



## 900 - Project Design - Development Projects

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### Sponsor Responsibility

Under the Airport Improvement Program (AIP), the sponsor is responsible for accomplishing project engineering and design. AIP eligibility of engineering costs requires:

- a. The sponsor uses qualified technical resources to accomplish engineering design for preparing a project bid package that complies with federal, state and local regulations and standards.
- b. The project designer base the design on current FAA standards as well as sound engineering principals and accepted "Best Practices"

### FAA Standards

By accepting an AIP grant, sponsors agree to adhere with applicable FAA standards established within various FAA Advisory Circulars (AC's). When making a grant offer, the FAA attaches to each grant offer a listing of applicable AC's. Unless explicitly approved in writing by the FAA, the sponsor must apply all applicable FAA standards to the project design without modification. Non-standard design elements or construction specifications the FAA has not explicitly approved are ineligible for AIP participation.

### Limitations of Use

Users of this guide shall note the obligation for any required action addressed within this guidance originates within applicable Federal directives such as United States Code (USC), Public Law (PL), Code of Federal Regulations (CFR) and official FAA policies. The supplemental information provided in this guidance does not establish additional requirements for participation in the AIP. In the event there is a discrepancy between this guidance and current AIP policy, AIP policy shall always take precedence.

### FAA Coordination

We strongly encourage AIP sponsors and engineers consult with the FAA program manager prior to commencement of the project design phase.

This advance coordination effort will benefit the sponsor by establishing the limits of AIP eligibility before potentially incurring costs that may not be eligible.

Keep in mind that costs associated with correcting misdirected effort may not be eligible for AIP participation.



## 910 – Pre-design Conference: Development Projects

### Overview

The pre-design conference offers the opportunity for constructive discussion of project issues including; design parameters, airport operational safety considerations, construction sequencing and environmental considerations.

This meeting is an important coordination measure for proposed development that affects airport operations, especially at commercial service airports. This meeting also serves to establish the limits of AIP participation thus limiting misdirected design work that could be ineligible for AIP participation. This effort may involve separate meetings to facilitate discussion with specific stakeholders.

We recommend the sponsor conduct a pre-design conference **prior to** formally establishing the consultant's scope of services. The sponsor may consider conducting the pre-design conference via a telephone conference call.

### Discussion Topics for Pre-Design Conference

Listed below are some agenda items sponsors should plan to discuss at a pre-design conference. Recommended agenda items include:

- FAA approved scope of proposed work
- Limits of AIP participation
- Project funding
  - Requirements versus availability
  - Impact of discretionary funds availability
- Design considerations
  - Pavement design alternatives
  - Material availability
  - Incorporation of AIP Standards
  - Airfield electrical system
  - Airfield drainage
- Life-Cycle Cost Analysis (if applicable)

- Impacts to approach procedures
- Environmental considerations (SWPPP)
- Existing underground utilities
  - Positive identification vs records
- Construction Safety & Phasing Plan
  - Sequencing of construction
  - Impacts to normal airport operations.
  - Physical and temporary impacts to FAA owned facilities.
  - NOTAM issuance
  - Impacts to existing utilities
  - Impacts to ARFF response
  - Coordination of project with airport tenants
- Part 77 airspace notification for construction equipment, haul routes and staging area
- DBE – status in meeting 3-year overall participation goal
- Buy American Preferences
- Project schedule

### Attendees

The magnitude and complexity of the project are factors in determining who needs to attend the pre-design conference. If the temporary impact to local tenants is significant, sponsors should consider a separate meeting specifically for tenant stakeholders. If available, the FAA program manager will participate either in person or via phone.

Generally, the following may attend:

- Airport sponsor
- Design consultant
- Airport operations manager
- Design sub-consultants
- FAA Technical Operations personnel
- FAA ATCT Personnel
- Airport tenants impacted by project
- Airline representatives



## 920 - Engineer's Design Report - Development Projects

### Overview

The engineer's design report serves to document the design considerations, engineering analysis and design selections that occur early in the project design phase. The report must justify the design decisions made by the engineer. The rationale for the selections should address design aircraft requirements, economical analysis of alternate designs, site conditions and airport operations concerns.

### What Projects Require an Engineer's Design Report?

The sponsor's consultant shall prepare and submit a design report for all development projects funded under the Airport Improvement Program (AIP). For relatively small and straightforward projects, the FAA program manager may waive this report requirement. Consult the program manager before omitting the preparation of an engineer's report in the design agreement.

### Content of Report

As each individual project will present unique design considerations, the topics an engineer's report should address will vary with each specific project.

As a minimum, the report should include the following:

- a. Description of work
- b. Photographs that depict the existing site
- c. Listing of applicable design standards

- d. Pavement Design Considerations
- e. Drainage Design
- f. Airfield Lighting and Signage
- g. Navigational aids
- h. Pavement Marking
- i. Environmental Considerations (SWPPP)
- j. Underground Utility Lines in Work Area
- k. Miscellaneous Work Items
- l. Application of Life Cycle Cost analysis (as applicable)
- m. Sponsor Requested Modifications to AIP Construction Standards (Refer to Section AIP-960)
- n. Delineation of AIP Non-Participating Work
- o. DBE Participation – Project goals vs. overall program goal
- p. Project schedule – include discussion on project schedule float
- q. Engineer's Estimate of Probable Construction Costs.
- r. Preliminary Project Budget (all project costs)

For the benefit of our sponsors, we have prepared a [Recommended Outline for AIP Design Reports](#). While this format is not mandatory, use of this format assists the FAA program manager with their review for AIP eligibility.

### Submittal Timeframe

To limit misdirected effort, we strongly recommend sponsor submittal of an engineer's report early in the design phase. Preferably, at the 30% P&S stage. This will allow time to identify improvements that may be ineligible under the AIP.

## RESOURCES

### Advisory Circulars

- [AC 150/5300-13](#) – Airport Design
- [AC 150/5320-6](#) - Airport Pavement Design

### Forms

- [Form 5100-1: Pavement Design](#) (web pdf)

### Tools

- [Recommended Outline for AIP design reports](#)



## 930 - Plans and Specifications - Development Projects

### Overview

Per the AIP handbook, section U-8. Table U-8.d.2, the preferred method of procurement for construction projects is the sealed bid method. Two or more bidders must be willing to compete effectively for the award.

