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of Transportation
Federal Aviation
Administration

Advisory Circular

Consolidated AC Includes Change 1

Subject: Architectural, Engineering, and Planning Consultant Services for Airport Grant Projects

Date: 9/25/2015
Initiated By: AAS-100

AC No: 150/5100-14E
Change: 1

1 **Purpose.**

This advisory circular (AC) provides guidance for airport Sponsors in the selection and engagement of architectural, engineering, and planning consultants. It also discusses services that normally would be included in an airport grant project, types of contracts for these services, contract format and provisions, and guidelines for determining the reasonableness of consultant fees.

2 **Cancellation.**

This AC cancels AC 150/5100-14D, *Architectural, Engineering, and Planning Consultant Services for Airport Grant Projects,* dated August 30, 2005.

3 **Applicability.**

A Sponsor is required to award each contract for program management, construction management, planning studies, feasibility studies, architectural services, preliminary engineering, design, engineering, surveying, land acquisition services, mapping or related services with respect to the project in the same manner as a contract for architectural and engineering services is negotiated under Title IX of the Federal Property and Administrative Services Act of 1949 (40 U.S.C. Chapter 11, Selection of Architects and Engineers), or an equivalent qualifications-based requirement prescribed for or by the Sponsor of the airport. See 49 U.S.C. § 47107(a) (17) and the grant assurances.

Title 2 of the Code of Federal Regulations (C.F.R.), part 200, establishes uniform administrative rules for Federal grants. The FAA prepared this guidance to assist Sponsor compliance with the procurement requirements of §§200.317-200.326.

This AC does not apply to airport projects that are fully funded with passenger facility charge (PFC) funds.

4 **Principal Changes.**

The AC incorporates the following principal changes. The revisions made by Change 1 are marked by horizontal bars in the outside margins.

1. Clarified Independent Fee Estimates processes.
2. Clarified multiple consultant selection process.
3. Added "Specific Rates of Compensation" method of contracting.
4. Revised and expanded discussion of Alternative Project Delivery Methods, moved to Appendix G.
5. Updated the advisory circular format to the decimal numbering system.
6. The Office of Management and Budget published the Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards; Final Rule, in 78 Federal Register Notice 78590, December 26, 2013. This final guidance contains the administrative requirements formerly contained in (A-110 and A-102), cost principles (A-21, A-87, and A-22), and audit requirements (A-50, A-89, and A-133) for federal awards. As of December 26, 2014, a Sponsor must implement applicable the requirements of 2 CFR §200 to remain allowable for federal assistance.
7. Further clarified multiple consultant selection processes.
8. Clarified allowable costs, applicability of profit and pass-through costs.

Michael J. O'Donnell
Director of Airport Safety and Standards

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CHAPTER 1. INTRODUCTION

1.1 Overview.

This advisory circular (AC) provides guidance for airport Sponsors in the selection and engagement of architectural, engineering, and planning consultants. This AC discusses services normally included in an airport grant project, types of contracts for these services, contract format, and guidelines for determining the reasonableness of consultant fees.

1.2 Definitions.

Definitions of the terms used in this AC are listed in Appendix A.

1.3 Referenced Documents.

Documents and regulations referenced throughout this circular are listed in Appendix B.

1.4 Types of Consultant Services.

There are two separate and distinct categories of consultant services that are typically utilized for projects conducted under airport grant programs. The first category involves planning services. The second category involves professional services for the design and construction administration/inspection of airport development projects and for land acquisition projects.

1.4.1 Aviation Planning Services.

This category includes studies under the broad headings of airport system and master planning, airport noise compatibility planning and environmental assessments and related studies. These studies include, but are not limited to, the following activities:

1. Design study to establish the framework and detailed work program.
2. Airport data collection and facility inventories.
3. Aeronautical activity forecasts and demand/capacity analyses.
4. Facility requirements determination.
5. Airfield modeling for capacity and delay.
6. Airport layout and terminal area plan development.
7. Airport noise studies under 14 CFR Parts 150 and 161.
8. Compatible land-use planning in the vicinity of airports.
9. Airport site selection studies.
10. Airport development schedules and cost estimates.
11. Airport financial planning and benefit cost analysis.

12. Participation in public information and community involvement programs and/or public hearings relating to airport development and planning projects.
13. Environmental Assessments (EA), Environmental Impact Statements (EIS), and other studies in accordance with FAA Orders 5050.4 and 1050.1.
14. Preparation of or updating of the airport layout plan.
15. Airspace analysis.
16. GIS data collection, entry, and analysis and other electronic graphical/mapping efforts.

1.4.2 Architectural/Engineering Services for Airport Development Projects.

This category includes the basic A/E services normally required for airport development projects. It involves services generally of an architectural, civil, geotechnical, structural, mechanical, and electrical engineering nature. In addition, there may be some services outside those normally considered basic that are discussed in paragraph 1.5. The basic services are usually conducted in, but are not limited to, the five distinct and sequential phases summarized below:

1.4.2.1 **Preliminary Phase.**

This phase involves those activities required for defining the scope of a project and establishing preliminary requirements. Some examples of activities within this phase of a project include, but are not limited to:

1. Coordinating with the Sponsor on project scope requirements, finances, schedules, operational safety and phasing considerations, site access and other pertinent matters.
2. As applicable, coordinating project with local FAA personnel and other interested stakeholders to identify potential impacts to their operations.
3. Planning, procuring, and/or preparing necessary surveys, geotechnical engineering investigations, field investigations, and architectural and engineering studies required for design considerations.
4. Developing design schematics, sketches, environmental and aesthetic considerations, project recommendations, and preliminary layouts and cost estimates.
5. Preparing project design criteria and other bridging documents commonly used for alternative project delivery methods such as design-build contracting.

1.4.2.2 **Design Phase.**

This phase includes all activities required to undertake and accomplish a full and complete project design. Examples include, but are not limited to, those below:

1. Conducting and attending meetings and design conferences to obtain information and to coordinate or resolve design matters.

2. Collecting engineering data and undertaking field investigations; performing geotechnical engineering studies; and performing architectural, engineering, and special environmental studies.
3. Preparing necessary engineering reports and recommendations.
4. Preparing detailed plans, specifications, cost estimates, and design/construction schedules.
5. Preparing Construction Safety and Phasing Plan (CSPP).
6. Printing and providing necessary copies of engineering drawings and contract specifications.

1.4.2.3 **Bidding and Negotiation Phase.**

These activities are sometimes considered part of the construction phase. They involve assisting the Sponsor in advertising and securing bids, negotiating for services, analyzing bid results, furnishing recommendations on the award of contracts, and preparing contract documents.

1.4.2.4 **Construction Phase.**

This phase may include all basic services rendered after the award of a construction contract, including, but not limited to, the following activities:

1. Providing consultation and advice to the Sponsor during all phases of construction.
2. Representing the Sponsor at preconstruction conferences.
3. Inspecting work in progress periodically and providing appropriate reports to the Sponsor.
4. Reviewing and approving shop and erection drawings submitted by contractors for compliance with design concept/drawings.
5. Reviewing, analyzing, and accepting laboratory and mill test reports of materials and equipment.
6. Assisting in the negotiation of change orders and supplemental agreements.
7. Observing or reviewing performance tests required by specifications.
8. Determining amounts owed to contractors and assisting Sponsors in the preparation of payment requests for amounts reimbursable from grant projects.
9. Making final inspections and submitting punch-lists and a report of the completed project to the Sponsor.
10. Reviewing operations and maintenance manuals.

1.4.2.5 **Project Closeout Phase.**

This phase includes all basic services rendered after the completion of a construction contract, including, but not limited to, the following activities:

1. Making final inspections and submitting punch-lists and a report of the completed project to the Sponsor.
2. Providing record drawings.
3. Preparing summary of material testing report
4. Preparing summary of project change orders
5. Preparing grant amendment request and associated justification, if applicable.
6. Preparing final project reports including financial summary.
7. Obtaining release of liens from all contractors.

1.5 Special Services.

1.5.1 The development of some projects may involve activities or studies outside the scope of the basic design services routinely performed by the consultant. These special services may vary greatly in scope, complexity, and timing and may involve a number of different disciplines and fields of expertise.

1.5.2 Consultants performing special services may be employed directly by the Sponsor to implement one or more phases of a project or may be employed by the principal consultant via a subcontract agreement. In certain instances, these services may be performed by the principal consultant. Some examples of special services that might be employed for airport projects include, but are not limited to, the following:

1. Soil investigations, including core sampling, laboratory tests, related analyses, and reports.
2. Detailed mill, shop, and/or laboratory inspections of materials and equipment.
3. Land surveys and topographic maps.
4. Field and/or construction surveys.
5. Photogrammetry surveys.
6. Onsite construction inspection and/or management involving the services of a full-time resident engineer(s), inspector(s), or manager(s) during the construction or installation phase of a project. This differs from the periodic inspection responsibilities included as part of the basic services.
7. Special environmental studies and analyses.
8. Expert witness testimony in litigation involving specific projects.
9. Project feasibility studies.

10. Public information and community involvement surveys, studies, and activities.
11. Preparation of record drawings.
12. Assisting the Sponsor in the preparation of necessary applications for local, State, and Federal grants.
13. Preparation of an as-built airport layout plan.
14. Preparation of property maps.
15. Preparation of quality control plan.
16. Preparation of final report.

