.
- Analyze results of the year to determine if modifications are needed.



DBE Office Online Reporting System (DOORS)

System for grant recipients to electronically submit annual Uniform Report of DBE Commitments or Payments and Uniform Report of ACDBE Participation.

DOORS Access:

<http://osdbu1.dot.gov/doors/application/logon.aspx>

User Guide & Other Useful Resources:

http://www.faa.gov/about/office_org/headquarters_offices/acr/bus_ent_program/



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Disadvantaged Business Enterprise (DBE)

- DBE Contact:

Ricky Watson, MBA
DBE Compliance Specialist
Federal Aviation Administration
Office of Civil Rights, AWP-9
Office: (310) 725-3940
Fax: (310) 725-6819
Email: ricky.watson@faa.gov



Discussion



Labor Interviews

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Procurement Requirements (Tip of the Iceberg)

Procurements made under the Airport Improvement Program must adhere to provisions outlined in [Title 49 CFR Part 18.36](#)

All construction contracts over \$2,000 need to include a provision for compliance with prevailing wage rate requirements of the Davis-Bacon Act

http://www.faa.gov/airports/aip/procurement/federal_contract_provisions/

All construction contracts over \$2,000 must comply with Sections 103 and 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 327-330) as supplemented by Department of Labor regulations 29 CFR Part 5

- Addresses compensation for hours in excess of 40 hours per work week.
- Prohibits unsanitary, hazardous, or dangerous working conditions.



Labor Interviews

AIP Handbook 922(f):

- All construction contracts over \$2,000 need to include a provision for compliance with prevailing wage rate requirements of the Davis-Bacon Act
- Wage rate not less than the minimum wages specified in the wage determination made by the Secretary of Labor
- In addition, contractors shall be required to pay wages not less often than once a week

Labor Standards Interviews shall be conducted periodically

- [Sponsor Guide, AIP Handbook, Appendix 12](#)



Discussion