Under this method, the grantee makes the award of contract to the responsible bidder whose bid is lowest in price. The sealed bid method requires the sponsor to develop complete, adequate and realistic requirements that do not unduly restrict competition.

Sponsors convey project requirements to prospective bidders through the preparation of plans and specifications. Together, plans and specifications serve to convey the physical and quality requirements of the proposed project.

The plans and specifications must include sufficient detail to permit prospective bidders the ability to accurately determine their anticipated costs and risks if awarded the project.

- **Project plans (drawings)** - Serves to graphically depict the physical aspects (layout, profile, dimensions, etc.) of the development requirements in an accurate and concise manner.
- **Project specifications** - Serves to convey technical requirements for quality acceptance, performance characteristics, and permissible construction methods.
- **Front-end Documents**: Serves to convey the bidding and contract administration requirements of the project. Typically includes bid instructions, proposal form, general provisions, special provisions, the form of the contract agreement and certifications

Sponsors generally combine the technical specifications with the front-end documents to form one bound document typically referred to as the project manual. The project manual consolidates all bidding requirements and contractual obligations expected of the successful bidder.

### Sponsor's Responsibility

Per Federal Regulations, the sponsor is responsible for all matters concerning contract procurement for a project. As the contractual authority, the sponsor remains responsible for the accuracy, completeness, legal sufficiency and technical content of their procurement action.

Although the FAA is **not a party** to the sponsor's construction contract, a 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 standards and provisions in various Advisory Circulars and Engineering Briefs.

By accepting an AIP grant, sponsors assure that they will properly incorporate applicable AIP standards in their procurement actions.

### Submittal Timeframes

The submittal requirements for a project will vary per the complexity of the project. Early coordination reduces the chance that errors and omissions reach the field. The following represents general guidance based on the nominal size of the project. Sponsors should discuss these requirements with the FAA program manager at the time of the pre-design meeting.

1. **Small Simple Project (less than \$100,000):**
  - Submit CSPP as soon as phasing and sequencing established.
  - A one-time submittal is generally acceptable at the 90% phase.
  - Final As-bid package
2. **Medium Sized Project:**
  - 30% Stage:
    - Submit engineer's report
    - draft Construction Safety and Phasing Plan (CSPP)
  - 90% Stage
    - Submit 90% P&S;
    - final CSPP;
    - final engineer's estimate
  - Final As-bid package



**3. Large Complex projects:**

- 30% Stage:
  - Submit engineer’s report
  - draft Construction Safety and Phasing Plan (CSPP)
- 75-90% Stage
  - Submit 75-90% P&S;
  - Final CSPP
  - Final engineer’s estimate
- Final As-bid package

**4. Projects involving FAA Owned Facilities:**

- Projects that physically impact FAA owned facilities (e.g. MALSR, ILS, etc...) require a 12-18 month advance coordination process.
- This will involve the establishment of a FAA reimbursable agreement.
- The sponsor will likely need to submit multiple sets of plans and specifications to facilitate review by other FAA offices.

**FAA Review and Approval**

The primary objective of the FAA program managers review is to ascertain sponsor conformance to AIP eligibility requirements, construction standards and airport safety requirements. The sponsor and consultant **must not construe** the FAA review as a quality control measure.

The FAA program manager will primarily base acceptance of plans and specifications on the sponsor’s submittal of a satisfactory certification for plans and specifications. The FAA program manager has the discretion to conduct a thorough review or a cursory review for comment only.

Generally, the review by the FAA program manager will address the following:

- a) Verification that the proposed development is consistent with the approved scope of work
- b) A review of critical project elements such as pavement section details, airfield marking details, airfield lighting details and airfield signage details

- c) A check for deviations from FAA standards
- d) A review for incorporation of required Federal provisions
- e) An assessment of overall AIP eligibility

Other areas of review may include the project manual front-end documents to determine sponsor conformance with AIP procurement provisions. This can include a verification that 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.

Regardless of the extent of the FAA review, the sponsor remains responsible for the overall accuracy, completeness, legal sufficiency and technical content of the project manual and plan set.

**Timeframe for FAA Review**

Sponsors should not typically proceed with soliciting for bids until the FAA concurs with the plans and specifications. The sponsor and consultant should plan adequate time in their project schedule for the FAA program manager’s review of the project package. Typically, we request a review period of 3-4 weeks. This timeframe will vary per size and complexity of the project and will depend upon the time of season. We typically see a large influx of submittals in February and March. Because of delays due to high volume submittals, we encourage sponsors to plan in advance and strive to submit plans and specifications within the November through February timeframe.

**Sponsor’s Response**

Upon receiving FAA’s review comments, the sponsor/consultant should review each comment and then provide a written annotated response to each FAA statement. The response should address how the sponsor resolved the FAA comment. We caution sponsors that FAA acceptance of 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.



## 931 - Project Drawings

### Purpose

The project drawings, along with the technical specifications, form a critical part of the successful bidder's contractual obligations. The Project Drawing package serves to graphically illustrate the physical location and dimensions of project elements in an accurate and concise manner. As a legal document, the contract drawings must convey the sponsor's project requirements in a clear and unambiguous manner. The sponsor remains responsible for the accuracy, completeness, and technical content of the contract drawings.

### AIP Requirements

To remain eligible under the Airport Improvement Program (AIP), sponsors must develop project plans in accordance with applicable AIP design standards. The FAA establishes AIP design standards within various Advisory Circulars and engineering briefs. Regional guidance is also available as a supplemental aid for sponsors.

### Drawings Standards

The FAA does not publish CAD drawing standards or standard graphical details that sponsors must apply when preparing construction drawings.

The engineer shall apply their engineering judgment and best practices when determining the graphical detail necessary to convey project requirements in a concise and accurate manner. When possible, strive to avoid duplication, excessive graphics and unnecessary detail.

A common problem occurs when incorporating state highway standard details within an airport development project. Details and requirements relevant to highway construction may not be applicable to an airport project. Incorporating superfluous requirements into an airfield bid package can adversely affect a bid result.