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CHAPTER 2. PROCEDURES FOR SELECTION OF CONSULTANTS

2.1 General.

The procedures included in this chapter provide guidance for Sponsors in the selection and engagement of architectural, engineering, environmental, and planning consultants on projects funded wholly or in part under Federal airport grant programs. Adherence to these procedures will assure a Sponsor of compliance with the requirements of 49 USC § 47107(a) (17) and 2 CFR §200.320, as amended.

2.1.1 49 USC § 47107(a) (17) states: "Each contract and subcontract for program management, construction management, planning studies, feasibility studies, architectural services, preliminary engineering, design engineering, surveying, mapping, and related services will be awarded in the same way that a contract for architectural and engineering services is negotiated under Chapter 11 of Title 40 or an equivalent qualifications based requirement prescribed for or by the Sponsor." In addition to the services described in this statute, the professional and incidental services listed under A/E Services in Appendix A, must also be procured using qualifications based procedures.

2.1.2 2 CFR § 200.320 establishes that procurement by competitive proposal, where price is not a factor, may only be used for procurement of architectural/engineering (A/E) services. It may not be used for other services even though an A/E firm may be a potential source to perform the service. If a conflict exists between 49 USC § 47107(a) (17) and 2 CFR 200, the statute will prevail.

2.1.3 Title IX of the Federal Property and Administrative Services Act of 1949 requires that qualifications based selection procedures be used for the selection of firms to perform architectural and engineering services. Qualifications based procedures require that a contract for A/E services be awarded pursuant to a fair and open selection process based on the qualifications of the firms. The fees for such services are established following selection of a firm through a negotiation process to determine a fair and reasonable price.

2.2 Procurement Standards.

2.2.1 The selection of qualified consultants must be made on the basis of fair negotiations and equitable fees and through selection procedures that are professionally acceptable, ensure maximum open and free competition, and avoid any suggestion of unfair or unethical conduct.

2.2.2 Consultants employed for work on projects involving airport grants must be responsible and possess the ability to perform successfully under the terms and conditions of the proposed procurement. Consideration should be given to such matters as integrity, record of past performance, extent of experience with the type of services required by the Sponsor, technical resources, and accessibility to other necessary resources.

2.2.3 The Sponsor's procurement action must be void of individual and organizational conflicts of interests both real and/or perceived.

2.2.3.1 Individual conflicts of interest may exist whenever a Sponsor's employee, officer, agent or family member thereof has a financial or other interest in the firms competing for the work.

2.2.3.2 Organizational conflicts of interest may exist when there is a lack of impartiality, impaired objectivity or an unfair advantage with one or more of the firms competing for the work.

2.2.4 Sponsors must maintain sufficient records, made available at the FAA's request, to detail the significant history of their procurement action. This includes the rationale for the procurement method; the selection considerations; contract type and basis for contract price.

2.3 Competition

2.3.1 Per § 200.319, all procurement transactions must be conducted in a manner providing full and open competition. It is the responsibility of the Sponsor to assess whether their procurements conform to the requirements of §200.318 for addressing conflict of interest and the standards of §200.319 for full and open competition.

2.3.2 An unfair competitive advantage may exist when one firm has access to source selection information that competing firms do not have similar access to.

2.3.2.1 To ensure objective contractor performance and eliminate unfair competitive advantage, 2 CFR part §200.319 requires entities that develop or draft specifications, requirements, statements of work, invitations for bids, or requests for proposals must be excluded from competing for such procurements. However, once selected, the successful consultant may participate in further definition of the scope of work. For purposes of full disclosure, Sponsors that seek external assistance with preparation of Statements of Work (SOW) for a request for qualifications (RFQ) are encouraged to make the restrictions of §200.319 known to the firm providing the assistance. For additional discussion on this please refer to the latest version of Order 5100.38.

2.3.2.2 There are situations where an unfair competitive advantage can be mitigated or neutralized. For example, the consultant who performs master plan services for a Sponsor or assists a Sponsor with preparation of their Capital Improvement Program would have an apparent unfair competitive advantage when competing for follow-on engineering design services. A Sponsor can mitigate this unfair advantage through full and open disclosure of the source selection information to all competing firms. The restrictions of 2.3.2.1 however, cannot be mitigated or neutralize.

2.3.3 Objective consultant performance can be compromised whenever a firm is in a position where they could apply undue influence on Sponsor decisions that ultimately benefit the consultant. Sponsors that combine the selection of a planning consultant and engineering consultant create the potential for a problematic situation that may jeopardize AIP participation in the Sponsor's professional services expenses. This is primarily due to conflicts with the AIP procurement requirements, found in Order 5100.38, such as the following:

1. Objectivity of the planning consultant's performance may be compromised because the firm is in a position to establish development objectives for which the same firm will be tasked with engineering design services. This is an apparent lack of impartiality that may influence the planning initiative and the identification of preferred development objectives.

2. There is diminished transparency of the procurement action for engineering design services given that the development objectives are not established at the time the Sponsor conducts that selection process.

3. Firms that specialize in one type of service may be unfairly excluded from competing for a project when the Sponsor combines distinct types of services.

4. Per FAA Order 5050.4B,, consultants that prepare an Environment Impact Statement may not compete for future work the EIS addresses until such time the FAA has issued a Record of Decision.

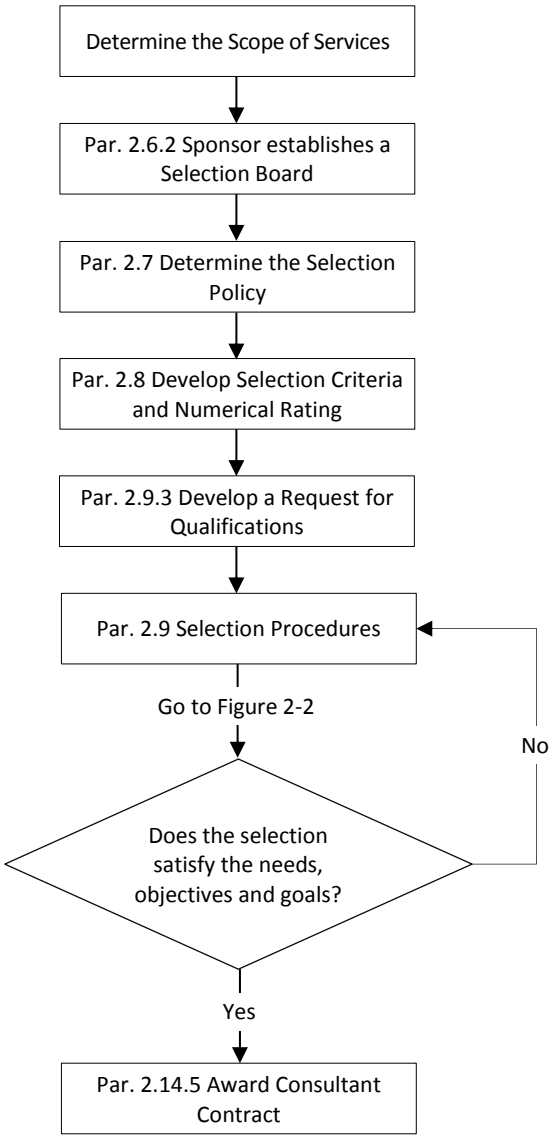
2.3.4 Sponsors can mitigate these apparent concerns regarding procurement transparency and objective contractor performance by separating the procurement of a planning consultant from that of an engineering design consultant. With the exception of the restrictions established under 2 CFR §200.319 (See 2.3.2.1), a consultant that performs planning services may compete for follow-on engineering provided the Sponsor properly mitigates any situations of unfair competitive advantage (See 2.3.2.2).

2.3.5 It may be permissible under certain circumstances for a Sponsor to combine the selection for certain planning type services and design type services provided there is no loss of objectivity of the planning action or loss of transparency in the procurement process. For example, the update of an airport layout plan for which no new development objectives are established could be combined with design services.

2.4 Qualifications Based Selection Procedures.

Consultants must be selected on the basis of their qualifications and experience, with fees determined through negotiations following selection. The qualifications of consultants are evaluated and the best qualified consultant is selected, subject to a mutual understanding of the scope of services and negotiation of a fair and reasonable fee. Figure 2-1 is an overview of the recommended Qualifications Based Consultant Selection process.

Figure 2-1. Qualifications Based Selection Process



2.5 Other Services.

2.5.1 Where services are to be performed in conjunction with the architectural, planning, environmental, or engineering services, they must be contracted for in the course of procuring the A/E services.

2.5.2 Where services such as feasibility studies, construction management, program management and other services as defined in 49 USC § 47107(a) (17) and A/E services as defined in Appendix A are to be performed, they must be procured using qualifications based procedures.

2.5.3 Where services are to be performed that are not in conjunction with A/E and planning services and do not require performance by a licensed architect or engineer, the services should be acquired using local procurement procedures. An example of this type of special service would be soil borings, whereby the boring layout plan and interpretations of tests are not performed by the boring contractor. Soil borings conducted as part of a geotechnical engineering investigation or for which an independent engineer is responsible must be procured either in the course of procuring A/E services or by using qualifications based procedures.

