

Recommended Outline for Engineer's Design Report

FAA Central Region Airports Division

The FAA project manager relies on the engineer's design report to assist with their evaluation of AIP eligibility and conformance to FAA operational safety requirements. To facilitate this review, the Sponsor's consultant should strive to address all applicable elements listed below. Failure to properly address an applicable element may result in delays of the project review.

1. General Scope of Project

- Brief narrative on the scope of work
- Delineation of AIP eligible and ineligible work items.
- Identify and briefly explain unique and unusual situations.
- History of existing system (Original construction, rehabilitation etc)

2. Photographs

- Include a representative number of photographs that depict the existing site conditions.
- Include photographs of any existing safety area deficiencies

3. Listing of Applicable AIP Standards

- List AIP Advisory Circulars applicable for current project
- Identify in table format specific values for critical design standards
 - Design Aircraft as identified on approved ALP (Airplane design group and approach category)
 - Standard dimensional values for safety areas, object free areas and etc.
 - Standard geometric values for runways and taxiways.
 - Standards for surface gradients (longitudinal and transverse)

4. Considerations for Airport Operational Safety

- Briefly address CSPP related issues such as:
 - Proposed phasing and sequencing
 - Work area limits including pavement closures
 - Hauls routes and staging area location
 - Impacts to approach procedures
 - Impacts to FAA owned Nav aids
- NOTE: The Construction Safety and Phasing Plan (CSPP) will serve to establish the complete requirements for operational safety during construction.

5. Pavement Design

- Geotechnical Report
 - Soil investigation (subsurface cores, water table)
 - Soil characteristics & Properties (classification, plasticity index, CBR, k value & etc)
- Fleet mix including number of departure operations
- Pavement design alternatives
 - Life-cycle analysis & justification for selection
- Material availability and capacity to deliver.
- Existing pavement alternatives (if applicable)
 - Remove and dispose (disposition of millings?)
 - Reclaim as base
- Subgrade stabilization
- Pavement design
 - FAARFIELD program results.
 - FAA Form 5100-1

6. Drainage Design

- Delineation of drainage area
- Existing drainage area characteristics and structures
- Storm water runoff calculations
- Inlet and storm sewer system design calculations
- Detention pond drainage requirement (empty within 48 hours)

7. Airfield Lighting and Signage

- Description of existing system (age, condition, type)
- Layout of airfield lights and signage
- Electrical circuit load calculations and summary table.

8. Nav aids

- Provide listing of all Nav aids and ownership
- Identify impacts to FAA owned navigation aids
- Provide design calculations for sponsor installed Nav aids
- Include obstacle clearance surfaces verification (if applicable)

9. Pavement Marking

- Show layout of markings conforming to AC 150/5340-1
- Address application of temporary marking.
- Sponsor should conduct a life cycle cost analysis when specifying a higher initial cost item that provides longer service life.

10. Environmental Considerations

- Storm water management measures
- Permits

11. Utility Lines in Work Area

- Identify all known existing underground utility lines in and adjacent to work area
- Engineer should strive to identify impacts at the design phase as opposed delegating discover of impacts to the contractor.
- Recommend contacting the appropriate underground cable owner (or service) to physically identify underground utilities during design phase
- Pothole areas on potential conflicts with existing underground utilities.

12. Miscellaneous Work Item

- Address other project related work items such as seeding, fencing, airport drainage, site access and etc.

13. Application of Life Cycle Cost Analysis

- Applicable whenever Sponsor desires a higher initial cost alternative over a lower costs alternative
- Must use constant dollars (no inflation) and 7% discount rate.
- Must be applied as part of bid evaluation

14. Sponsor Requested Modifications to AIP Construction Standards

- Provide listing, description and justification for all sponsor requested modifications to FAA construction standards.

15. Delineation of AIP Non-participating work

- Separately identify all work items that are not eligible for AIP participation.
- Provide justification for why non-participating work should be allowed as part of an AIP funded project
- Establish how non-participating work will be separated from AIP work (schedules, line items)

16. DBE Participation

- State the status of the Sponsor's DBE program
- Identify the current year of the 3 year overall goal. (i.e. Year 2 of overall 3 year goal)
- Establish project specific goal only if overall goal cannot be met by race/gender neutral means.

17. Project Schedule

- Include critical milestone dates as applicable
 - Project initiation
 - Preliminary investigation and design
 - Acquisition and submittal of aeronautical survey data
 - Approach procedure development/amendment
 - Availability of final plans and Specifications
 - Bid Opening
 - Award of contract
 - NTP
 - Completion
 - Closeout

18. Engineers Estimate of Probable Cost

- Provide an itemized summary of the engineer's estimate of probable construction costs.
- Separately identify AIP eligible costs and non-eligible costs

19. Preliminary Project Budget

- Provide a project budget summary that identifies all anticipated project costs (Administrative, preliminary, design, construction and observation/testing services)

20. Pre-design meeting minutes

- Provide a copy of the minutes from the pre-design meeting.