### Typical Project Plan Organization

The extent of a project drawing set will vary per the type and complexity of a project. A typical drawing package will generally consist of the following drawings sheets:

- Cover Sheet

- General Information Sheet
- Project Layout Plan
- Survey and Boring Information
- Construction Safety and Phasing Plan
- Demolition Plan
- Typical sections
- Grading Plan
- Plan and Profile
- Pavement Details
- Marking Plan
- Electrical Plan and Details
- Navigational Aids (PAPI, REILS,..)
- Drainage Plan
- Miscellaneous (SWPPP, Security Fencing, Utilities, Cross Sections)

For the benefit of our sponsors, we have prepared a [Recommended Plan Set Content](#) guide the sponsor may use when preparing project specific drawings.

### AGIS

Although the FAA does not publish CAD standards for construction plan sets, the FAA does publish standards for the Airports Geographical Information System (AGIS). The FAA AGIS serves as the FAA's official process for the collection and maintenance of airport and aeronautical data. All submitted data must be in the proper format in order to allow the National Geodetic Survey (NGS) the ability to validate the data accuracy and approve the collection.

Additional information about AGIS standards, including Geographic Format Templates (Autodesk, Bentley and ESRI) is available at the [FAA AGIS Surveyor Introduction](#) webpage.

### FAA Airway Facilities

If the AIP funded project involves relocation or installation of FAA owned facilities such as ground based instrument landing system (ILS) equipment or approach lighting systems (ALS), the sponsor's consultant must incorporate applicable FAA standards and details for the respective equipment. The FAA establishes standards for





this type of equipment through issuance of FAA Orders.

The FAA Technical Operations organization (ATO) reserves the right to accomplish engineering that is necessary to mitigate impacts of their equipment. This may include both the design and construction of the project. The FAA may also request the sponsor accomplish the civil portion while reserving the electronic installation for FAA personnel. In either case, the FAA will require the sponsor to enter into a Reimbursable Agreement (RA) with the FAA.

The purpose of the RA is to compensate the FAA ATO organization for any incurred costs associated with the impacts caused by the AIP funded project. This coordination should generally commence 12-24 months prior to actual construction. The FAA requires the proponent of projects affecting their equipment to make advance payment of estimated costs. Refer to Sponsor Guide Section AIP-640 for additional guidance regarding reimbursable agreements.

## 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

### Tools

- [Recommended Plan Set Content](#) – Guidelines for project drawing organization



## 932 - Project Manual - Development Projects

### Overview

The Project Manual will generally consist of the following components:

- Notice-to-bidders
- Instructions-to-Bidders
- General Provisions (General Conditions)
- Supplementary Provisions (Supplementary Conditions)
- Technical Specifications
- Proposal Forms (including Certifications, DBE forms, bid bond, etc...)
- Contract Agreement Form (including clauses, 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, as a condition of participation in the Airport Improvement Program (AIP), sponsors must include applicable AIP standards, clauses, provisions, and certifications in their procurement package.

The required Federal contract provisions are available for download on the Central Region website "[Federal Provisions for Construction and Equipment Contracts](#)".

### Suggested Front End Documents

Due to recent changes in FAA policy we have removed the suggested front end documents from this guidance until such time these documents can be updated to reflect current Federal requirements.

### Technical Specifications – Standards

As a condition of receiving an AIP grant, sponsors must conform to the standards and guidelines established within applicable Advisory Circulars attached to the grant agreement. For airfield development projects, the FAA standard construction specification is [AC 150/5370-10, Standards for Specifying Construction](#). The sponsor's consultant must incorporate this AIP standard when preparing a project specific technical specification.

For development projects for which FAA standards do not exist, the sponsor should use accepted industry standards. For example, it is permissible to use AIA, CSI, UBC and NEC

standards when specifying construction of terminal, ARFF or SRE building.

### Technical Specification – Content

Paragraph 4 on page i of AC 150/5370-10 details how the technical specifications must be completed. Unauthorized modifications of standards are ineligible for AIP participation. Refer to Sponsor Guide sections 940 and 950 for information regarding Central Region approved modifications and sponsor initiated modifications to FAA construction standards.

For situations where the sponsor needs to develop a technical requirement (e.g. FAA standard does not exist), the requirement must clearly identify the qualitative characteristics of the material or product. The sponsor's technical requirements should:

- not contain unrealistic or unenforceable requirements;
- be clear, concise and complete;
- avoid ambiguous statements that are subject to differing interpretations;
- identify salient characteristics and performance requirements;
- avoid a proprietary tone

The sponsor's acceptance criteria must be definable and measurable. Refrain from using statements such as "satisfactory to the engineer" and "in an acceptable manner". Such statements are subjective in nature and do not establish a definitive metric that allows prospective bidders to determine risk.





### Technical Specifications – Competition

Sponsors must conduct all procurement transactions in a manner providing full and open competition as a condition of federal assistance. Sponsors must avoid practices that unduly limit or restrict competition. Restrictive practices the sponsor must avoid include:

- Incorporating unreasonable or unnecessary requirements
- Requiring unnecessary experience and bonding
- Unnecessary use of "brand name" specifications
- Restricting competition to sponsor preference
- Incorporating geographical preferences (e.g. local laborer)
- Use of arbitrary actions in the procurement process

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 project requirements. However, sponsors must explicitly identify the salient characteristics that the contractor must meet in order to qualify as an "or equal". Features and performance functions not explicitly listed may not be used by the sponsor to determine whether a product qualifies as an "or equal". For this reason, the FAA requests sponsors not use the phrase "or approved equal". See more information and guidance regarding the use of "brand name or equal" provisions in Section 424 of the Sponsor Guide

### Sole Source:

The permissible acquisition of equipment and material using a sole source specification is very limited and requires a review and approval action by the FAA program manager. Compatibility with existing equipment may justify sole sourced products, but only if it applies to FAA standard equipment features. The compatibility exception does not apply to non- standard functions and features. Additionally, uniformity of equipment **is not** sufficient justification for sole source procurement under the AIP.