2.5.4 Where services are to be performed in assisting the FAA in preparing an Environmental Impact Statement (EIS), they must be procured using qualifications based selection procedures (see paragraph 2.11).

2.5.5 Where a Sponsor decides to utilize an Alternative Project Delivery System (APDS) such as design-build (DB) or construction manager-at-risk (CMAR), the Sponsor may use the competitive proposal approach (as defined in 2 CFR §200.320) for selection provided price and other factors such as qualifications, skill, experience, and design approach are considered when selecting a firm to perform this service. The selection of an A/E services firm is the only instance where prices must be excluded as a consideration under a competitive proposal selection. Please reference Appendix G, Alternative Project Delivery Systems, of this Advisory Circular for guidance in procuring these types of services.

2.6 Selecting Organization.

2.6.1 Within the Sponsor's organization, an administrative policy should be established for designating persons authorized to select or recommend consultants for various assignments. The persons designated may include the administrator or the department head to be supplemented by others making up a selection board. The persons empowered to make the selection of one consultant over another must be kept free of pressures, both internal and external. 2 CFR § 200.318(c) requires that Sponsors maintain a written code of standards of conduct governing the performance of their employees engaged in the award and administration of contracts. They must not participate in selection or in the award or administration of a contract supported by Federal funds if a conflict of interest, real or apparent, would be involved.

2.6.2 The typical procedure for selecting a consultant is to use a selection board composed of at least three persons, with at least one being an engineer, airport planner, or other professional knowledgeable of the service required. For projects that have special design requirements or are particularly complex, the selection board should have additional technical members with the appropriate expertise in those required disciplines. The board should be prepared to evaluate potential consultants, i.e., conduct interviews and inquiries as desired and make recommendations to the governing body in accordance with paragraph 2.9.14.

2.7 Policy for Selection.

2.7.1 The selection of a consultant must be based on a comparative analysis of the professional qualifications necessary for satisfactory performance of the service required. Moreover, the selection process must satisfy requirements for open and free competition.

2.7.2 Sponsors may procure a consultant for several projects through one procurement action provided the following conditions are met:

1. The consultant is selected using the qualifications based selection procedures described in paragraph 2.9.
2. The parties competing for the work must be advised that the work may be accomplished during the course of multiple grants. The expected schedule of projects must be defined, together with a statement of work and the required services. The statement of work must be described in sufficient detail so that all parties may adequately establish the type of services required to accomplish the work. Avoid generic statements of work.
3. All parties are advised that some of the services may not be required and that the Sponsor reserves the right to initiate additional procurement action for any of the services included in the initial procurement.
4. The services are limited to those specific projects that the Sponsor reasonably expects to initiate within five (5) years (See Para. 3-59, FAA Order 5100.38) of the effective date of the initial contract. With mutual and written agreement between the Sponsor and the FAA, additional projects or work elements may be added after the original selection if all of the following conditions exist:
   1. The Sponsor can provide acceptable justification for not initiating a new procurement action (Note: Convenience of the Sponsor is not an acceptable justification to forgo a separate procurement action).
   2. Added project(s) or work element(s) is (are) similar in character to the statement of work the Sponsor used in the original selection.
   3. Added projects or work elements do not require services or qualifications not previously included in the original selection.
   4. The cumulative cost of services for the added projects or work elements is not expected to exceed the simplified acquisition threshold as defined in Para. U-12 of FAA Order 5100.38.

   If the above-listed conditions do not exist, Sponsors that want to add work elements not specifically included in the original procurement action must conduct a separate and new procurement action. Projects initiated within the first five (5) years may continue beyond the duration of the initial contract; however once 5-year duration has ended no new projects should be initiated without a new procurement action.
5. If more than one party is selected, the expected projects to be performed by each party must be defined, together with the statement of work and the required services, at the time of the initial procurement action. The Sponsor must provide

notification to each firm of the projects they were awarded. Sponsors must avoid the practice of selecting multiple firms and assigning project responsibility at a later date.

6. The negotiation of the fee is limited to the services expected to be performed under the first grant or project after the initial procurement action. The contract must be limited to the services covered by the negotiated fee. The negotiation of the fee for subsequent services, i.e., services included in the procurement action but not in the initial contract, must occur at the time those services are needed. A fee estimate must be performed for each of these negotiations (See paragraph 2.13 for information on fee estimate.). If a fee cannot be agreed upon between the Sponsor and the selected firm, then negotiations are terminated with that firm. If the Sponsor identified and ranked multiple firms for the project at the time of the initial procurement action, then the Sponsor may enter into negotiations with the firm ranked next. If no additional firms were identified and ranked or agreement is not reached with any selected firms, then the Sponsor must initiate a new procurement action.

7. In the case of an unforeseen project as in Paragraph 4, the Sponsor and the FAA may mutually agree on the ranking of the selected consultants by evaluating their capabilities and the scope of the unforeseen project. However, if the scope of the unforeseen project does not match the capabilities of the selected consultants, a new procurement action must be conducted.

2.7.3 Unless there is a compelling reason that there is a benefit to the FAA to combine eligible and ineligible projects in a single solicitation, Sponsors are discouraged from doing so. See Order 5100.38 for additional information.

2.8 Selection Criteria.

2.8.1 Based on the proposed scope of service(s) and prior to evaluating consultants, a Sponsor(s) must develop a list of selection criteria to be used in evaluating potential consultants. Numerical rating factors (ranges) should be assigned to each criterion on the basis of the Sponsor's priorities and conception of the importance of each factor in the attainment of a successful project. The Sponsor(s) should include the criteria with a Request for Qualifications (RFQ) in advance of the selection process.

2.8.2 Based on a Sponsor’s goals/objectives for each project, the list of selection criteria will vary for each RFQ and must be appropriate for the proposed scope of services. Suggested selection criteria include, but are not limited to, the following:

1. Capability to perform all or most aspects of the project and recent experience in airport projects comparable to the proposed task.

2. Key personnel’s professional qualifications and experience and availability for the proposed project; their reputation and professional integrity and competence; and their knowledge of FAA regulations, policies, and procedures.

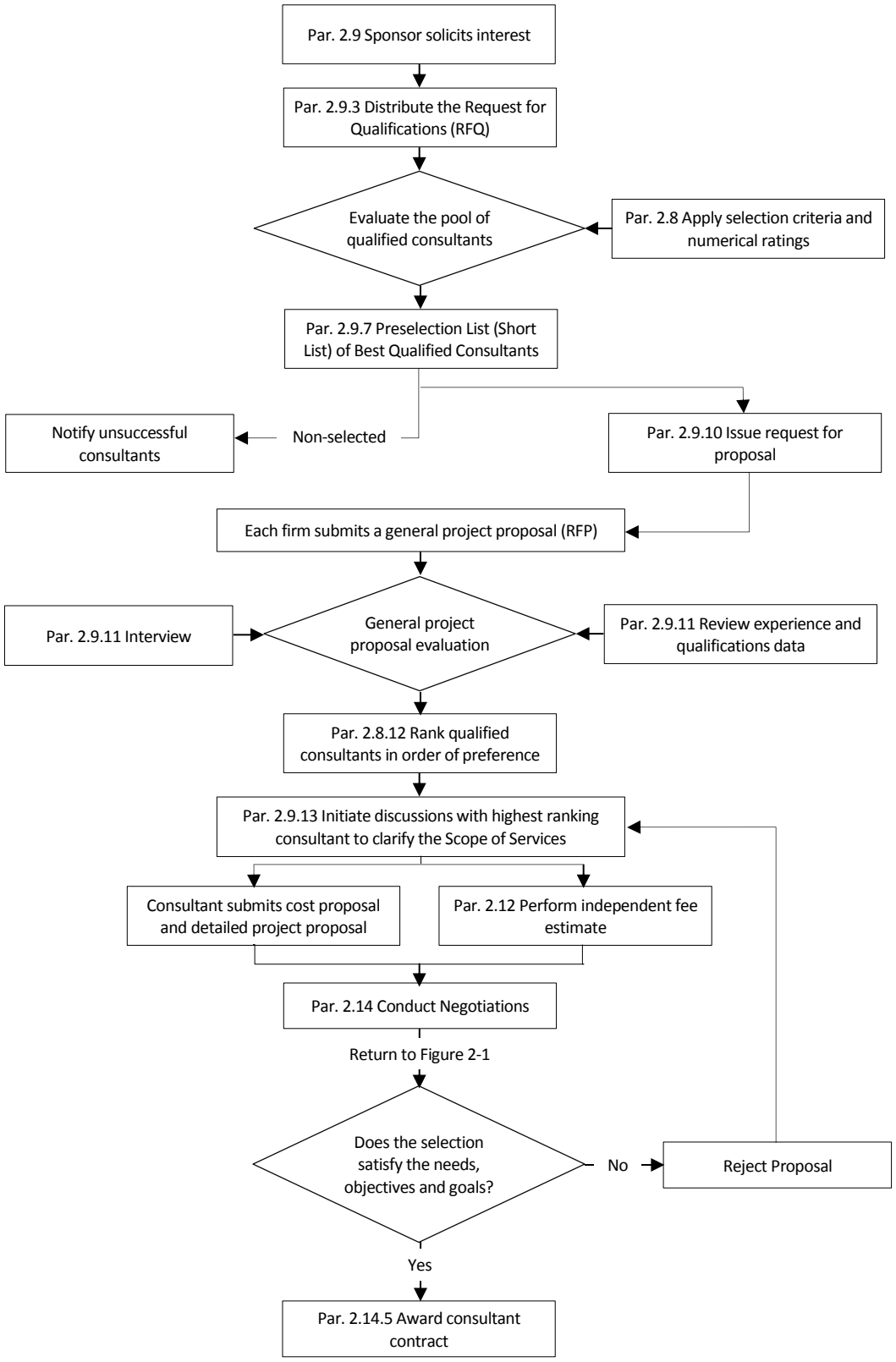
3. Capability to meet schedules or deadlines.

