

900 - Project Design Development Projects

Sponsor Responsibility

Under the Airport Improvement Program (AIP), the sponsor is responsible for accomplishing project engineering and design. The sponsor must use qualified technical resources to accomplish project design and to prepare a bid package that complies with Federal, State and local regulations and standards. The project design shall incorporate sound engineering principals along with accepted "Best Practice" design considerations and methods.

FAA Standards

By accepting an AIP grant, Sponsors agree to adhere with applicable FAA standards presented in various Advisory Circulars (AC's). The FAA attaches a listing of the applicable AC's to each grant agreement. Unless specifically approved in writing by the FAA, the Sponsor must apply all applicable FAA standards to the project design **without** modification. Non-standard design elements that the FAA deem unacceptable are ineligible for AIP participation.

FAA Coordination and Review

We strongly encourage Sponsors, along with their consultant, to consult with the FAA prior to commencement of the project design phase. This coordination effort will establish the limits of AIP eligibility and thus hopefully limit any misdirected work effort that the FAA declares ineligible after the fact.

The primary purpose of the FAA's review is to assure the Sponsor is properly applying FAA standards and to confirm AIP eligibility. Our reviews generally include:

- Verification that plans and specifications address development consistent with the approved scope of work,
- Determination of AIP eligibility
- Review of critical project elements such as the construction safety plan, pavement details, airfield marking details and airfield signage details.

The FAA will not typically review detailed engineering and quantity calculations; however Sponsors must make such documentation available if so requested by the FAA.

FAA Acceptance

Within the FAA Central Region, FAA bases acceptance of the plans and specifications on a combination of a FAA cursory review and the submittal of a satisfactory executed sponsor certification. **Sponsors and their consultant must not construe the FAA review as a quality control review.**

The responsibility for complying with FAA standards rests with the sponsor. Any review and approval by the FAA does not relieve the Sponsor or the engineer of the responsibility for the accuracy, completeness, and technical content of the plans and specifications.

Required Timeframe

The sponsor and their consultant shall allow sufficient time for the FAA to conduct an appropriate review. Generally, we require a review time frame of approximately 2-3 weeks. This may vary per size and type of project. This timeframe can also change depending upon the season. We typically see a large influx of submittals in March and April. This volume can impact how quick the FAA project manager can accomplish a review. The best practice is to submit plans and specifications in the November through February timeframe.

Sponsors should not proceed with the invitation for bids until FAA concurs with the design and bid package.

910 - Predesign Conference: Development Projects

Overview

The pre-design conference offers the opportunity for constructive discussion of project issues related to acceptable design parameters, airport safety considerations, construction phasing matters and environmental considerations. This meeting also serves to establish the limits of AIP participation thus hopefully limiting misdirected design work the FAA may deem as ineligible work. The Sponsor should conduct a pre-design conference **prior to** formally establishing the contract scope of services.

What Projects Require a Pre-Design Conference

We request Sponsors conduct a pre-design conference for all but the most basic projects. It is important to hold this meeting whenever the proposed development has an impact on normal airport operations. This meeting is essential when a project is of sufficient magnitude and complexity. For smaller scale projects, the Sponsor may conduct the pre-design conference via a telephone conference call. In either case, we recommend the Sponsor prepare an advance agenda for all participants.

Discussion Issues for Preconstruction Conference

Listed below are some items Sponsor should discuss at a pre-design conference. Do not construe this listing as being inclusive of all such project issues.

Critical Issues

- Scope of proposed development work
- AIP participation limits
- Identification of non-participating work
- Project funding requirements versus limits
- Impact of Discretionary Funds (if applicable)
- Application of FAA Standards
- Design considerations, material alternatives and material availability
- Approved Regional Modifications to FAA Standards
- Sponsor initiated modifications to FAA Standards (Requires FAA approval)
- Sequencing of construction
- Airport Operational Safety – Safety & Phasing Plan Coordination
- Schedule for Plans & Specification reviews, advertisement, bid opening and award.
- Impacts to FAA owned facilities (FAA Reimbursable)
- Impacts to existing or proposed approach procedures – Aeronautical Surveys

Other related Issues

- Airspace concerns for construction equipment/plants, haul routes and staging area
- Coordination of project with airport users and FBO's
- NOTAM Issuance including Procedure NOTAMS if applicable
- Temporary routing of aircraft and equipment
- Life-Cycle Analysis (if applicable)
- Impacts to existing utility lines
- Impacts to ARFF response time
- Environmental considerations during construction (SWPPP)
- Disadvantaged Business Enterprise Participation
- Buy American Preferences

Attendees

The magnitude and complexity of the project is a factor in who needs to attend the predesign conference. In general, the following should attend:

- Airport sponsor
- Design consultant
- FAA project manager

Other attendees that a Sponsor should consider inviting based upon the scope and impact of the proposed project include:

- FAA Technical Operations personnel
- FAA Air Traffic Personnel
- Airport operations manager
- FBOs impacted by project
- Airline representatives
- Affected utility companies
- Airport tenants

RESOURCES

Advisory Circular

- [AC 150/5300-9](#) - Pre-design, Prebid & Preconstruction Conferences

920 - Engineer's Report Development Projects

Overview

The engineer's report serves to document the design considerations, engineering analysis and design selections that occur early in the project design phase. Unless otherwise directed by the FAA project manager, the Sponsor's consultant shall prepare and submit an engineer's report for all development projects funded under the Airport Improvement Program (AIP). For relatively small and simple projects, the FAA project engineer may waive this report requirement.

Content of Report

As each individual project will present unique design considerations, the topics a consultant should address within the engineer's report will vary with each specific project. As a minimum, the report should include the following:

- Description of work (including AIP participation limits)
- Listing of applicable design standards
- Design Considerations for airport Operational Safety
- Summary of the design computations
- Justification for selection of design materials
- Life Cycle analysis (if applicable)
- Summary of preliminary project budget
- Identification of modifications to FAA standards.