Due to the potential for unfair bidding practices associated with FAA approved sole source procurements, the FAA now requires sponsors to acquire approved sole source items outside of the construction-bidding contract. The sponsor must identify such equipment as "sponsor furnished equipment/material" in their bid package and procure the item separately before the bid. See details in the AIP handbook, Table 3-67 part c and section 3-40

Refer to sponsor section AIP-400 for additional information pertaining to procurement requirements under the AIP.

### RESOURCES

#### Department of Labor

- [Davis Bacon Wage Rates Determinations](#) – DOL Website

#### Federal Regulations

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



## 933 – Contract Time

### Overview

Contract time is an essential part of each airport construction contract. The establishment of the contract time requires careful consideration in order to balance reasonable contractor production abilities with necessary disruption of airport operations. Establishing a short contract time will limit impacts to airport operations, but may adversely impact unit bid prices.

Establishing excessive contract times can result in prolonged disruption to airfield operations, increased construction oversight costs and inefficiencies in carrying out the project work.

When selecting the method of specifying contract time (calendar days vs working days), the sponsor's 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.

### Calendar Day Contracts

When the completion of work is critical to airport operations, a Calendar Day contract is the most appropriate method. Under 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 use of a calendar day contract does not imply the sponsor is guaranteeing optimum weather conditions that permit continuous contractor operations throughout the duration of the contract time. Under the calendar day contract, the contractor assumes the risk of delays caused by normal weather events that may affect their operations.

If there will be days the sponsor will not permit the contractor to work (such as air-shows, fly-ins, weekends or other special events), the sponsor must clearly state these limitations within the bid package.

### Working Day Contracts

A working day contract is most appropriate 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.

Each week, the sponsor or their representative must provide the contractor a statement of the number of working days charged. The contractor generally 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 sponsor suspends work for an acceptable reason, they may not continue to charge contract time. Please immediately notify the FAA program manager whenever you suspend a contract time.

### Extension of Time

The contractor may request an extension of the contract time to adjust for delays that were beyond their control or for work added by change order. Time extensions due to additional work must be addressed as part of the change order negotiations. Request for delays beyond the contractors control must occur **prior** to the expiration of the contract time. The sponsor shall apply sound judgment in approving or disapproving any submitted extension request.

While a sponsors determination will be a significant factor during the FAA program manager's review for reasonableness, the



FAA program manager has the discretion to deny AIP participation in extra costs attributed to delays and extensions if the justification is not reasonable or justified.

In the event of weather events outside of normal conditions, the contractor may justify an extension of the contract time provided they can demonstrate the above normal events actually contributed to delays to their progress. The contractor must provide National Weather Bureau data information showing that the extent of inclement weather exceeded the normal values for 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 proportional to the difference in original proposal cost and the actual costs. Refer to section 80-07 of AC 150/5370-10 for additional information regarding adjustment of contract time due to extra quantities.

Under no circumstances should the sponsor verbally alter the contract time. 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. We caution sponsors that failure to properly administer the approved contract may result in a situation where incurred costs are not eligible for AIP reimbursement.

### **Liquidated Damages**

If a contractor fails to perform within the period established by the contract, the sponsor should apply liquidated damages to the contract. Refer to Sponsor Guide Section 1083 for additional information regarding liquidated damages.



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## 934 – Davis Bacon Requirements

### Overview

- AIP sponsors with construction projects that exceed \$2,000 are required to comply with applicable Federal Labor provisions, including Davis-Bacon requirements. This requirement includes, but is not limited to the following: Incorporate in each bid solicitation a copy of the current wage rate determination as issued by the DOL (*29 CFR Part 1.6*). Sponsor may access current wage rates determinations at the Department of [Labor's Wage Determinations Online](#) website.
  - The selected determination should contain worker classifications that are most appropriate for the type of work involved on the project.
  - For most airfield projects, the highway classification is appropriate. For projects involving building construction (ARFF building, SRE building, etc.) use the building classification.
- Review weekly payroll records in order to ascertain compliance with the applicable wage rate determination.
- Conduct labor standard interviews for purpose of assuring compliance. There is no established frequency for conducting such interviews. Interviews shall be conducted with such frequency as necessary to assure compliance with labor standards.
- Verify that award of contract is not being made to a firm debarred for violations of the Davis-Bacon Act.
- Discuss labor standards during the preconstruction meeting in order to ensure contractor compliance.



## 940 - Regional Approved Modifications to AC 150/5370-10

### Overview

This section establishes the Central Region's pre-approved modifications to [Advisory Circular 150/5370-10, Standards for Specifying Construction of Airports](#). These pre-approved modifications implement necessary measures and practices that assure contractors within the Central Region use acceptable materials and products that result in quality construction with performance equivalent to the FAA standard.

### Purpose of FAA Pre-Approved Modifications

AIP sponsors occasionally encounter project situations where unique local conditions preclude compliance with FAA standards for airport design or construction. The majority of these modifications are necessary due to the quality of local construction material and the effects of regional weather and climate conditions.

Some of these modifications are a result of "engineering best practices" that we have determined from past projects to have benefit and value for the AIP investment. These modifications are often a result of problem areas identified on past AIP projects. Sponsors and engineers who would like to propose additional modifications may do so by making a written request to the FAA

Central Region. Please forward all such requests to the [FAA Central Region Paving Engineer](#).

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.

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

### Limitations on Use

The sponsor's use of these pre-approved modifications **does not** require a separate request in order to justify use on an AIP funded project.

### Sponsor Initiated Modifications

Sponsors or Engineers that desire to make additional modifications to AC 150/5370-10 that **are not** addressed within these FAA pre-approved modifications must make a written request to the FAA for review and approval/disapproval action. Refer to sponsor guide section AIP-950 for 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

### General

**NOTICE:** The method of submitting and administering sponsor requested modifications to FAA standards will soon be changing. Sponsors that desire to seek FAA approval for a modification of FAA standards (i.e. design, construction, equipment, etc.) after **March 31<sup>st</sup>, 2018** will be required to submit such requests through the AGIS system. More information regarding this change is detailed in AC 150/5370-10.