4. Quality of projects previously undertaken and capability to complete projects without having major cost escalations or overruns.
5. Qualifications and experience of sub-consultants regularly engaged by the consultant under consideration.
6. Capability of a branch office that will do the work to perform independently of the home office, or conversely, its capability to obtain necessary support from the home office. The use of geographic location may be a selection criteria provided its application leaves an appropriate number of qualified firms, given the nature and size of the project, to compete for the contract.
7. Ability to furnish qualified inspectors for construction inspection if applicable.
8. Understanding of the project's potential challenges and the Sponsor's special concerns.
9. Degree of interest shown in undertaking the project and their familiarity with and proximity to the geographic location of the project.
10. Capability to incorporate and blend aesthetic and architectural concepts with the project design while accomplishing the basic requirements that transportation facilities be functional, safe, and efficient.
11. In meeting the Disadvantaged Business Enterprise (DBE) contract goal, evidence documenting that the consultant met the DBE goal, or by documenting that it made adequate good faith efforts to meet the DBE goal. (See 49 CFR, § 26.53)
12. Capability to conduct a Value Engineering (VE) study for projects that are particularly complex or have unique features. Order 5100.38, Chapter 3, Subsection 3-57; AC 150/5300-15, *Use of Value Engineering for Engineering and Design of Airport Grant Projects;* and AC 150/5370-10, *Standards for Specifying Construction of Airports,* contain additional guidance on VE studies.

2.9 Selection Procedures.

The Sponsor must use the following selection procedures or equivalent State/Sponsor qualifications based selection for individual project selections involving Federal airport grants (see Figure 2-1 and Figure 2-2). However, the requirement for both an RFQ and an RFP should be evaluated based on the complexity of the project as these steps may be combined into a single request.

Figure 2-2. Consultant Selection Process for a Single Project



2.9.1 The selection board should review the nature of the proposed project and the general scope of services to be procured in order to ensure an understanding of the project requirements and the qualifications needed by the consultant.

2.9.2 As discussed in paragraph 2.8, the selection board must develop the selection criteria and the evaluation system used in preparing a pre-selection short-list of consultants who are best qualified for the project as well as in determining the final selection.

2.9.3 To obtain experience and qualification data from potentially qualified consultants, the Sponsor should issue an RFQ inviting consultants to submit their experience and qualifications data relating to the proposed project usually in the form of a Statement of Qualifications (SOQ). To ensure the broadest publicity concerning Sponsor interest in obtaining consultant services, public announcements for all projects should be advertised in local newspapers with a wide circulation, national trade journals and magazines, and through electronic media. Public announcements should include information such as a description of the proposed project and its location, a description of the services, and the estimated range of construction costs. The public announcement should allow sufficient time for submission of the statement of qualifications.

2.9.4 Sponsors may also send the public announcements directly to known, potentially qualified consultants to determine their interest in the project and to request their experience and qualification data.

2.9.5 Affirmative steps pursuant to 2 CFR §200.321 and good faith efforts should be taken to assure that small and minority firms are used whenever possible, consistent with 49 CFR part 26. These steps and efforts should include, but not be limited to, the following:

1. Include qualified small business and minority firms on solicitation lists.
2. Assure that small business and minority firms are solicited whenever they are potential sources. Consultation with regional Airports Divisions, Office of Civil Rights, and/or State transportation offices is encouraged.
3. Divide the total requirements into small tasks, when economically feasible, to permit maximum small business and DBE firm participation.
4. Use the services and assistance of the Small Business Administration, the Minority Business Development Agency of the Department of Commerce, and the Minority Resource Center Regional Centers of the Department of Transportation (http://osdbu.dot.gov).
5. Arrange solicitations, time for presentation of offers and delivery schedules to facilitate DBE and other small business participation.
6. Encourage consultants to subcontract portions of the work, even when they might otherwise perform the work with their own forces.

2.9.6 FAA Airports field offices may also furnish the names of consultants who have engaged in projects of similar nature in their areas of jurisdiction. However, with the exception

of an EIS, FAA personnel will not recommend consultants or participate in the selection process. The addresses of FAA Airports Regional/District Offices having jurisdiction over specific geographic areas are available at: http://www.faa.gov/about/office_org/headquarters_offices/arp/regional_offices/

2.9.7 From the experience and qualification data obtained from consultants, the selection board should prepare a pre-selection short-list of the best qualified consultants for further consideration. With adequate response to the RFQ, the typical pre-selection short-list should consist of between three and five consultants.

2.9.8 At this point, consultants who expressed an interest in the project but were not included on the pre-selection short-list should be notified that they were unsuccessful.

2.9.9 Detailed information on the qualifications and performance data of each of the consultants on the pre-selection short-list should be obtained. This can be achieved by contacting former clients identified by the consultant in their statement of qualifications to ascertain the quality of work, ability to meet schedules, cost control, and consultant-client relationship.

2.9.10 At this point, the selection organization may elect to obtain a general project proposal from each of the firms on the pre-selection short-list, typically by issuing a Request for Proposal (RFP) to each consultant on the pre-selection short-list. The RFP should include a detailed description of the project and the proposed scope of services required. The selection criteria, including their relative importance that will be used to evaluate the proposals must also be made available to each of the firms on the pre-selection short-list. The RFP shall not contain a request for any cost information, such as total cost, cost per hour, work hours, or other pricing data. Requests for cost or pricing information, prior to discussions with the best qualified firm, to define the scope of services is contrary to 49 USC § 47107 (a) (17) and 2 CFR § 200.320(d). The general project proposal will help the selection board recommend a consultant who can achieve design excellence, while successfully controlling time and costs and who has the ability to understand and accomplish the specialized requirements of the project. The elements of a typical general project proposal should include, but are not limited to, the following:

1. Team members, other key personnel, previous experience, and the role they will fill on the project. The qualifications and time commitment of the project manager proposed for the project.
2. Current workload.
3. Proposed project schedule, including major tasks and target completion dates.
4. Technical approach – a brief discussion of the tasks or steps that the consultant will take to accomplish the work described in the scope of services.
5. Value engineering – when a value engineering study is included in the selection criteria, a brief discussion of the consultant's capability, training, and experience to carry out such a study.

2.9.11 Conduct interviews with each consultant on the pre-selection short-list. On small projects, a telephone interview may be sufficient. Careful consideration of time and cost should be given to the need for formal interviews. If Sponsor has received sufficient information included in the qualification submission to make a selection, then formal interviews may not be necessary.

2.9.12 Review the experience and qualifications data, the general project proposal, the interview results, and other relevant data. Using the selection criteria developed for the project; rank the qualified consultants in order of preference.

2.9.13 Initiate discussion with the first-ranked consultant to fully define the scope of work and services to be provided (see paragraph 2.12). After agreement on a detailed scope of services has been reached, the Sponsor initiates actions to prepare an Independent Fee Estimate (IFE) in conformance with 3 CFR §200.323 and Table 3-67 of FAA Order 5100.38. Simultaneously, instruct the selected consultant to prepare and submit their cost proposal along with a detailed draft contract agreement. To ensure the integrity of the negotiation process, the Sponsor should not receive the fee proposal ahead of the IFE. The consultant should submit their cost proposals together with a detailed project proposal. Negotiations should then be conducted to reach a fair and reasonable fee, subject to the procedures indicated in paragraphs 2.13 and 2.14.

2.9.14 Prepare a report that documents the Sponsor’s procurement actions and the selection of the consultant they deem most qualified. The report must contain sufficient detail to indicate the extent of the review and the considerations used for the recommendations. The report should be forwarded to the Sponsor's administrator or governing body authorized to review the recommendations of the selection board. The recommendations of the selection board should normally be accepted unless the report does not adequately support the recommendations. This will help to ensure complete fairness and open competition. If the recommendations are not accepted, the selection board should reconvene until acceptable recommendations have been agreed upon.

2.10 Alternate Selection Procedures.

2.10.1 Proposals Requested with Qualification Data.

The selection procedure recommended in paragraph 2.9 should normally be followed in the procurement of consulting services. For small projects where the scope of work and services can be clearly defined or the Sponsor anticipates receipt of less than four proposals, the Sponsor may wish to solicit proposals at the time of advertising for experience and qualification data. In this case, the announcement must contain a detailed scope of services and indicate where the selection criteria can be obtained. The advertisement cannot request pricing information.

2.10.2 Informal Procedures.

2.10.2.1 Informal Qualifications Based Selection procedures may be used for A/E procurements estimated to be less than $100,000. However, this does not

relieve the Sponsor from the obligation to perform a cost analysis and prepare an independent fee estimate (see paragraph 2.13). Sponsors must consult with FAA Airport personnel before using informal procedures to assure that the circumstances justify their use.