Recommended Outline

Our recommended outline for the engineer's report is provided as follows:

1. **General Scope of Project** - A brief narrative on the scope of work including a delineation of AIP eligible and ineligible work items. Identify and briefly explain unique and unusual situations.
2. **Photographs** – Include a representative number of photographs that depicts the existing condition of the project site.
3. **Design Advisory Circulars** – Listing of AIP advisory circulars that applicable for the AIP funded project.
4. **Design Standards** - Listing of applicable standards such as design aircraft (per approved ALP), geometric dimensions, safety areas, object free areas and etc.
5. **Non-AIP work** – Separately identify all work items, including quantities that are not eligible for AIP participation.
6. **Airport operational safety** - Address issues related to how contractor will maintain operational safety during construction.
 - Address issues regarding phasing and pavement closure.
 - Identify possible impacts to approach procedures. This includes full runway closures and temporary relocated thresholds.
 - Consult AC 150/5370-2 for additional AIP standards.
 - Note: The FAA requires submittal of a pdf copy of the phasing and safety plan to the FAA project manager early in the project phase. The FAA uses this document to coordinate construction impacts with other FAA organizations
7. **Site Conditions** - Address factors related to site condition such as drainage considerations, soil characteristics and climatic conditions. Provide a summary of the geotechnical report.

8. **Pavement Design** - Include a completed and **signed** copy of FAA Form 5100-1 "Airport Pavement Design". Backup information should include:
 - Fleet mix (aircraft, load and frequency of operations)
 - Selection of paving materials (including life cycle cost analysis for any new construction or reconstruction project)
 - Summary of design calculations.
 - Soil and geotechnical report
9. **Material Availability** – For remote locations, the engineer should investigate the local availability of construction materials. This includes contacting potential material suppliers to determine availability of sufficient construction.
10. **Pavement Marking** - Address marking requirements to assure compliance with AC 150/5340-1. Also address application of temporary marking. Note: Sponsor must perform a life cycle analysis when specifying thermoplastic pavement markings.
11. **Lighting** - Address design criteria, design selection and lighting layout. Include a summary of electric design calculations that support the design selections (e.g. regulator size). Sponsor must perform a life cycle analysis when specifying LED edge lights.
12. **Signage** - Address standard layout and design criteria for airport signage. For Part 139 airports, submit a revised signage and marking plan with the plans and specifications.
13. **Miscellaneous Work Items** - Address other project related work items such as seeding, fencing, airport drainage, site access and etc.
14. **FAA Owned Facilities** – Identify Impacts to FAA owned facilities and equipment. This includes physical impacts and well as potential outages. Identify impacts to buried cables serving FAA facilities.
15. **Utility Lines** – List all known existing utility lines. Recommend contacting the appropriate underground cable service to physically identify underground utilities. Engineers should strive to identify impacts at the design phase as opposed to instructing the contractor to identify impacts during construction phase.
16. **Engineers Estimate** - Provide an itemized engineer's estimate of probable construction costs.
17. **Project Budget** - Provide a project budget that identifies all anticipated project costs (Administrative, Engineering Design, Construction Observation, Construction, etc.)
18. **Sponsor Modifications to Standards** - Provide listing, description and justification for all sponsor initiated modifications to FAA standards. Please note that it is not acceptable to simply list the changes. Provide a justification as well. Refer to AIP Sponsor Guide 950.
19. **DBE participation** – Note the status of the Sponsor's DBE program and proposed participation goal.
20. **Pre-design meeting minutes** - Provide a copy of the minutes from the pre-design meeting.

RESOURCES

Advisory Circulars

- [AC 150/5300-9](#) - Pre-design, Prebid & Preconstruction Conferences
- [AC 150/5300-13](#) – Airport Design
- [AC 150/5320-6](#) - Pavement Design

Forms

- [Form 5100-1: Pavement Design](#) (MS Word)

930 - Plans and Specifications Development Projects

Overview

A sponsor typically conveys project development requirements to prospective bidders through the preparation of plans and specifications.

- Project plans (drawings) - serve to graphically depict the extent of the development requirements in an accurate and concise manner.
- Project specifications - serve to convey technical requirements for quality acceptance, performance characteristics, and permissible construction methods.

In addition to the plans and specifications, Sponsors prepare bid documents and contract documents for the purpose of conveying to prospective contractors all bidding requirements and contractual obligations expected of the successful bidder. Sponsors commonly bind the bid documents, contract documents and project specifications into one document referred to as the project manual.

Sponsor's Responsibility

Per Federal Regulation 49 CFR Part 18.36, the Sponsor is responsible for all matters concerning contract procurement for a project. The Sponsor is the contractual authority for all matters related to establishing and administering the contract agreement. The FAA **is not** a party to such contract agreements.

The Sponsor, along with their engineering consultant, is responsible for the accuracy, completeness, legal sufficiency and technical content of the contract bidding documents, plans, and specifications. Sponsor should note that reviews conducted by the FAA are limited to determinations of AIP eligibility, which include verification of compliance with FAA Standards.

Although the FAA is not a party to the construction contract, the sponsor's acceptance of an Airport Improvement Program (AIP) grant obligates them to incorporate all applicable AIP standards and Federal provisions. The FAA publishes AIP, policies and guidelines in various Advisory Circulars and Engineering Briefs. Sponsors must provide assurance that they have applied applicable AIP standards in the design of an AIP project. Unless the FAA provides express written approval, Sponsors may not modify AIP standards.

Submittal Requirements

The submittal requirements for a project may vary per the complexity of the project. The following provides general guidance that addresses submittal requirements per the size of the project. The Sponsor and Consultant should discuss submittal requirements with the FAA project manager at the time of the pre-design conference.

1. **Small Simple Project (less than \$100,000):** A one-time submittal is generally acceptable.
2. **Medium Sized Project:** Submit engineer's report and 90% plans & specifications for FAA review and approval before finalizing the package. Submittal of construction safety plan should occur early in the project.
3. **Large Complex projects:** Submit engineer's report with design selections at an early stage in the project, preferably at 30% stage. Engineer should not proceed to 90% until accepts proposed design selections. Note that misdirected design effort is not eligible for AIP participation.
4. **Projects involving FAA Owned Facilities:** For projects that involve FAA owned facilities (e.g. MALSR, ILS, etc....), the sponsor must coordinate impacts 18-24 months in advance of actual construction. The FAA Technical Operations personnel reserve the right to accomplish design work under a reimbursable agreement. For those instances where the FAA Technical Operations organization allows the sponsor to accomplish the work, submit two sets of preliminary plans and specifications to facilitate reviews by other appropriate FAA offices.

FAA Review and Approval

The FAA bases the acceptance of plans and specifications on a combination of a FAA review and the Sponsor submittal of a satisfactory sponsor certification for plans and specifications. The extent of the review may be very thorough or may be a cursory review. Regardless of the extent of the review, the Sponsor remains responsible for the overall accuracy, completeness, legal sufficiency and technical content of the project manual and plans.