### Sponsor Initiated Modifications

Occasionally, unique and site-specific conditions may require a modification to an FAA standard in order to provide the performance and function intended by the FAA standard. A sponsor that desires to modify an AIP construction standard must submit a formal request and justification to the FAA program manager for FAA evaluation.

To be considered, the sponsor must fully justify to the satisfaction of the FAA, why a modification is necessary and why the FAA standards cannot be applied. Some unacceptable reasons include

- Specifying sponsor or consultant preference
- Specifying higher grade than AIP standard
- Adding brand name or equal to supplement AIP standard
- Adding features and functionality over and above FAA equipment standards

The sponsor must provide assurance that the modification will not diminish the quality and performance intended under the FAA standard. In all cases, the sponsor must obtain FAA approval before implementing any proposed change.

**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. Refer to AIP Sponsor guide 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 the 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 AIP.

The time required for FAA review and approval will vary with the complexity of the modification and the level of review required approval. The level of FAA approval is contingent upon the type of modification the sponsor is requesting. Some modifications will also require a safety risk management assessment.

### Modifications Requiring FAA Headquarters Approval

**Types:** The types of modification listed below require review and approval by FAA Headquarters. Modifications in these areas will likely require the FAA to conduct a safety risk management assessment, which can require a significant amount of time.

Sponsors should plan their project accordingly. We recommend sponsors submit such requests at least 12 months prior to the anticipated construction start. We strongly encourage sponsors avoid modifications in these areas unless it is impractical to meet the AIP standard.

- 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.

**Format:** The form of the request should be a formal written letter. The request must contain the following elements:

1. An itemized listing of the standards





- requiring modification.
2. A concise description of the proposed modification.
  3. A brief discussion of viable alternatives for accommodating the unique site condition.
  4. A reason or justification for why the current AIP standard cannot be met.
  5. An assurance by the sponsor or consultant that the modification will provide a product that meets FAA standards for acceptance and that the finished product will satisfactorily perform for its design life.
  6. A stated assurance that the modification will provide an acceptable level of safety.
  7. Highlight sponsor-initiated modifications in the technical specifications by using font change or text shading, etc.

**Submittal:** To commence the FAA evaluation process, submit the formal letter request and backup documentation to the FAA program manager. The FAA program manager will forward the request to FAA Headquarters. This transmittal may include a recommendation by the FAA program manager for approval or disapproval.

### Modifications the Central Region Office May Approve

**Types:** The Central Region office may have the authority to approve the following types of modification requests provided there is sufficient justification:

- a. Modifications to airport design and equipment standards, and construction standards as they relate to materials.
- b. Modifications to construction methods and material specifications previously approved by FAA headquarters (Engineering Briefs).
- c. Use of some State DOT material and construction standards
- d. Modifications to general provisions of AC 150/5370-10 if necessary to make them consistent with local laws and regulations.

**Format:** Sponsor initiated modifications that require FAA Central Region Approval must contain the same elements prescribed for headquarter reviewed modifications:

**Submittal:** The sponsor should submit such requests early in the project design phase,

preferably along with the submittal of the engineer's report and preliminary plans and specifications. To facilitate the review by the FAA program manager, we request the sponsor's consultant adhere to the following guidelines:

- Submit request in the appropriate formats noted above and separate from engineer's report.
- Address individual modifications down to at least the sub-section level
- Avoid universal justifications such as "Modifications made throughout P-501".

### Justification for Modifying a FAA Construction Standard

A sponsor's justification for modifying a FAA standard must sufficiently explain why the modification is necessary. If the sponsor cannot make a compelling reason for why they cannot use the FAA standard, the FAA program manager has cause to reject the requested modification.

The sponsor's reason for the modification should address the following criteria:

- Does the proposed modification provide a level of performance equivalent to or greater than the FAA standard?
- Does the proposed modification provide a level of safety equivalent to or greater than the FAA standard?
- Does the use of the proposed modification result in an unreasonable increase in life cycle cost to the AIP when compared with using the FAA standard?

### FAA Action

Once the FAA review is complete, the FAA program manager will provide notification to the sponsor of the MOS acceptance or rejection. Any approval action by the FAA is limited to the specific project. FAA approval of a project specific modification does not imply FAA approval for subsequent projects. Modifications for future projects require separate requests by the sponsor



## 951 - Use of State Standards

### Overview

A sponsor's use of state highway material and construction standards in lieu of a FAA AIP standard is permissible (but may still require a modification of standard) in the following conditions:

1. Pavements not subject to aircraft loading, including access roads, parking lots and perimeter roads.
2. Pavements not subject to aircraft loading greater than 12,500 pounds.
3. State highway materials are permitted at non-primary airports with runway of 5,000 feet or shorter serving aircraft that do not exceed 60,000 pounds gross weight. (AC 150/5370-10G section 501-3.2)
4. More details on the use of state standards can be found in AC 150/5370-10

### 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 pavement sections, joint layout, fillet design, etc.).

To remain eligible under the AIP, 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 During Airfield Construction

### Overview

Construction activities within the operations areas of an airport have the potential to significantly compromise normal operational safety of aircraft operating at the airport. The potential impacts can be wide ranging and with varying severity. These may include:

- ILS signal interference and degradation
- Excavation hazards including drop-offs and debris
- Pilot loss of operational awareness
- Confusing taxiway paths
- Aeronautical obstruction hazard
- Runway incursions and surface incidents

Careful planning and implementation of risk mitigation measures will greatly minimize the impact temporary construction activities may have on normal airport operations. Advisory Circular 150/5370-2 establishes FAA standards intended to assure operational safety on airports during construction activities. Adherence to these guidelines is mandatory for

1. All construction projects within the Airport Operations Area (AOA) and funded in whole or in part by the Airport Improvement Program (AIP),
2. All construction projects within the AOA and funded in whole or in part by the Passenger Facility Charge (PFC) program.

Adherence to the [AC 150/5370-2](#) also represents an acceptable method to ensure compliance with Part 139 requirements during airfield construction projects.

### Operational Safety During Construction

Three separate processes address the effect of construction activity on an operational airfield.