2.10.2.2 Under this procedure, a Sponsor must contact at least three firms and discuss their qualifications to perform the work. Negotiations must then be conducted with the best-qualified firm to arrive at a fee. These negotiations may be conducted via telephone or e-mail. After selection, using this procedure, the Sponsor must document their procurement action and then submit a statement to the FAA explaining the basis for the selection and method used to determine reasonableness of the fee.

2.10.2.3 The informal selection process may not be used to select a firm for multiple projects.

2.10.3 Non-competitive Procedures.

The FAA may authorize non-competitive negotiation for services if the cost of the contract is not expected to exceed $10,000 and the services are incidental to the grant project. When this procedure is used, the Sponsor must submit a statement to the FAA explaining the basis used to determine reasonableness of cost as discussed in 2.10.2 above.

2.11 Selection Procedures for Environmental Impact Statement (EIS) Preparation.

The procurement of consultant services to assist the FAA in preparing an EIS is somewhat unique because the regulations implementing the National Environmental Policy Act (NEPA) (42 USC § 4321 et seq.), require Federal agencies to prepare the EIS or select the contractor that prepares the EIS (Orders 5050.4 and 1050.1 provide additional guidance). Selection of a consultant must, therefore, be made by the FAA from a short-list of qualified consultants submitted by the Sponsor. The Sponsor and the FAA must follow the selection procedures recommended in paragraph 2.9 with the following exceptions:

1. The proposed scope of work is to be provided by the FAA.
2. The FAA must concur with the selection and evaluation criteria prepared by the Sponsor.
3. The FAA will be invited to participate with the Sponsor in the interviews with consultants on the pre-selection short-list.
4. The Sponsor may indicate to the FAA their ranking of the consultants on the pre-selection short-list after the interview process has been concluded. The FAA, however, is under no obligation to make a selection based on this ranking.
5. Using the Sponsor selection and evaluation criteria previously agreed to and established by the Sponsor and the FAA, the FAA will independently evaluate and rank the consultants on the pre-selection short-list in order of preference, based on qualifications.

6. The FAA must advise the Sponsor of the FAA's ranking in order of preference, and the Sponsor must advise and initiate discussions with the consultant ranked first.
7. The FAA will be invited to discussions on the scope during any IFE process conducted by the Sponsor or their consultant, as necessary.
8. The FAA's involvement in the negotiation of the project cost must be limited to making a reasonableness determination once a satisfactory cost proposal has been reached between the Sponsor and the consultant.
9. The FAA must prepare a selection report for its records.

2.12 Scope of Services.

2.12.1 An important step in the negotiation process is to reach a complete and mutual understanding of the scope of services to be provided. The general scope of services developed during initiation of the procurement process is of necessity too broad to serve as the basis for a contractual agreement. A well-defined project description and scope of services should be developed between the Sponsor and first-ranked consultant prior to negotiating a project design fee. This may be accomplished in a scoping meeting or separate investigation or study to clearly define the extent of the project. The Sponsor's engineer or independent consultant (see paragraph 2.13) should attend the meeting so they will have a complete understanding of the scope of services prior to developing a detailed fee estimate. Such a meeting offers the opportunity for refinement, amendment, and complete definition of the services to be rendered.

2.12.2 The scope of service(s) must be sufficiently detailed so that the consultant can make a reasonable fee estimate (see Appendix E). Although the scope of service(s) will vary from project to project (see samples in Appendix C), the following items are typical of those that should be considered in developing the scope of services:

1. List of meetings the consultant is expected to attend.
2. Design schedule.
3. Special services required.
4. Complexity of design.
5. Safety and operational considerations.
6. Environmental considerations.
7. Survey and geotechnical testing requirements.
8. Sponsor representation services during construction.
9. Quality control during construction.
10. Preparation of forms, letters, documents, and reports.
11. Airport Layout Plan updates.
12. Property map preparation.

13. Quality control during design.
14. Coordination with other consultants and agencies.
15. Deliverables.
16. Data and material furnished by the Sponsor.
17. Testing and commissioning requirements.
18. City/county requirements.
19. Number of bid packages.
20. Complexity of construction phasing to minimize impacts on airport operations.
21. Public Outreach.

2.13 Independent Fee Estimate.

2.13.1 A Sponsor must perform a price or cost analysis for every A/E contract (2 CFR § 200.323). The method and degree of analysis is dependent on the facts surrounding the contract. To properly evaluate the cost of professional services an independent fee estimate (IFE) is required, prior to receiving the consultant's proposal, as part of the cost analysis for all A/E contracts and contract modifications. The IFE is intended to be used as a negotiation tool by the Sponsor. The word "independent" does not imply that the IFE has to be performed by someone other than the Sponsor. Preparation of an IFE can be completed in a number of ways, such as the following, or as approved by your local ADO:

1. A Sponsor having a staff with experience in estimating the professional services and negotiating contracts for these services can develop its own IFE for the services, based on the scope of services agreed upon in paragraph 2.12.
2. Sponsors having no staff with this expertise or having minimal or no previous experience may engage the services of a consultant on retainer for preparation of the IFE provided the consultant has experience with the services involved and who is not being considered for the project.
3. Alternatively, an independent engineering, architecture, or planning consultant may be retained to prepare an IFE provided this consultant was not on the pre-selection short-list. The consultant must have recent experience in airport work similar to that proposed and be familiar with FAA requirements and procedures. The Sponsor should request evidence that the consultant meets the above requirements.

2.13.2 State aviation personnel who have experience with the services involved may also prepare the IFE for the Sponsor's use.

2.13.3 The level of detail needed to satisfy the requirements of an IFE varies and is dependent on the anticipated value of the A/E contract. For contracts with an anticipated value less than $100,000 the Sponsor can satisfy the IFE requirement by comparing the A/E contract with previous contracts of a similar nature, or preparing a detailed fee/cost

analysis (see Appendix E). At a minimum, the independent estimate must address direct labor work hours, labor rates, general and administrative overhead, non-salary expenses and a reasonable profit. For contracts anticipated to be greater than $100,000 a detailed fee/cost analysis is required.

2.13.4 If the Sponsor hires a consultant to perform any of these functions, that consultant may be retained using informal or non-competitive qualifications based procedures (see paragraphs 2.10.2 and 2.9.3) as applicable; however, the IFE consultant will not be eligible for consideration to perform work on the project.

2.13.5 Another source on estimating consultant's cost can be found in ASCE Manuals and Reports on Engineering Practice No. 45, "How to Work Effectively with Consulting Engineers." However, these graphs must be used with judgment and within their stated limitations. Other resources include project history files, previous contracts, etc.

2.13.6 Sponsors have an obligation to obtain a fair and reasonable fee in all cases. Prior to initiating further discussions with the first-ranked consultant, the Sponsor must accept the IFE and retain it for their records. Appendices D and E present sample formats for consultant services fee/cost and detailed fee/cost analysis respectively, however any format that meets this purpose is acceptable. The FAA retains the right to disallow negotiated fees that the FAA determines to be unreasonable.

2.14 Negotiations.

2.14.1 After developing a detailed scope of services and after the IFE requirements have been satisfied per Par. 2.12, the Sponsor may enter into negotiations with the consultant given first preference by the selection board. Once the rankings have been established, the Sponsor shall inform the other firms on the pre-selection shortlist that negotiations have been initiated with the first ranked firm. If an independent firm has been retained by the Sponsor for the purpose of preparing an independent fee estimate, the firm may be consulted by the Sponsor during negotiations, to clarify problem areas, but not to review the consultant's fee proposal or attend any negotiating sessions.

2.14.2 Based on the scope of services agreed upon in paragraph 2.12, the Sponsor must request the consultant to submit the proposed fee and supporting cost breakdown. The consultant must prepare a detailed estimate of the hours and cost required for each of the major tasks. In addition to charges for labor, the consultant should, if appropriate, indicate the costs for subcontractors, travel, living expenses, reproduction, and other out-of-pocket expenses expected to be incurred.

2.14.3 When evaluating the reasonableness of a consultant's fee proposal, a general review standard used within the FAA and industry is whether the total fee proposal, as well as individual tasks within the proposal, is within 10% of the IFE. When differences exceed 10%, the Sponsor and IFE preparer should review those areas with the consultant to determine if there is a misunderstanding of the scope of services or level of effort required to complete the work. While this should not be construed as policy,

the use of the 10% standard is one method to help identify areas of significant difference between the consultant's fee proposal and the IFE.

2.14.4 Negotiations should be based upon the data submitted by the consultant and an evaluation of the specific work hours required for each task. The Sponsor should subject the consultant's data to a technical/engineering analysis. Based on this analysis, the Sponsor should identify differences in the work-hour estimates. Significant differences, either positive or negative, between the estimate submitted by the consultant and the estimate developed by the Sponsor should be resolved, and revisions should be made to the work hours or scope of services as required. The fee should then be evaluated, taking into consideration the experience level required by the engineer working on each task. A sample fee/cost analysis form is shown in Appendix E.