The FAA project manager generally reviews critical project elements such as the safety plan, pavement details, airfield marking details, airfield signage details and technical specification. The FAA project manager may also review the project manual to confirm the Sponsor is not unduly restricting competition. The FAA will not typically review detailed engineering and quantity calculations; however the Sponsor must make such documentation available if requested by the FAA.

The Sponsor **must not** construe the FAA review as a quality control review. The overall purpose of the FAA review is to ascertain compliance with and AIP eligibility requirements.

Timeframe for FAA Review

The sponsor and their consultant shall allow sufficient time for the FAA to conduct an appropriate review. This may vary per size and type of project. Typically, we request a review time frame of 2-3 weeks. Seasonality can influence this timeframe. For example, the review time for plans and specifications submitted in the March/April timeframe may be greater due to the large influx of submittals. The best practice is to submit plans and specification in the November – February timeframe.

Sponsor's Response

Upon receipt of FAA review comments, the Sponsor through their consultant shall provide a written annotated response to each comment made by the FAA. The response should address how the Sponsor resolved the comment. The FAA will typically not issue an authorization to advertise for bids until the FAA deems the plans and specifications acceptable for AIP participation.

We caution Sponsors that FAA acceptance in the plans and specifications does not relieve the Sponsor of the responsibility to correct items of work later found to be non-compliant with AIP Standards.

RESOURCES

Advisory Circular

- [Airport Design Standards](#) – Cross Reference of AIP Design Standards
- [AC 150/5320-6](#) - Pavement Design
- [AC 150/5340-1](#) – Standards for Airfield Marking
- [AC 150/5340-30](#) – Design and Installation of Visual Aids
- [AC 150/5370-2](#) - Operational Safety on Airport During Construction
- [AC 150/5370-10](#) - Standards for Specifying Construction

931 - Project Drawings Development Projects

The Project Drawing package serves to graphically depict the extent of the contract requirements in an accurate and concise manner. The project drawings, along with the technical specifications, form a critical part of the Contractor' contractual obligations. As a legal document, the contract drawings must convey the Sponsor's project requirements in a clear and unambiguous manner.

AIP Requirements

To remain eligible under the Airport Improvement Program (AIP), Sponsors must developed project plans in accordance with applicable AIP standards. The FAA establishes AIP standards within various Advisory Circulars and engineering briefs. Regional guidance is also available as a supplement to AIP requirements.

Responsibility of Sponsor and Engineer

The sponsor and their consultant assume the responsibility for the accuracy, completeness, and technical content of the contract drawings. The engineer must apply sound engineering judgment and widely accepted engineering principals when preparing project drawings.

FAA Airway Facilities

If the AIP funded project involves relocation or installation of FAA owned facilities such as navigational aids and approach lighting systems, the design must incorporate FAA drawing standards and details. The FAA Technical Operations organization reserves the right to accomplish work associated with impacts to their equipment. This includes both design and construction.

Typically, the sponsor will enter into an reimbursable agreement with the FAA. The purpose of this agreement is to compensate the FAA ATO organization for any incurred costs associated with the impacts caused by the AIP funded project. This coordination should occur 18-24 months prior to actual construction. Refer to AIP-640 for additional guidance regarding reimbursable agreements.

Typical Project Plans

The engineering consultant shall apply "best practice" judgment in determining the extent of the drawing package for each specific project. A typical drawing package generally consists of the following sheets and associated details and elements. Do not construe this outline as being inclusive of all such necessary drawings.

- **Cover Sheet**
 - a. Airport Name
 - b. Airport Location
 - c. Owner's/Sponsor's Name
 - d. AIP Project Number**
 - e. Brief Description of Project
 - f. Index of Drawing Sheets
 - g. Location Map
 - h. Date
- **Project Layout Plan**
 - a. Table of Quantities (List non-participating work in separate schedule)
 - b. Airport Layout
 - c. Site plan
 - d. Legend
 - e. Table of Design Standards (design aircraft, approach category, pavement dimensional values...)

- **Operation Safety Plan/Construction Phasing**
 - a. AC 150/5370-2 *"Operational Safety on Airports During Construction"*
 - b. Table of standards (safety areas, object free areas, obstacle free zones...)
 - c. Sequence of construction
 - d. Site access and haul routes
 - e. Staging area
 - f. Form 7460-1 Airspace notification for equipment, batch plants etc.
 - g. Stock piles
 - h. NOTAM issuance
 - i. Graphically delineate limits of work area for each phase
 - j. Pavement closures
 - k. Temporary threshold relocation
 - l. Temporary marking and lighting
 - m. Barricade requirements and limitations
 - n. Traffic control
 - o. Environmental issues
 - p. Security issues
 - q. ARFF access

- **Typical sections**
 - a. Pavement sections
 - b. Transverse grade template
 - c. Edge drain location
 - d. Edge drop-offs
 - e. Ditches

- **Grading Plan**
 - a. Longitudinal and transverse criteria
 - b. Safety areas
 - c. Surface drainage

- **Pavement Plan and Profile**
 - a. Paving legend
 - b. Vertical control requirements
 - c. Joint layout
 - d. Slab reinforcement
 - e. Tie down locations (Aprons)
 - f. Fillet layout
 - g. Intersection adjustments

- **Pavement Details**
 - a. Joint details
 - b. Edge drain details
 - c. Tie down detail
 - d. Grooving requirements

- **Marking Plan**
 - a. Layout and type
 - b. Marking Details
 - c. Highlighting
 - d. Surface Painted Hold signs (individual detail)

- **Electrical Plan**
 - a. Light fixture layout
 - b. Sign plan
 - c. Light fixture detail (height and location requirements etc.)
 - d. Sign schedule
 - e. Trench detail
 - f. Grounding details
 - g. Vault details
 - h. Wiring schematic

- **Navigational Aides** (PAPI, REILS,...)
 - a. Layout
 - b. Installation details
 - c. Aiming information
 - d. Obstruction clearance information (e.g. PAPI OCS)

- **Drainage**
 - a. Surface and subsurface plan
 - b. Pipe profile
 - c. Drainage structure and pipe schedule
 - d. Drainage structure details
 - e. Underdrain details
 - f. Erosion control

- **Miscellaneous**
 - a. Erosion control
 - b. Fencing
 - c. Utilities

RESOURCES

Advisory Circular

- [Airport Design Standards](#) – Cross Reference of AIP Design Standards
- [AC 150/5320-6](#) - Pavement Design
- [AC 150/5340-1](#) – Standards for Airfield Marking
- [AC 150/5340-30](#) – Design and Installation of Visual Aids
- [AC 150/5370-2](#) - Operational Safety on Airport During Construction
- [AC 150/5370-10](#) - Standards for Specifying Construction

932 - Project Manual Development Projects

Overview

Engineering consultants will typically combine the bid documents, contract documents and technical specifications of a project into one bound document commonly referred to as the Project Manual. This document serves to convey the contractual and technical requirements of a construction project to the Contractor. The Project Manual also serves a critical role as part of the bid process.