1. Part 77 Aeronautical Evaluation
2. Construction Safety and Phasing Plans (CSPP)
3. Safety Risk Management (SRM)

Each of these separate processes complements the other processes. Together, they serve to mitigate any adverse effects caused by construction operations on the airfield.

### 14 CFR Part 77

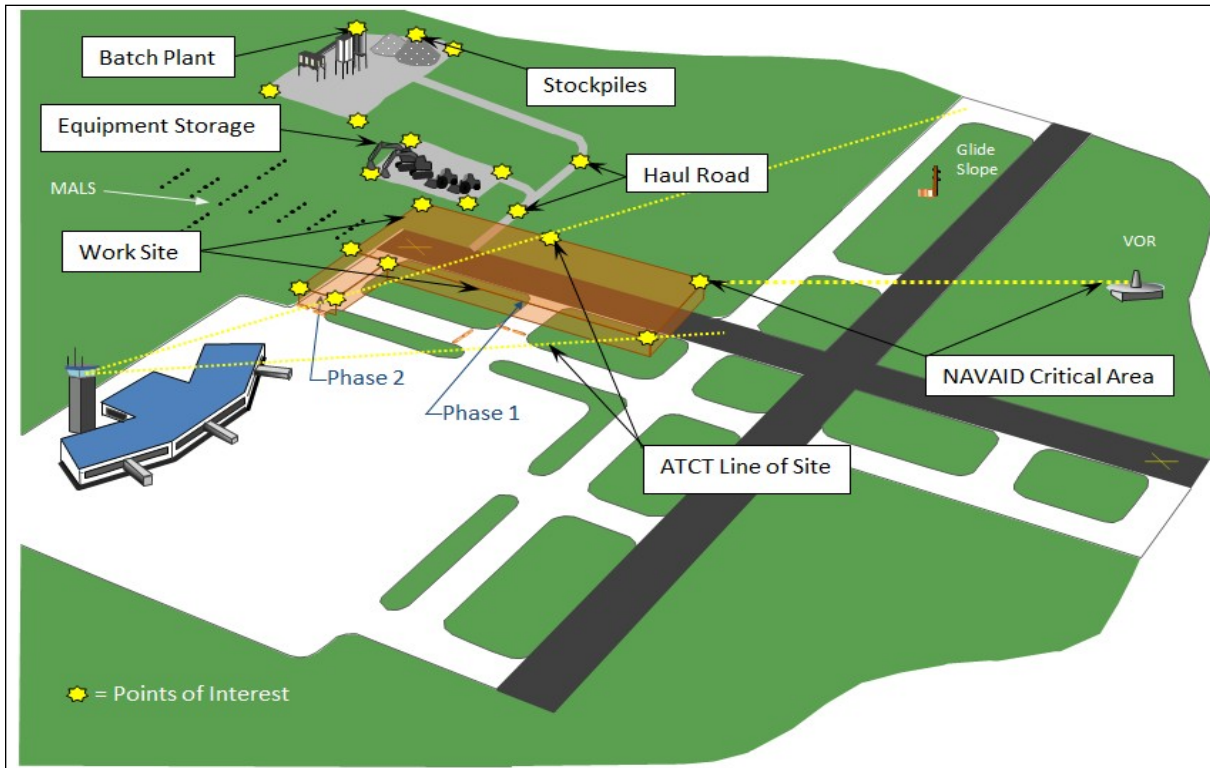
14 CFR Part 77 requires a proponent of airfield construction provide separate notification (SF 7460-1) to the FAA for the purpose of conducting an aeronautical study of individual objects. This includes both temporary and permanent objects. This is best addressed by submitting electronic notification through the [OE/AAA external website](#).

The Part 77 notification is required regardless of funding source and is independent of the requirement to prepare a CSPP. A sponsor's submittal of a CSPP does not relieve the sponsor of the requirement to submit a Part 77 notice for either permanent or temporary objects. Within OE/AAA the CSPP and part 77 cases are separate studies. A CSPP case is a document/process study, whereas a part 77 case studies the actual equipment or structure heights and locations. The part 77 studies related to CSPP's consist of temporary object height and locations, which typically consists of haul routes, construction equipment, staging areas and material stockpiles and batch plants.

The aeronautical study of temporary objects involves submitting individual "points of interest". Multiple points are typically necessary to adequately characterize large areas such as the airfield work site or a particular construction phase. Each point requires submittal of Geodetic coordinates (NAD 83), ground elevation (NAVD 88) and anticipated height of tallest equipment or material stockpile in the area.

If a project involves multiple construction phases, we request the submittal of points be grouped per construction phase, i.e. group phase 1 haul routes, work areas, and staging areas into one submittal. This will allow the FAA subject matter expert to better assess the affect a given object has on aeronautical operations per the applicable construction phase. Grouping all points together in one submittal makes it difficult to determine which phase a given object applies thus leading to inaccurate assumptions.

Figure 900-1 demonstrates some suggested critical points of interest for a typical airfield project. Not all depicted points are necessarily required. The sponsor should submit a sufficient number of points that establish due diligence in identifying potential adverse effects to aeronautical operations. Combining areas (i.e. equipment storage with batch plant area) will reduce the number of necessary study points.



**Figure 900-1 - Identification of Critical Points**

Points that address line of sight concerns should include an attachment that depicts the ATCT cab elevation, object height/location and nearest point on the movement area pavement. ATC operations require an unobstructed view of the airfield movement area. If a temporary construction object penetrates the ATC's line of sight, the movement area may need to be closed or the height of the temporary object restricted.

The timing of these aeronautical studies is a significant aspect of CSPP development. Submitting these points as part of the CSPP development allows for early identification of any aeronautical effect. This facilitates incorporation of appropriate safety mitigation measures into the CSPP prior to bid solicitation.

Delaying submittal of these studies until after the award of contract can lead to unscheduled outages, unexpected loss of approach procedures and costly contract modifications.

The FAA strongly recommends these submittals occur as part of the CSPP development. This will allow time to schedule any Safety Risk Management panels if determined necessary during the FAA internal coordination of the CSPP.