2.14.5 If a mutually satisfactory contract cannot be negotiated with the first-ranked consultant, the negotiations must be terminated and the consultant notified. Negotiations must then be initiated with the consultant given second preference by the selection board. This procedure must be continued with recommended consultants in the sequence of ranking established by the selection board until a mutually satisfactory contract has been negotiated. Once negotiations have been terminated with a firm and begun with another, they cannot be reopened with the former firm.

2.14.6 A record of negotiations must be prepared by the Sponsor and included in the contract file. This record must contain sufficient detail to reflect any changes in the scope of services controlling the establishment of the cost and other terms of the contract. An explanation must be provided for any significant differences between the Sponsor's original estimate and the final fee agreed upon. The scope of services, draft contract, Sponsor's independent fee estimate, consultant's fee proposal with any revisions, and detailed fee analysis must be attached to the report. A sample Record of Negotiations is contained in Appendix F.

2.14.7 Upon completion of successful negotiations, all consultants interviewed by the selection board should be informed of the consultant selected for the project.

2.14.8 FAA personnel will not be present and will not participate in the negotiation process. The FAA's role is to make a judgment on the reasonableness of the compensation for the services to be furnished and to ensure that all services required for a particular project have been included in the proposal.

2.14.9 If requested by the FAA, the Sponsor must submit the record of negotiations and all attachments to the FAA for a reasonableness of cost determination (Order 5100.38, Chapter 3, Section 14).

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CHAPTER 3. CONTRACT FORMAT AND PROVISIONS

3.1 General.

3.1.1 The relationship of the consultant with the Sponsor should be clearly defined by a written agreement before commencement of actual work. All of the terms should be clearly defined in the agreement. It should state the parties to the contract and define the complete extent and character of the work to be performed as well as conditions relating to any time limitations that may be involved. The terms and payments for various services should be included. The scope of the consultant effort should be described in complete detail to determine the sufficiency of the supervisory and inspection staff and to determine whether some services will need to be otherwise contracted for or be provided by the Sponsor.

3.1.2 Consultant contracts usually cover highly technical services. Therefore, to assure the soundness of a legal document, it is essential that someone who has thorough knowledge of the project prepare the sections describing services to be performed, sequence of work, information to be furnished by the Sponsor, and terms of payment.

3.2 Contract Format.

Many government agencies, business firms, and engineering organizations have developed standardized forms for engineering and planning contracts. The American Council of Engineering Companies, the National Society of Professional Engineers, and the American Society of Civil Engineers have developed such standardized forms. Some State aviation departments have developed standardized forms for engineering services provided in their own states. The American Institute of Architects has standardized forms for architectural contracts. It is often necessary to modify these standard agreements to reflect the specific terms and conditions applicable to a particular project, as well as the mandatory contract provisions in paragraph 3.4.

3.3 Division of Responsibility and Authority.

3.3.1 It is common to have one firm provide the basic services and one or more firms provide special services. In these cases, the firm providing the basic consultant services is considered the primary engineer or principal consultant as defined in Appendix A. As such, the principal consultant represents the Sponsor in coordinating and overseeing the work of other engineering/consultant firms and has the overall responsibility to coordinate the work and to review the work products for general conformance to the requirements of the Sponsor. Therefore, it is extremely important that the contract documents clearly specify the division of responsibility and authority between all parties involved in carrying out elements of the project.

3.3.2 The contract between the Sponsor and consultant is based on the scope of services established earlier in the process (see paragraph 2.12) and involves carrying out professional duties under the requirements of law. The contract must not attempt to

make the consultant an indemnitor of the Sponsor such as in the event of the Sponsor's negligence or the absence of any wrongdoing by the consultant. The consultant must fully stand behind their services and indemnify the Sponsor for damages and expenses caused by their own errors, omissions, and negligent or wrongful acts.

3.3.3 Expanding the consultant's liability beyond the scope or purpose of a contract could affect the competitive process of contract award in a way that conflicts with the requirements of 2 CFR §200.319 and may impact Federal eligibility.

3.4 Mandatory Contract Provisions.

3.4.1 Federal laws and regulations prescribe that certain provisions be included in federally funded contracts. For purposes of this section, the term "contract" includes subcontracts. The type of contract must be appropriate for the particular procurement.

3.4.2 Specific wording of Federal contract provisions is available on the FAA website at http://www.faa.gov/airports/aip/procurement/.

3.5 Time Overruns Beyond Control of the Consultant.

Frequently, the consultant is called upon to continue technical inspection services on construction contracts overrunning the program schedule contemplated at the time of negotiation. In most instances, the time element is beyond the control of the consultant. To provide for the contingency of overrun of time, the agreement between the Sponsor and the consultant should state the period for which the compensation applies and that the consultant must be reimbursed for services in excess of the specified period of time at a mutually acceptable fee negotiated at the time all the pertinent circumstances are known. The cost of additional consultant technical inspection services that would result from contractor caused construction delays should be included in the liquidated damages established for construction contracts.

3.6 Ownership of Drawings and Contract Documents.

3.6.1 Original documents, such as tracings, plans, specifications, maps, basic survey notes and sketches, charts, computations, and other data prepared or obtained under the terms of the contract, are instruments of service and remain the property of the consultant unless otherwise agreed to by both parties. Reproducible copies of drawings and copies of other pertinent data should be made available to the Sponsor upon request. Electronic copies containing all drawings should be furnished to the Sponsor. Terms and conditions for Sponsor's reuse of documents/data on other projects should be addressed in the contract.

3.6.2 When a contract is only for preliminary plans, no commitment that would constitute a limitation on the subsequent use of the preliminary plans or ideas incorporated therein

should be stated or implied. The owner shall hold harmless the consultant against claims arising out of any reuse of the preliminary plans.

3.7 Contract Checklist.

The following checklist identifies important items and provisions to be considered in preparing any contract for consultant services. It is not all-inclusive because each contract will vary based on the unique requirements of the project scope of services.

1. Effective date of contract.
2. Names and descriptions of the parties to the agreement with their addresses and, in the case of a corporate body, the legal description of the corporation.
3. Nature, extent, and character of the project, the location thereof, and the time limitations.
4. Services, including performance and delivery schedules, to be rendered by the consultant.
5. Delineation of responsibilities of the consultant, the Sponsor, and other consultants and parties involved in the performance of the project, particularly key personnel such as the project manager.
6. Delineation of the duties and responsibilities of the resident engineer/inspector.
7. Inclusion of mandatory contract provisions identified in paragraph 3.4.
8. Provision for renegotiation of the contract on the basis of change in the scope of the project, changes in conditions, additional work, etc.
9. Provision that reproducible copies of planning and design drawings and specifications be made available to the Sponsor upon request.
10. Compensation, including methods of payment and payment schedules, for services to be rendered by consultants.
11. Provision for the termination of the consultant services before completion of work.
12. Provision for preparation of a Quality Control Plan as required by the special provisions of the grant agreement.
13. Provision for preparation of an Engineer's Design Report and Final Report.

3.8 FAA Contract Review.

3.8.1 FAA Airports field office personnel are available to assist the Sponsor and provide guidance on:

1. The scope of services to be provided;
2. The appropriate type of contract;
3. The mandatory contract provisions to be included; and
4. Sponsor certification requirements.

5. For EIS contracts please refer to Section 2.10.

3.8.2 If deemed necessary by the FAA, a draft of the contract will be submitted to ensure that:

1. The scope of the engineering is described completely;
2. The fees and reimbursements are reasonable and eligible as shown by a cost/price analysis;
3. The type of contract is appropriate; and
4. The engineering/consulting firm and the proposed contract terms are acceptable.

3.8.3 The FAA may elect to conduct a pre-award review of proposed contracts under certain circumstances. Additional guidance is available in Order 5100.38, Section 10.

3.9 FAA Contract Approval.

FAA Airports offices are authorized to accept certifications from Sponsors that they will comply with statutory and administrative requirements. Use of Sponsor certifications for selection of engineering, architectural, professional services, and planning consultants is encouraged. Acceptance by the FAA of the Sponsor's certification does not limit the FAA's ability to request and review documentation to ensure the accuracy of the certification. Reference Order 5100.38, Chapter 5, Subsection 5-23(g), *Sponsor Certification Forms*, "Selection of Consultants;" and 49 USC 47105 (d).

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CHAPTER 4. METHODS OF CONTRACTING AND ALLOWABLE COSTS

4.1 General.

The method of contracting selected for consultant services is dependent on the types of services required and specific circumstances relating to the individual project. The permissible types of contracts are established within 2 CFR part 200 and Appendix U of FAA Order 5100.38D .The various types of contracts and methods of compensation are discussed in this chapter and listed in Table 4-1. Contracts may be negotiated to include a combination of two or more of these methods.

4.1.1 The Sponsor must negotiate profit as a separate element of the price for each contract and supplemental agreement. When negotiating a fair and reasonable profit, the Sponsor shall give due consideration to the complexity of the work being performed; the risk borne by the firm; the firm's investment; the amount of sub-consultants; the firm's record of past performance; and industry profit rates in the surrounding geographical area for similar work.

4.2 Direct Personal Services.

4.2.1 Direct personal services are usually charged on a per diem basis. This method is particularly suited to court work or similar efforts involving intermittent personal service.