Although it may vary per location, the Project Manual will generally consist of the following elements:

- Notice to bidders
- Instructions to Bidders
- General Provisions (General Conditions)
- Supplementary Provisions (Supplementary Conditions)
- Technical Specifications
- Proposal (including Certifications, DBE forms, bid bond, etc...)
- Contract Agreement (including certifications and required bonds as attachments)

AIP Requirements

The FAA does not prescribe the format or the specific content of each individual element of the Project Manual. However, the Sponsor's participation in the Airport Improvement Program (AIP) does require that the project bid package incorporate all required FAA standards, Federal Provisions, and certifications. The required Federal contract clauses are available for download at the FAA website "[Procurement and Contracting under the AIP](#)"

Some of the required Federal Provisions have contract dollar thresholds that establish when they are applicable. A [Checklist of Federal Requirements for Construction Contracting](#) is available to assist Sponsor's and their consultants with determining when to apply a specific Federal Provision.

Suggested Forms for Construction Contracting

For the benefit of the Sponsor, we have prepared several suggested sample documents that the Sponsor may use as a guide in preparing their own specific bid package. These sample documents incorporate the Federal provisions that are required for a project greater than \$100,000. Projects of lesser amounts may not require all of the provisions included in the sample documents.

We caution Sponsors and Consultants that they should not consider these suggested samples as being complete and whole. Sponsors may use these suggested samples as a starting point in the process to develop their own contract documents.

We further caution sponsors not to construe the provision of such suggested sample contract documents by the FAA **must not** as a guarantee of legal sufficiency. Sponsors remain **solely responsible** for verifying the legal sufficiency of all matters concerning procurement and contracting.

Suggested sample contract documents are as listed below:

- [Requests for Bids \(Advertisement\)](#) (MS Word)
- [Notice-to-bidders](#) (MS Word)
- [Instructions-to-Bidders](#) (MS Word)
- [Supplementary Provisions](#) (MS Word)
- [Form of Proposal \(includes DBE forms\)](#) (MS Word)
- [Contract Agreement](#) (MS Word)
- [Form of Payment Bond](#) (MS Word)
- [Form of Performance Bond](#) (MS Word)

It is not mandatory that a sponsor use the suggested contract documents provided herein. Sponsors are may use their standard procurement and contract documents or they may use commercially available document templates provided by AIA or EJCDC. However, to maintain AIP eligibility, the Sponsor must incorporate the required Federal provisions and clauses within the final project manual.

Technical Specifications

As a condition of receiving an AIP grant, Sponsors are bound to adhere to the standards and guidelines presented in Advisory Circulars specifically identified in the grant agreement. For airfield development projects, the FAA standard specification is [AC 150/5370-10, Standards for Specifying Construction](#). Sponsors and their consultants must use this AIP standard when preparing a project specification. Unless approved in writing by the FAA, the Sponsor may not make additions or deletions to the FAA standard when preparing their project specification. Unauthorized modifications are ineligible for AIP participation.

For development projects for which a FAA standard does not exist, the sponsor must use an acceptable industry standard. For example, it is permissible to use AIA standard specifications for the construction of an ARFF building.

Federal Regulation 49 CFR part 18.36(c) requires Sponsors conduct all procurement transactions in a manner providing full and open competition. Sponsors must avoid practices that limit or restrict competition. Restrictive practices that Sponsor must avoid include but are not limited to:

- Incorporating unreasonable requirements
- Requiring unnecessary experience and bonding
- Unnecessarily use of "brand name" specifications
- Restricting competition to sponsor preferences
- Incorporating geographical preferences.
- Use of arbitrary actions in the procurement process

Specification requirements should clearly identify the qualitative characteristics of the material or product that are essential for the intended use. Sponsors should avoid a proprietary tone when preparing specifications.

The requirements must be necessary and reasonable. The practice of requiring a project contractor to transfer ownership of temporary non-expendable equipment to the owner at the end of the AIP project is a non-allowable procurement action. Refer to sponsor guide section [AIP-1200](#) for additional information.

When it is impractical to make a clear and accurate description of the technical requirements, the sponsor may apply "Brand Name or equal" to establish desired requirements. Sponsors may not use "brand name or equal" to preclude an otherwise eligible bidder from participating.

Sponsors may not use "sole source" specifications unless approved in writing by the FAA. Uniformity of equipment **is not** sufficient justification for sole source procurement under the AIP.

Refer to sponsor section [AIP-400](#) for additional procurement guidance.

RESOURCES

Department of Labor

- [Davis Bacon Wage Rates Determinations](#) – DOL Website
- [DOL Technical Assistance Guide for Federal Contractors](#) (pdf)
 - [DOL Goals for Minority Participation](#) – Goals for Iowa, Kansas, Missouri and Nebraska

Federal Regulations

- [41 CFR Part 60.4](#) - Affirmative Action
- [49 CFR Part 18](#) – Uniform Administrative Requirements for Grants

Miscellaneous Guidance

- Checklist of Federal Requirements for Construction Contracting: [MS Word](#) | [PDF](#)

933 – Contract Time Development Projects

Overview

The contract time is an essential part of each contract for construction on airport and requires careful consideration during the preparation of plans and specifications. In selecting the method of specifying contract time, the primary consideration should be the impact on airport operations should the contractor be unable to complete the work within the specified time. Sponsors should coordinate these considerations with the airport users as indicated in AC 150/5300-9 Pre-design, prebid and Preconstruction Conferences for Airport Grant Projects.

Calendar Day Contracts

Calendar day contract are best employed when the completion is critical to airport operations. On a calendar day contract, the contractor agrees to complete the project within the specified number of days from the Notice-to-Proceed. As such, the Sponsor knows the projected completion date. The contractor assumes the risk of no-fault delays such as weather. If there are days the Sponsor will not permit the contractor to work (such as airshows, fly-ins or other special events), the Sponsor must clearly state these limitations within the bidding package.