### Construction Safety and Phasing Plan (CSPP)

The Construction Safety and Phasing Plan (CSPP) represents a sponsor's overall comprehensive safety management strategy in addressing the operational effect of construction activity on an active airfield. The CSPP serves more than just establishing contractual requirements for the contractor. The CSPP covers all aspects of operational safety associated with the proposed airfield project.

The CSPP serves a similar purpose to that of a Traffic Management Plan for a federally funded highway project.

The development of a CSPP involves a systematic process that includes the following elements. AIP sponsors must prepare a project specific CSPP conforming to the requirements of [AC 150/5370-2](#) for all projects located completely or partially within an airport operations area (AOA).

As each project will vary per size and complexity, the sponsor should customize their CSPP to properly address the unique conditions associated with the specific project and airport.

We caution sponsors that simply referencing this AC in the contract documents **does not** fulfill the airport operator's responsibility to prepare a project-specific safety plan for an airfield project.





The timeframe for submitting the initial CSPP will vary per the complexity of the project. Complex projects with significant impacts to airport operations may require submittal of the draft CSPP 8-12 months prior to advertising for bids. This will allow the FAA time to assemble a Safety Risk Management panel if necessary. Projects of simple to moderate complexity and effect may only require submittal 3-4 months prior to advertising. Consult your FAA program manager to discuss the optimum timeframe for submitting a CSPP for any given project.

The following list clarifies some common misconceptions regarding CSPPs and Safety Plan Compliance Documents (SPCD).

- OSHA work place safety plans (§1926) **do not** equate to an acceptable CSPP or a SPCD
- Assigning liability **is not** a CSPP objective
- The CSPPs **do not** address development aspects of project (i.e. permanent marking & signage)

CSPPs are ultimately uploaded into OEAAA by the FAA program manager for review by other FAA departments and government agencies. A CSPP submittal in OEAAA is a review of the CSPP document, phasing, and drawings only - not a review of the temporary equipment/Part 77 studies associated with the CSPP. Approval of the CSPP in OEAAA does **not** mean approval of the temporary construction equipment/Part 77 cases.

### Safety Risk Management (SRM)

The FAA continues to transition the implementation of Safety Risk Management into the Airports Organization programs. One element of SRM is a safety risk assessment of CSPP. This assessment strives to:

1. Identify hazards
2. Analyze and assess the associated risk
3. Implement safety strategies to mitigate risk

SRM assessment is a FAA internal process that may require assistance from the sponsor. The SRM process relies on the results of the Part 77 aeronautical study as well as the information and safety strategy established within the CSPP. SRM is presently required at small, medium and large hub commercial airports.

If the extent of impacts to normal airport operations is high, the FAA may deem it necessary to convene a Safety Risk Management (SRM) panel. The purpose of a SRM panel is to assess potential impacts and to establish mitigating measures to address the associated risks.

The process of conducting a risk assessment and subsequent risk management panel can require a significant amount of time. We encourage sponsors and their consultants to begin the preparation of project specific CSPPs early in the design phase. Once the sponsor substantially identifies operational impacts and sets the phasing sequence, the sponsor should submit draft version to the FAA for review by FAA subject matter experts. This review will assist with identifying whether or not a SRM panel is necessary.

### Airport Operator's Responsibility

The airport operator is overall accountable for assuring operational safety at their airport during any airfield construction activity. The development of a CSPP remains an inherent sponsor responsibility. The airport operator fulfills this obligation by implementing several measures including but not limited to:

- Assuring preparation and submittal of a comprehensive CSPP
- Monitoring the contractor's conformance with the approved CSPP
- Conducting routine meetings that address airport safety concerns
- Coordinating construction activities with major stakeholders (i.e. tenants, ARFF personnel, ATO Technical Operations personnel, Flight Service office and Flight Procedures, etc.).
- Immediately correcting operational safety deficiencies discovered during the project

### The Safety Plan and the Contractor

The CSPP establishes the sponsor's rules and conditions for operational safety on the airport. The measures and provisions the sponsor establishes within the CSPP become a legally binding contract requirement. The CSPP safety provisions allow prospective bidders to determine risk and costs associated with implementing airfield safety requirements.

The Safety Plan Compliance Document (SPCD) represents a contract document that conveys how the Contractor intends to comply with the CSPP safety requirements and conditions. It is very similar to a shop drawing submittal for a technical specification. The SPCD also reaffirms the Contractor's understanding and acceptance of the



CSPP safety requirements. Some important elements of the SPCD include:

- Identifying key personnel and points of contact
- Identifying 24-hour contact for maintenance of barricades
- How Contractor intends to accomplish security of the AOA fence.
- How Contractor intends to uncover and protect underground utilities
- Type of hazard devices (i.e. barricades)
- How Contractor intends to maintain active airfield pavement free of debris.
- How Contractor intends to address potential HazMat spill
- Submittal of 7460-1 for any contractor equipment (crane, concrete pump, batch plant, etc.) not covered by the aeronautical studies conducted by the sponsor

Sponsors should keep in mind that a major incentive for most contractors is controlling costs and protecting profit. The temptation to take shortcuts when implementing safety measures can decrease costs for a contractor. However, keep in mind that such short cuts can come at the expense of increasing risk to operational safety.

Sponsors and consultants should make contractors aware that the OSHA workplace safety plan (OSHA §1926) **does not** represent a CSPP. While OSHA workplace safety requirements may address certain elements of a CSPP, the submittal of a contractor's OSHA safety plan does not satisfy the requirement for submitting a CSPP or a Safety Plan Compliance Document (SPCD). OSHA §1926 addresses occupational requirements. The FAA CSPP addresses airfield operational safety requirements.

### Format of CSPP

Chapter 2 of [AC 150/5370-2](#) addresses minimum elements all CSPP must include. Chapter 3 addresses guidelines a sponsor should apply when preparing a project specific CSPP. A complete CSPP is generally comprised of a text document (safety plan information, provisions and controls) and the associated construction safety drawings.

A sponsor's CSPP should be capable of being a stand-alone document that serves as the single source for the project operational safety requirements. The primary purpose for this requirement is to avoid the situation where airfield operational safety provisions are interspersed throughout the project documents.

Having operational safety requirements consolidated in one structured area allows all engaged stakeholders the ability to quickly locate operational safety provisions.