4.2.2 When such consulting or expert services are furnished, the consultant is compensated for the time devoted to the work and travel. The per diem charge should be based on the complexity of the work involved and the experience of the consultant. In addition to the compensation based on per diem, the consultant is reimbursed for travel and other out-of-pocket expenses incurred while away from the normal place of business provided they are reasonable, allocable, and of a generally allowable nature. Additionally, reimbursable expenses at the normal place of business may be reimbursed, such as special computer work, rendering, exhibits, provided they are reasonable, allocable, and of a generally allowable nature.

4.2.3 Each direct personal services contract must include a ceiling price that the contractor exceeds at their own risk. Furthermore, the Sponsor must assert oversight in order to obtain reasonable assurance that the contractor is using efficient methods and effective cost controls.

4.2.4 For services in court or on other engagements in which the consultant appears as an expert, a per diem charge is considered to be earned for each day of such appearance, although the consultant may not be called to testify or, if called, may finish his/her testimony in a fraction of a day.

4.2.5 On occasion, the urgency of the engagement requires the consultant to work longer than the normal day. In some instances, this requirement is a necessary feature of the services, and an understanding should be made with the Sponsor as to what constitutes a

day. In such cases, the per diem rate may be based on the normal number of working hours per day, or the per diem rate may be increased to take into consideration the extended work day.

4.2.6 For certain kinds of work, compensation based on hourly rates is an equitable arrangement. Compensation for consultant service on an hourly basis demands a higher rate per hour than would be represented in a per diem rate. Also, the hourly rates should apply to time for travel involved, plus reimbursement for travel costs, subsistence, and other out-of-pocket expenses. Depending on the duration of the services, compensation on an hourly basis may include an agreement on a preset minimum amount or retainer in addition to the payments based on the hourly rates.

4.2.7 If public hearings are involved in the consultant services, determination of the fee could present a problem since extensive hearings and follow-up work may be required. In these instances, the per diem approach may be considered as an appropriate method of payment for services rendered subsequent to the initial hearing. An estimated upper limit should be set forth in the contract. The contract should provide for renegotiation of the upper limit if unforeseeable conditions are encountered.

Table 4-1. Contracting Methods and Allowable Costs

Contracting Method	Compensation	Allowable Cost
§4-2. Direct Personal Services	• Per Diem. • Hourly Rate (§4-2.6).	Costs must be allowable, reasonable, and allocable to the project. Costs must be consistent with 2 CFR 200.459, FAA Order 5100.38 and 48 CFR Part 31.
§4-3. Retainer	• Fixed sum. • Paid monthly. • Some other mutually agreeable basis.	
§4-4. Cost-Plus-a-Fixed-Fee (NTE)	Fixed sum.	
§4-5. Fixed Lump-Sum Payment	Fixed sum.	
§4-6. Cost-Plus-a-Percentage-of-Cost	Prohibited method.	Prohibited.
§4-7. Specific Rates of Compensation	Hourly Rate	Costs must be allowable, reasonable, and allocable to the project. Costs must be consistent with 2 CFR 200 .459, FAA Order 5100.38 and 48 CFR Part 31.
§4-8. Phasing of Work	May include two or more of the above methods of compensation.	Costs must be allowable, reasonable, and allocable to the project. Costs must be consistent with 2 CFR 200.459, FAA Order 5100.38 and CFR Part 31.

Note: See Paragraph 4.10 for non-allowable costs for all types of service.

See Appendix G for Alternative Project Delivery Systems.

4.3 **Retainer.**

4.3.1 The engagement of consultants on a retainer basis is a common practice. This practice assures the Sponsor of always having the services of a certain individual engineer or organization available for future work. This method is used in cases of protracted litigation or for work over the years when the services of the consultant may be intermittent. It is also used in the development of undertakings for which the services of a consultant specialist are not required on a full-time basis. On large projects, this method enables the Sponsor to have the specialists who prepared the original plans and specifications on hand for maintenance or additions.

4.3.2 The retainer fee varies with the character and value of the services to the Sponsor and with the reputation and standing of the consultant in his/her profession.

4.3.3 The terms of agreement for services on a retainer basis vary widely. Compensation may be based on a fixed sum, paid monthly, or on some other mutually agreeable basis, with per diem or hourly rates in addition to time spent at the request of the Sponsor. In any case, the same principles, explained previously for per diem or hourly charges, govern under retainer contracts.

4.3.4 This type of contract is rarely used for grant projects. However, it is permissible to use a firm on retainer for projects without further procurement action if:

1. The retainer contract was awarded as a result of competition.
2. The parties competing for the retainer were advised that subsequent grant funded projects (including the scope of work for those projects) would be performed under the retainer contract.
3. The price for the work performed under the grant will be fair and reasonable and supported by a price or cost analysis.

4.3.5 Detailed records should be kept to identify the work that is part of a Federal grant project and eligible for reimbursement.

4.4 Cost-Plus-a-Fixed-Fee (Not to Exceed (NTE)).

4.4.1 The cost-plus-a-fixed-fee contract is appropriate when the Sponsor and consultant cannot fully define the scope, complexity, character or duration of effort at the time negotiations take place. This method places a risk on the Sponsor. Because the consultant's fee is fixed, there is an added incentive for the consultant to control cost.

1. Sponsors should consider using the cost-plus-fixed fee contract type for construction phase services. These services are generally dependent upon the construction contractor's performance. For this reason, the necessary level of effort for the consultant's services cannot always be fully established at the time of contract negotiation.

4.4.2 If the design services have a high level of variability of effort (e.g., evaluation of design alternatives), the use of a cost-plus-fixed-fee method may be justified. The fixed lump sum is the more appropriate contract method when the level of effort can be fully defined at the time of contract negotiations.

4.4.3 This type of contract provides for reimbursement of allowable costs such as salary, overhead, and direct non-salary expenses, plus a fixed fee.

1. A copy of the detailed fee estimate (see sample in Appendix D) must accompany the fee proposal.
2. The estimate must detail the direct labor costs by categories of employees, work hours, and hourly rate; overhead; direct non-salary expenses; and the fixed fee.

4.4.4 Fixed Fee: The fixed-fee is a dollar value the Sponsor negotiates with the consultant at inception of the contract. It is in addition to reimbursement for salary, overhead, and direct non-salary expenses.

1. The fixed fee represents an amount for profit, willingness to serve, and assumption of responsibility and risk. The fixed fee does not vary with actual costs.

2. The Sponsor and consultant may apply customary industry practices to negotiate a fair and reasonable value for the fixed fee. However, the resulting agreement must convey the fixed fee as a dollar value. The cost-plus-percentage of cost payment method prohibits the use of a percentage payment for the contract fee.

3. The fixed fee value may not be modified unless there is a change in the scope of the work. This includes both additions and subtractions to the scope of service.

4.4.5 The establishment of a not-to-exceed contract value is a Sponsor cost control measure that provides a ceiling level for the overall contract. The Sponsor should consider the risk to the consultant when establishing this upper limit.

4.4.6 Agreements with a cost-plus-a-fixed-fee payment method must contain provisions that provide for renegotiation of both the contract upper limit and the fixed fee. Sponsor

1. The agreement should include a requirement for the consultant to alert the Sponsor when the consultant's cumulative costs approach the upper limit.

2. The Sponsor and consultant should assess whether the remaining work effort can be completed within the remaining contract limits.

3. The consultant must obtain Sponsor approval before exceeding the upper limit.

4.4.7 Additional Costs: An increase in costs over the original contract value can occur for several reasons. These include, but are not limited to:

1. Poor performance of construction contractor may result in additional inspection and oversight effort.
2. Ineffective control of costs by the consultant resulting in an over-run of expenses.
3. Poor estimate of the necessary level of effort at inception of contract.
4. Increase in construction contract time due to weather events that exceed the norm for the location.
5. Added scope of work or services.

If the additional costs are due to a construction contractor's failure to perform per the terms of the contract, the Sponsor may address the additional costs to the consultant by applying liquidated damages on the construction contractor to the extent that liquidated damages have been included in the contract with the contractor.

If the additional costs are due to the consultant's failure to effectively control their costs per the agreement, the original fixed fee and not-to-exceed contract value become the final contract costs the Sponsor is obligated to pay.

If the additional costs are due to reasons outside the control of both the Sponsor and the consultant, the Sponsor and consultant should enter into negotiations to address the anticipated additional costs. This negotiation must occur prior to the consultant incurring the additional costs. The opportunity to negotiate does not necessarily mean that both the contract ceiling value and the fixed fee value require upward revision. The circumstances of the situation will dictate whether just the ceiling rate is revised or if the fixed-fee value requires revision as well. Due to the prohibition of the cost-plus-percentage of cost payment method, an increase in costs does not automatically equate to an increase in the fixed fee.

If the increased costs are due to additions to the contract scope of services, the Sponsor and consultant should enter into negotiations to determinate a fair and reasonable price for the additional level of effort.

4.4.8 Overhead charges will vary according to the nature, type, diversity, size of firm, and number/amount of contracts currently held by the firm. Such charges are defined by multiplying the approved certified overhead rate by the direct labor costs. Refer to section 4.10 for additional guidance on the allowability of overhead costs.

4.5 Fixed Lump-Sum Payment.

4.5.1 The fixed lump-sum payment contract is appropriate when the Sponsor and consultant can fully define the scope, complexity, character and duration of effort at the time negotiations take place.