Working Day Contracts

Working day contracts are generally best applied when completion is not critical to airport operations. The FAA defines working day contracts as any day except Saturday, Sunday and legal holidays when the contractor may proceed with the work for at least 6 hours. If the contractor is using double or triple shifts, 12 or 18 hours apply respectively. Each week, the sponsor or his representative must provide the contractor a statement of the number of working days charged. The contractor has one week to file a written dispute to the Sponsor's statement.

Specified Completion Date Contracts

Specified completion date contracts mandate a date for the contractor to complete the project and do not track working or calendar days. While sponsor typically do not use these types of contracts on AIP projects, Sponsors may consider its use for:

1. Exceptionally disruptive construction (e.g. complete work prior to holiday travel weekend),
2. Instances where the completion date is critically important to the completion of other significant elements of a larger project.

Suspension of Time

If the work is suspended for any acceptable reason, the Sponsor may not charge any days against the contractor. Please notify the FAA project manager whenever you suspend a contract time.

Extension of Time

Prior to the expiration of the contract time, the contractor may request an extension of the contract time to adjust for delays that were beyond his control. Sponsor should apply sound judgment in approving or disapproving the request. Requests for extension of time on calendar day projects, caused by inclement weather, must be supported with National Weather Bureau data showing that the amount of inclement weather exceed what would normally be expected during the contract period.

If the satisfactory completion of the contract requires performance of work in greater quantities than those originally estimated in the proposal, the Sponsor should increase the contract time proportionally to the cost of the proposal and the actual costs.

The Sponsor should not verbally alter the contract time as doing so may increase the cost of construction observation services while diminishing the ability to collect liquidated damages. The FAA expects the sponsor to administer the contract as written.

Liquidated Damages

If a contractor fails to perform within the time frame established by the contract, the Sponsor should apply liquidated damages to the contract. Refer to Section AIP-1083 for additional information regarding liquidated damages.

RESOURCES**Department of Commerce**

- [Climatology of the United States No. 81](#) – Monthly Station Normals of Temperature, Precipitation, and Heating and Cooling Degree Days 1971 - 2000
- [Climatology of the United States No. 20](#) – Monthly Station Climate Summaries

940 - Regional Approved Modifications to AC 150/5370-10 Development Projects

Overview

This regional guidance establishes FAA pre-approved modifications to [Advisory Circular 150/5370-10, Standards for Specifying Construction of Airports](#). These pre-approved modifications implement necessary measures and practices to assure acceptable materials and products are utilized that result in quality construction.

Purpose of FAA Approved Modifications

These modifications account for unique materials and conditions common to locations within the FAA Central Region. The majority of these modifications are necessary due to the effects of local weather and climatic conditions. Other modifications are a result of "engineering best practices" that we have permitted on past projects.

These modifications are often a result of problem areas we have identified on past AIP projects. Other approved modifications are a result of recurring sponsor initiated requests that the FAA deemed acceptable.

Sponsors and engineers who would like to suggest additional changes to this guidance may do so by making a written make request to the FAA Central Region. Please forward all such requests to the paving engineer for the [FAA Central Region](#).

Limitations on Use

The modifications presented herein this guidance are already approved for use and do not require a separate request from the Sponsor. These approved modifications do not address sponsor initiated modifications.

Sponsor Initiated Modifications

Sponsors or Engineers that desire to make additional modifications to AC 150/5370-10 that **are not** included within these FAA approved modifications must make a written request for FAA approval. Please refer to regional guidance AIP-950 for additional information on Sponsor Initiated Modifications.

RESOURCES

Guidance

- [Central Region Approved Modifications to AC 150/5370-10](#) (RTF)

Advisory Circulars

- [AC 150/5370-10](#): Standards for Specifying Construction

950 - Sponsor Modifications of FAA Standards Development Projects

General

Airport Improvement Program (AIP) Grant assurance #34 obligates a Sponsor to comply with all relevant FAA standards in carrying out any development or equipment project. The FAA conveys such standards and guidelines by publishing Advisory Circulars. Each grant agreement includes an attachment that identifies applicable Advisory Circulars that a grant recipient must comply with. Sponsors must incorporate the requirements of the appropriate FAA standard **without** modification.

Occasionally, unique and site-specific conditions may necessitate a modification to the FAA standard. Sponsors desiring to modify an AIP construction standard must submit a formal request to the FAA for advance review and approval. Unapproved modifications to FAA standards will result in the FAA deeming the cost of the work element ineligible for AIP participation.

Pre-approved Modifications

AIP Sponsors occasionally encounter project situations where unique local conditions preclude compliance with FAA standards for airport design or construction. For common or recurring modifications to the FAA Construction Standards, the Central Region has prepared a listing of regionally approved modifications to AC 150/5370-10. The FAA Central Region has pre-approved these modifications for Sponsor use and thus do not require a separate request from the Sponsor.

Download: [Pre-Approved Modifications to AC 150/5370-10](#) (RTF)

Note: Pre-approved modifications are typically updated by November of every year.

Sponsor Initiated Modifications

Sponsors that desire additional modifications to FAA Standards that are not covered by the FAA pre-approved modifications must seek formal FAA review and approval. The Sponsor must fully justify why a modification is necessary and provide assurance the modification will not diminish the quality intended with the FAA standard.

State Standards: Sponsors should note that the use of State Highway standards at certain airports may or may not require a request for modification to FAA Standards. Please refer to AIP Sponsor guidance AIP-951 to learn more about the use of State Standards in an AIP project.

FAA Policy

FAA Order 5300.1, *Modification to Agency Airport Design, Construction and Equipment Standards*, establishes guidelines and criteria for modifying a FAA standard or specification. This Order requires that all modifications to design and construction standards be approved by the FAA prior to incorporation into projects funded through the Airport and Airway Improvement Act of 1982 (AIP) as amended.

The time required for FAA review and approval will vary with the complexity of the modification and the level of required approval. The level of required approval is contingent upon the type of modification the Sponsor is requesting.

Modifications that require FAA headquarters approval take a minimum of 6 weeks for review and approval. Modifications requiring FAA Central Region approval need a minimum of 3 weeks for review and approval.