The CSPP is a document that evolves over the lifetime of the project through approved supplements and attachments. During the design phase, the sponsor develops a base CSPP that prospective contractors use for bidding purposes and FAA subject matter experts use for aeronautical evaluation purposes. As the project progresses, associated actions related to operational safety will likely occur. The results of these actions become an attachment to the base CSPP.

### Base CSPP

- I. Safety Plan Information
  - Project Description
  - Coordination information
  - Existing Conditions and Temporary Impact
  - Phasing and Sequencing
- II. Safety Provisions and control
  - Safety requirements and responsibilities
  - Elements of Chapter 2, Section 2 of AC 150-5370-2 (i.e. Hazard Marking, FOD control etc.)
- III. Safety and Phasing drawings
  - Construction safety drawings and individual phase drawings

### Supplements to Base CSPP

- a. Safety Risk Management Document
  - Report that results from a Safety Risk Management panel
- b. Safety Plan Compliance Document
  - Contractor submittal
- c. Aeronautical review for critical points for haul road, staging area and work area
  - 7460-1 NRA determination
- d. Aeronautical review for contractor proposed high profile equipment (cranes, batch plant etc)
  - 7460-1 NRA determination
- e. FAA approved modifications due to changing site conditions and limitations.

### CSPP Element

To be acceptable, a CSPP must adequately address each of the elements identified in Section 2, chapter 2 of [AC 150/5370-2](#). The degree to which the sponsor must address an element is relative to the degree of potential impact. Even if there is now discernible impact, sponsors should address the element by stating as such rather than simply omitting the element. This approach establishes a





record that the sponsor has considered the element and determines there is no affect.

### Construction Safety Drawings

The construction safety drawings graphically depict work area phase limits, airport surfaces, critical areas, staging area, haul routes, etc.

**The construction safety drawings alone do not constitute a complete and whole CSPP.**

The safety drawings are an element of the CSPP document. The construction safety drawings are generally an attachment to the CSPP text document. (Refer to “CSPPs for General Aviation Airports” for a permissible exception to this rule)

Within the Central region, we believe it a best practice to convey certain critical operational safety requirements within the construction safety drawings. One reason for this is that contractors and subcontractors are more likely to have a copy of the plan set by their side for quick reference as opposed to a copy of text documents such as the project manual.

This does not infer that the sponsor should insert all safety plan provisions within the construction safety drawings. The CSPP text document should remain as the source document that addresses the complete requirements and provisions for operational safety. The Construction Safety Drawings however can paraphrase certain operational safety requirements that are critical for field personnel actions (i.e. avoid entering active safety areas). When preparing safety notes for incorporation into the construction safety drawings, please note the following:

- a) Apply structured headings using the CSPP elements identified in Chapter 2, Section 2 of AC 150-5370-2.
  - The use of headings makes it easier for field personnel to quickly locate a specific safety provision.
  - The structured headings provide a quick cross reference to the CSPP text document.
- b) The drawing safety notes should complement those CSPP safety provisions that are critical for field personnel actions
  - Avoid placing requirements on the safety drawings that are not addressed in the CSPP text document.
  - Provide a reference back to the appropriate project manual section for complete requirements.

Some additional recommended practices include:

- For projects with multiple phases and sub-phases, depict each phase on

**separate** drawing sheets. Do not overlay the graphic lines for different phases on one sheet.

- Graphically delineate the outer limits of safety areas and object free areas for runways and taxiways.
- Include a graphical cross section detail of the Obstacle Free Zone (OFZ) for any adjacent runways.

### CSPPs for General Aviation Airports

We recognize that the risks and the potential for adverse effects will differ between a project located at a commercial service airport and one located at a general aviation (GA) airport. As such, the extent of the CSPP preparation for each of these scenarios can be different.

If a project at a GA airport has relatively limited and well defined impacts, it may be reasonable to place the entire CSPP elements on a plan set drawing labeled as “CSPP Safety Notes”. Such application still serves to represent the sponsor’s overall safety management strategy for the project. As such, the sponsor must address each element of Chapter 2, Section 2 of AC 150-5370- 2E. We request the CSPP Safety Notes drawing apply an organizational structure that uses the elements of Chapter 2 as headings.

If the project at the GA airport does have significant effect to aeronautical operations (i.e. temporary displaced threshold, declared distances, etc.), please use the conventional approach of preparing a CSPP text document separate from the Construction Safety drawings.

### FAA Project Manager Actions

The FAA program manager will review the safety plan for general conformance to AC 150/5370-2 and other applicable AIP standards. CSPPs with significant deficiencies will be returned to the sponsor for corrective action before the FAA program manager continues with their review.

In addition to this review, the FAA program manager will coordinate the CSPP with other FAA offices through the OE/AAA system. This includes

- FAA Air Traffic - reviews for impacts to air traffic operations.
- FAA ATO Technical Operations - reviews for impacts to existing FAA NAVAIDS
- FAA Flight Procedures - Review impacts to existing approach and departure procedures.
- Other Federal offices (e.g. DOD) may also have valid input on the proposed development.



If the FAA program manager deems the CSPP acceptable, the program manager will notify the sponsor by issuing an approval letter.

If the submitted CSPP has only minor deficiencies, the FAA program manager may elect to issue a conditional approval. FAA formal approval under this scenario is contingent upon the sponsor properly resolving the deficiencies and any comments that result from the review by other FAA lines-of-businesses. The sponsor must furnish the FAA a written annotated response that satisfactorily addresses the deficiencies and comments of the conditional approval letter.

The FAA program manager may permit the sponsor to proceed with advertising for bids under this scenario on the condition they issue an appropriate addendum that addresses a corrective effort that may affect the bid. In all instances, the sponsor must not permit the Contractor to proceed with work operations unless the FAA has formally approved the CSPP.

#### **After Award**

The sponsor's responsibilities for operational safety continue after the award of contract and issuance of a Notice-to-Proceed. The sponsor must actively monitor the Contractor's conformance to the approved CSPP throughout the duration of the project. The sponsor must not implement any changes to the approved CSPP without approval by the FAA program manager.

## **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