The level of required approval is as follows:

FAA Headquarters Approval is required for:

- a. Modifications to standards for siting navigational or lighting aids.
- b. Modifications for marking, lighting and signs.
- c. Modifications to equipment specifications listed in AC 150/5345-53
- d. Modification to criteria used to control quality or determine the acceptability of material and finished products. (As defined in current Advisory Circulars)
- e. Modifications to methods used to determine if a material or finished product meets test criteria, i.e. test methods.
- f. Construction methods or materials, which are not contained in AC 150/5370-10.
- g. Sections 100 and 110 of the General Provisions contained in AC 150/5370-10.

FAA Central Region Approval is required for the following:

- a. Modifications to airport design and equipment standards, and construction standards as they relate to materials.
- b. Use of State DOT material and construction standards
- c. Modifications to general provisions of AC 150/5370-10 if necessary to make them consistent with local laws and regulations.

Form of Sponsor's Request for Modification Approval

The above noted modifications require that the Sponsor formally submit a written request asking for FAA review and approval. In general, the request must identify the modification, provide a short description of the modification and provide a justification for why the modification is necessary.

FAA Headquarters Approval - Modifications that require FAA headquarters approval must contain the following:

1. A listing of the standards requiring modification
2. A concise description of the proposed modification
3. A reason or justification for why the current standard cannot be met
4. A brief discussion of viable alternatives for accommodating the unique site condition
5. A stated assurance by the Sponsor or their consultant that the modification will provide a product that meets FAA standards for acceptance and that the finished product will perform for its design life based on historical data.
6. A stated assurance that the modification will provide an acceptable level of safety.

FAA Central Region Approval – Sponsor initiated modifications that require FAA Central Region Approval shall contain the following:

1. Formal written request for modifying a FAA standard
2. A separate listing of all modifications that identifies the FAA standard being modified and includes:
 - a. A short concise description of the modification.
 - b. A statement that justifies why the modification is necessary.
3. Engineer's statement that proposed modification of FAA construction standards will provide a product that will meet or exceed FAA standards for acceptance and that the finished product will perform for its intended design life.
4. [Sample Sponsor Initiated Modification Listing](#) (pdf)

Justification for Modification of FAA Standard

The justification for modifying a FAA standard must sufficiently explain why the modification is necessary. A sponsor's preference or the engineer's discretion **is not** adequate justification. The reason for the modification should address the following conditions:

- The proposed modification provides a level of performance equivalent to or greater than the FAA standard.
- The proposed modification provides a level of safety equivalent to or greater than the FAA standard
- The use of the proposed modification does not result in an unreasonable increase in cost to the AIP when compared with using the FAA standard. An exception to this rule is the application of life cycle analysis where the Sponsor can demonstrate the higher cost option is cost beneficial over the life of the finished product.

Submittal Procedure

If the Sponsor desires a modification of an AIP standard, the Sponsor's engineer should submit the request early in the project design phase, preferably along with the submittal of the engineer's report and preliminary plans and specifications.

Sponsors and engineers should note that FAA approval of modifications for a specific project does not imply the FAA has approved the modifications for subsequent projects. The FAA limits the approval to the specific project for which the Sponsor requested a modification. Modifications under future projects require a separate request by the Sponsor.

We request Sponsors and their consultants adhere to the following procedure when requesting a modification.

1. Sponsor/Engineer prepares a written request for FAA review and approval of modifications to FAA standards.
 - The request must be in the format noted above and should be separate from the plans and specifications.
 - Sponsor must address all individual modifications, regardless of size of complexity. Avoid universal requests and justifications.
 - To assist with our review, we recommend highlighting (font change, shading etc.) sponsor-initiated modifications in the plans and specifications.
 - Sponsors do not need to include FAA pre-approved modifications unless you are proposing a change to the pre-approved modifications.
2. The FAA will conduct an appropriate review (Headquarters or Region) of the modification.
3. The FAA will initiate a letter notifying the sponsor of acceptance or rejection once the FAA review is complete.

RESOURCES

Advisory Circular

- [Airport Design Standards](#) – Cross Reference of AIP Design Standards
- [AC 150/5320-6](#) - Pavement Design
- [AC 150/5340-1](#) – Standards for Airfield Marking
- [AC 150/5340-30](#) – Design and Installation of Visual Aids
- [AC 150/5370-2](#) - Operational Safety on Airport During Construction
- [AC 150/5370-10](#) - Standards for Specifying Construction

951 - Use of State Standards Development Projects

Overview

A Sponsors use of State highway material and construction standards in lieu of a FAA AIP standard is permissible subject to specific conditions. There are two distinct criteria:

1. **AC 160/5320-6 Airport Pavement Design:** Chapter 5 of this Advisory Circular addresses the use of local state highway specifications for pavements serving light aircraft. The FAA defines light aircraft as those aircraft with a gross weight of 30,000 lbs or less.

If the pavement design is for aircraft with gross weights of 30,000 lbs or less, the Sponsor and their consultant have the discretion to specify State Highway standards as a substitute for FAA standards P-401 *Plant Mix Bituminous Pavements* and P-501 *Portland Cement Concrete Pavement*. The use of State material standards for other FAA material standards will require the Sponsor submit a request for modification to FAA standards.

2. **Wendell H. Ford Aviation Investment Reform Act**
The implementation of the Wendell H. Ford Aviation Investment Reform Act for the 21st Century (AIR-21) permits the use of State specifications for airports with runways less than 5,000 feet which serve aircraft with gross weights less than 60,000 pounds.

Airports electing to utilize state specifications under this provision must certify that:

- a. Safety will not be negatively affected and;
- b. That the life of the pavement will not be less than that constructed with FAA paving standards.

Grant Condition for using State Standards

Sponsors and consultants should note that a condition of AIR-21 provision is that the Sponsor must not seek additional AIP funds for this pavement for a period of 10 years. The FAA will incorporate a condition in each grant agreement that involves an airfield paving project that uses state material standards as addressed by AIR-21.

Limitations

The FAA generally limits the approval to use state highway standards to material and construction standards. This approval **does not** include highway design standards (e.g. highway jointing and fillet design).

To remain eligible, the sponsor and their consultant must continue to apply FAA design standards per FAA AC 150/5300-13 (Airport Design) and AC 150/5320-6 (Airport Pavement Design)

960 - Operational Safety on Airport During Construction

Overview

Construction activities within the operations areas of an airport have the potential to significantly compromise normal operational safety for aircraft. Careful planning and implementation of mitigating measures will greatly minimize the impact construction activities may have on normal airport operations.

Advisory Circular 150/5370-2 establishes FAA guidelines to assure operational safety on airports during construction activities. Adherence to these guidelines is mandatory for:

1. All construction projects funded in whole or in part by the Airport Improvement Program (AIP),
2. All construction projects undertaken at a Part 139 airport.

Sponsors and consultants should make contractors aware that the construction operational safety plan is **not** the same as the OSHA workplace safety plan. While the OSHA workplace safety plan may be a component, its submittal does not satisfy the requirement for the airport operational safety plan.

Safety Management Systems (SMS)

FAA is presently in the initial stages of implementing Safety Managements System into its Airports Organization. One of the elements planned for implementation is a safety risk management review of "Operational Construction Safety Plans".

This risk analysis will eventually require sponsors and consultants to modify how and when they submit construction safety plans for FAA review. In the very near future, it is likely the submittal of construction safety and phasing plans will need to occur at the 30% phase as opposed to the 90% or final phase. The submittal will likely need to occur 12-18 months prior to the start of construction activity.

Airport Operator's Responsibility

The airport operator is ultimately accountable for assuring operational safety at their airport during construction activities. The airport operator fulfills its obligation by implementing several measures such as:

- Preparing a comprehensive operational safety plan for each specific project,
- Conducting routine meetings that address airport safety concerns
- Monitoring the contractor's implementation of approved safety plan measures
- Informing tenants of construction activities
- Coordinating project impacts with ARFF personnel
- Coordinating construction impacts with FAA ATO technical operation personnel.
- Coordinating construction impacts with Flight Service and Flight Procedures offices.

The Safety Plan and the Contractor

The Contractor is contractually obligated to implement the requirements of the "approved" safety plan. By identifying the minimum requirements of the safety plan in the bid package, prospective contractors have a sound basis for estimating the cost to implement measures associated with the safety plan.

We strongly discourage the practice of assigning the responsibility of preparing a safety plan to the successful contractor. Such a practice can introduce contractual issues due to vague and ambiguous interpretations of the operational safety requirements.

The construction safety plan establishes the sponsor's ground rules for operating on the airport. The rules and provisions established in the safety plan become a legally binding contract requirement. Failure to clearly identify minimum safety plan requirements within the bid package may permit the Contractor to seek additional compensation for implementing necessary safety measures that were not clearly established at the time of the bid.

Sponsors should take into consideration that the project incentive for most Contractor's is based upon reducing costs and protecting profit. The temptation to take shortcuts on safety measures can decrease cost for a contractor while increasing risk for operational safety. Considering the Sponsor remains accountable for construction activities on their airport, it is not prudent for the Sponsor to assign the responsibility of establishing safety plan requirement to the Contractor while retaining the associated risk.

We strongly recommend identifying minimum safety plan requirements within the project package as part of the bid. If the contractor proposes construction sequencing that differs from that developed by the Sponsor, the Contractor becomes responsible for identifying acceptable revisions to the approved safety plan at no additional cost to the Sponsor. Such revisions still require review and approval by the Sponsor and the FAA.

Operational Safety Plan

As each project will vary per size and complexity, the Sponsor should customize the each safety plan in order to properly address the unique conditions associated with the specific project and airport.

It is important to note that while AC 150/5370-2 establishes the FAA standards for operational safety during construction, the FAA does not intend this Advisory Circular to serve as the safety plan itself. Simply incorporating this Advisory Circular into the contract documents **does not** fulfill the airport operator's responsibility to prepare a site-specific safety plan for the specific project.

Minimum Operational Safety Requirements

The Sponsor, through their consultant engineer, must identify as part of the bid package minimum requirements for operational safety during construction activities at their airport. This includes but is not limited to:

- Acceptable construction sequencing
- Delineating work area and phasing limits
- Pavement closures
- Temporary relocated threshold
- NOTAM issuance
- Hazard identification
- NAVAID impacts
- AOA security concerns
- Airfield communication
- Maintaining Runway Safety Area requirements
- Control of Debris
- Maintaining ARFF coverage

Best Practices *(Updated 2/11/11)*

Advisory Circular AC 150/5370-2 does not mandate how a Sponsor conveys the safety plan requirement to the contractor. It may be part of the project drawings, a section within the project manual or a stand-alone document. It may also be a combination of the three approaches. It must however be a part of the bid package.

Within the Central region, we believe it a best practice to convey these requirements to the Contractor through graphical representation and applicable safety notes on a drawing sheet labeled "Operational Safety Plan". Since construction sequencing is an integral element of the safety plan, Consultants often combine the project phasing requirements with the safety plan requirements on a drawing labeled "Operational Safety and Phasing Plan".

Chapter 2 of AC 150/5370-2 provides a recommended checklist that addresses suggested elements of a safety plan. Chapter 3 addresses safety standard and guidelines. Consultants should the guidance and standard presented in these sections when developing a project specific safety plan.

As supplement to these chapters, we have prepared a supplemental guidance entitled "[Best Practices for Effective Construction/Phasing Plans](#)". The guidance provides a listing of critical elements for a safety plan. Each element includes a bullet list of significant issues that address requirements for that element. We encourage sponsors to utilize this guidance when preparing their customized safety plan.

Some additional suggested best practices are:

- Graphically delineate the outer limits of safety areas and object free areas for applicable runway and taxiways. Images are more effective than text.
- Include a graphical cross section detail of the Obstacle Free Zone (OFZ) for the adjacent runways.
- For projects with multiple phases and sub-phases, show each phase on separate drawing sheets. Do not overlay the graphic lines for different phases.
- To promote ease of use, establish the safety notes in one location in the bid package as opposed to multiple locations.
- Use plain language practices to convey clear, concise and definitive requirements.
- Use active voice vs. passive voice to avoid ambiguity. For example, instead of stating "Frangible low profile barricades shall be provided"; use "Contractor must provide frangible low profile barricades" or "Provide and install frangible low profile barricades.
- Use "must" instead of "shall". The use of "must" indicates required compliance. The term "shall" does not definitively establish a requirement.
- Establish definitive requirements as opposed to making broad generic statements. For example "*Contractor must be restricted from entering an airport area that would hazardous*" is a very broad statement that can be subject to interpretation. Instead, we recommend using wording similar to the following "*Contractor personnel must confine activity and movements to the approved work area limits applicable for the active construction phase. Contractor personnel must not enter active airfield pavement unless specific approval is authorized by the ATCT.*"
- Apply a structured outline format. Use of headings promotes usability thus making it easier for field personnel to quickly locate a specific safety provision. Critical elements of the checklist can serve as headings for the safety notes. For example:
 - a) General Safety Requirements
 - b) Protection of Safety Areas (Runway and Taxiway)
 - c) Protection of Obstacle Free Zones
 - d) Protection of Object Free areas (Runway and Taxiways)
 - e) Work area limits
 - f) Haul Route Requirements
 - g) Staging Area Requirements
 - h) Vehicle Operations, Identification and Training
 - i) Airfield Security Requirements
 - j) ARFF Requirements
 - k) Equipment Operations and Parking
 - l) Hazard Area Marking and Lighting
 - m) Temporary Marking and lighting
 - n) Airfield Radio Communications
 - o) NOTAM Issuance
 - p) NAVAID Coordination
 - q) Control of Debris
 - r) Emergency Notification Procedures
 - s) Wildlife management
 - t) Underground utilities
 - u) Contractor Personnel Requirements

For those sponsors that desire to incorporate the safety plan requirements as part of the project manual, we request the drawing set still include a safety and phasing drawing that identifies the "safety notes"

outline. The notes under each heading should briefly address critical requirements and then refer to the appropriate project manual section for complete requirements.

FAA Review

The FAA review of a project specific construction safety plan (CSP) serves multiple purposes. Among these include

- The FAA Airports office will review the CSP for compliance with AIP standards.
- The FAA Air Traffic office will review for impacts to ATCT operations.
- The FAA ATO Technical Operations will review it for impacts to existing NAVAIDS
- The FAA Flight Procedures office will review impacts to existing approach and departure procedures.
- Other Federal offices (e.g DOD) may also have valid input on the proposed development.

Submittal Requirements

The FAA review can require multiple steps. The process starts with the consultant submitting a copy of the construction safety and phasing plan to the FAA project manager. The FAA project manager will conduct a review of the safety plan for compliance with AC 150/5370-2 and other AIP standards.

Simultaneously, a pdf copy of the safety and phasing plan is submitted through the OEAAA system for the purpose of an aeronautical evaluation by other FAA lines of businesses. Some FAA project managers require the sponsor to enter the 7460-1 data for the safety plan while other project managers prefer to enter the 7460-1 data themselves. Consult your FAA project manager to determine who should enter the 7460-1 case.

This initial study is a coordination review. It does not address evaluation of specific objects (crane, work area, haul route and etc.) that may be present on the project. The results of this initial review will identify critical elements and objects that require additional study. For example, the Flight Procedures office may require additional information on the work area limits in order to properly evaluate the temporary impacts to existing approach procedures that result from the proposed development. This will typically involve providing geodetic coordinates, ground elevation and height of anticipated equipment. The sponsor will need to submit separate study cases for each point of the work area limits.

As a matter of good practice, we recommend the following process:

Step 1 - Submittal of Construction Safety and Phasing Plan to FAA Project Manager

- This should occur early in the design phase, preferably the 30% P&S stage.
- The FAA project manager will review the safety plan for general conformance to AC 150/5370-2 and other applicable AIP standards.
- Initiate a study case through the OEAAA system. Consult project manager regarding who should initiate this study.
- If acceptable, the FAA project manager will notify the Sponsor of the safety plan approval.
 - The Sponsor should not advertise the project until the FAA Airports Division offers approval with the plans and specification, which includes acceptance of the construction safety plan.
 - If the review by other FAA lines of business results in delays to advertising the bid package, the FAA project manager may issue a conditional approval. FAA final approval is contingent upon proper resolution of any valid comments that result from the review by other FAA lines of businesses. While the sponsor may advertise for bids under this scenario, the sponsor must resolve all outstanding comments prior to issuing a Notice-to-Proceed (NTP) to the successful bidder.
- Sponsors must submit any subsequent changes to the approved safety plan to the FAA for additional review and concurrence.
- The Contractor may not commence work activities unless the FAA has granted substantial approval of the safety plan.

Step 2 – Sponsor Submittal of Data for Work Area, Haul Route and Staging Area

- Additional study is necessary to evaluate impacts of specific objects of the project. For airfield projects this typically involves submitting a 7460-1 for the work area limits, haul routes and staging area.
- The Sponsor, through their consultant, is responsible for acquiring sufficient data and submitting a 7460-1 form through the OEAAA online system in a timely manner.
- Data point information must include:
 - a. Geodetic coordinates (NAD 83)
 - b. Ground elevation (NAVD 88)
 - c. Height of equipment, material stockpile etc.
- Work Area Limits:
 - a. Submit data point information for all corners of the work area limits.
 - b. Include points at major phase limits.
 - c. Anticipated height of highest equipment that will routinely operate in the area. (e.g. Excavator 25' agl, backhoe 15' AGL and etc)
 - d. Include height of stockpile if equipment will operate on top of the pile.
 - e. Cranes and boom trucks require separate notification submittal.
- Haul Route:
 - a. Submit data points for select locations along the proposed haul route.
 - b. Anticipated height of highest equipment that will routinely traverse the road.
 - c. Contact FAA project manager for location of critical points.
- Staging Area:
 - a. Submit data point information for all corners of the staging area.
 - b. Include height of highest anticipated equipment or stockpile. (e.g. 20' agl)
 - c. Add height of equipment and stockpile if equipment will operate on top of the pile.
 - d. Batch plants require a separate notification submittal.
- Other Objects as identified in the initial OEAAA review of the safety plan
 - a. Submit all necessary data point information.
 - b. For a single object such as a pole, submit one data point for the object location.
 - c. For objects that are large in size or operate over an area, include data points for the four corners of the area.

Step 3 – Contractor Submittal of Data for High Profile Equipment.

- Include a note in the construction safety plan that notifies the contractor of their requirement to submit a 7460-1 case through the OEAAA system for any crane, boom truck, concrete pump, batch plant or other tall object.
- Contractor must submit this information through the OEAAA system **45 days** prior to use.
- Discuss this requirement at the preconstruction conference. Work activity may not commence until this study is complete.

RESOURCES**Advisory Circular**

- [AC150/5200-28](#): Notices to Airmen (NOTAM) for Airport Operators
- [AC 150/5210-5](#): Painting Marking and Lighting of Vehicles Used on an Airport
- [AC 150/5340-1](#): Standards for Airport Marking
- [AC 150/5370-2](#): Operational Safety on Airport During Construction
- [AC 150/5380-5](#): Debris Hazards at Civil Airports