1. Sponsors should consider using the fixed lump sum contract type for design services when the necessary level of effort for the consultant's services can be clearly established at the time of contract negotiation.

4.5.2 The fixed lump-sum contract method places most of the risk upon the consultant. Most consultants will address this risk in their profit markup. Once the fixed lump sum contract is established, the consultant has incentive to control their costs to maximize their actual margin.

1. The fixed amount of compensation is determined by estimating the allowable costs such as salary, overhead, and direct non-salary expenses, plus a reasonable margin of profit.

2. A copy of the consultant's detailed fee estimate must accompany a consultant's lump-sum fee proposal during the negotiation phase.

3. The estimate must detail the direct labor costs by categories of employees, work hours, and hourly rate; overhead; direct non-salary expenses; and profit..

4.5.3 The final agreement may express all these costs as a single lump sum for the entire project or as individual lump sum elements per the various tasks (e.g. Preliminary design, final design, bidding, etc.).

4.5.4 Non-salary direct expenses may be included in the lump sum value only if it is certain that such costs will be incurred on the project. If there is uncertainty that non-salary direct expenses will be necessary for the project, such costs should not be a part of a lump sum payment item. Instead, these costs should be handled as pass through cost with a not-to-exceed ceiling.

4.5.5 Where consultation is undertaken on a lump-sum basis, the agreement must contain a clearly stated time limit during which the services will be performed. In design contracts, there should be a provision for changes required after the approval of preliminary designs with a clear understanding as to where the final approval authority lies.

4.5.6 Lump-sum contracts must contain a clause that provides for renegotiation if the scope of work described in the contract has changed.

4.5.7 Overhead charges will vary according to the nature, type, diversity, size of firm, and number/amount of contracts currently held by the firm. Refer to section 4.10 for additional guidance on the allowability of overhead costs.

4.6 Cost-Plus-a-Percentage-of-Cost.

In accordance with 2 CFR §200.323, cost-plus-a-percentage-of-cost (CPPC) methods of contracting are prohibited for consultant services under airport grant programs. CPPC contracts may be defined as a payment formula based on a fixed predetermined percentage rate of actual performance costs by which the sum of the consultant's entitlement, uncertain at the time of agreement, increases commensurately with increased performance costs. The types of contracts discussed below are based on the CPPC methods of contracting and, therefore, are prohibited:

1. Salary Cost Times a Percentage Multiplier, Plus Direct Non-salary Expense. This type of contract contains CPPC methods of contracting because the consultant's indirect cost and profit are not fixed at the time the contract is signed.
2. Percentage of Construction Costs. This type of contract contains CPPC methods of contracting since a portion of the consultant's fee that does not reflect actual costs constitutes a profit that is not fixed at the time the contract is executed.

4.7 Specific Rates of Compensation (Not to Exceed (NTE)).

4.7.1 The "specific rates of compensation" contracting method should only be used when it is not possible at the time of procurement to estimate the extent or duration of the work or to estimate costs with any reasonable degree of accuracy. Sponsor must get advanced approval from the FAA for all work conducted under this method.

4.7.2 The "specific rates of compensation" contracting method provides for reimbursement for consultant services on the basis of direct labor hours at specified fixed hourly rates (including direct labor costs, indirect costs, and fee (profit)) plus any other direct expenses/costs, subject to an agreed maximum amount.

4.7.3 While the inclusion of fee (profit) in the loaded hourly rate(s) established for a contract allows the fee earned to be based on the labor hours worked on the project, this is not considered a "cost plus a percentage of cost" contracting method. A key distinction for the "specific rates of compensation" contracting method is that indirect costs and fee must be recovered as a component of the established, fixed hourly billing rates for labor hours worked. The negotiated rate is typically fixed for the life of the project, however, the Sponsor must reserve the right (by contract) to audit and adjust multiplier rates.

4.7.4 Use of this contracting method requires close monitoring to ensure efficient methods and cost controls are employed by the consultant.

4.8 Sponsor Force Account Projects.

Per FAA Order 5100.38, proposals to accomplish airport engineering with the Sponsor's own personnel or by its agent must be approved by the FAA. Proposals must be submitted in writing and subjected to a review similar to that for engineering contracts. The Sponsor's proposal to use force account rather than contract-engineering services must be fully documented and should contain as a minimum:

1. Justification for doing the work by force account rather than by contract;
2. Estimate of costs, including detailed data on estimated work hours, hourly rates, non-salary expenses, and indirect costs;
3. Names and engineering qualifications of personnel that will be accomplishing specific tasks;
4. Statements concerning the capability of the Sponsor to perform the various tasks of design, supervision, inspections, testing, etc., as applicable to the project with arguments to support the decision to use force account;
5. Summary of Sponsor's experience with airport engineering pertaining to projects with similar design scopes; and
6. Statement by the Sponsor on the ability of its personnel to integrate the project into their workload, with a schedule of accomplishment of tasks, date by which the work will be completed, or dates within which it will take place.

4.9 Phasing of Work.

Design projects may be negotiated to be performed in phases and include two or more of the foregoing methods of compensation. For example, the first phase of a project might cover the development of the precise scope of work for a project and be paid for under a cost-plus-fixed-payment contract. The follow-on work could then be negotiated

on the basis of information developed in the first phase and might be accomplished under a lump-sum contract.

4.10 Allowable Costs.

Costs incurred must be consistent with the Federal cost principles contained in 48 CFR part 31, 2 CFR §200 Subpart E, and FAA Order 5100.38 to be reimbursable under an airport planning or development grant. The following are typical expenses allowable under the above regulations:

1. Direct Salary Costs.
   a. Direct salary costs include the cost of salaries of engineers, planners, computer aided design and drafting (CADD) technicians, surveyors, stenographers, administrative support etc., for time directly chargeable to the project.
   b. Salaries or imputed salaries of partners or principals, to the extent that they perform technical or advisory services directly applicable to the project, are to be added to salary cost.
2. Overhead Costs. Overhead costs include overhead on direct salary costs and general and administrative overhead. 48 CFR Part 31establishes the allowability of indirect costs. Consultants must be capable of validating their applied overhead rates by providing the Sponsor a copy of their audit certification that conforms to acceptable industry audit standards such as the Government Auditing Standards (GAGAS) or the Generally Accepted Auditing Standards (GAAS). Unless explicitly requested, the FAA does not require a copy of this audit certification. The Sponsor should retain a copy of this certification for purpose of future independent audit.
   a. Duplication of costs: Consultants must avoid claiming similar costs both as direct and indirect.
   b. Field Rates: Consultants often have tasks that require employment of field personnel for extended periods. The application of a home rate to field personnel direct labor hours may result in indirect costs that are in excess of the benefit realized by the field personnel. If field personnel are not receiving the day-to-day benefit of the home rate, it may be appropriate and necessary for the consultant to establish a field office indirect rate. Such rates are generally lower than the home rate due to the omission of costs that do not benefit the field personnel.
3. Direct Non-salary Expenses. Direct non-salary expenses usually incurred may include the following (detailed records must be kept to support charges and allow auditing):
   a. Living and traveling expenses of employees, partners, and principals when away from the home office on business connected with the project. (Records must include employee name, dates, points of travel, mileage rate, lodging, and meals.)

b. Identifiable communication expenses such as long-distance telephone, telegraph, cable, express charges, and postage, other than for general correspondence.

c. Services directly applicable to the work such as special legal and accounting expenses, computer rental and programming costs, special consultants, borings, laboratory charges, commercial printing and bindings, and similar costs not applicable to general overhead.

d. Identifiable computer and office supplies and stenographic supplies and expenses charged to the Sponsor's work as distinguished from such supplies and expenses that are applicable to two or more projects.

e. Identifiable reproduction costs applicable to the work.

f. Advertising costs that are solely for the recruitment of personnel required for the performance by the consultant of obligations arising under the contract.

g. Sub-consultant and outside services including administrative costs associated with managing said services

4.11 Non-Allowable Costs.

Costs incurred must be consistent with the Federal cost principles contained in 48 CFR part 31, 2 CFR §200 Subpart E, and FAA Order 5100.38 to be reimbursable under an airport planning or development grant.

4.12 Pass-Through Costs

Consultant markup of pass-through costs is a cost element that is subject to Sponsor negotiation. The determination on whether a markup of non-salary expenses is appropriate relies on the benefit and value the consultant adds to the pass through expense.

Mark up of expenses for which the consultant’s effort adds negligible or no value are not reasonable. Such expenses should pass through to the Sponsor without any markup by the consultant (See Section 14 of FAA Order 5100.38 for Cost Reasonableness). Examples of this include travel expenses, supplies, mailing costs, per diem expenses, etc.

A consultant’s effort in managing sub-consultants represents expenses that may add value to the contract performance. The extent of this benefit may vary based on factors including but not limited to task complexity, assumption of liability, task duration, schedule issues, and risk management. The value and benefit of consultant effort may vary per sub-consultant.

Sponsors must be careful in how they address consultant markup on pass-through expenses in their contracts. Sponsors must avoid situations where the agreement addresses the markup by simply applying a percentage markup on any pass-through costs. This is due to the regulatory prohibition on cost-plus-percentage of costs payment methods found in 2 CFR 200 Subpart D.

Generally, the consultant's administration expenses associated with sub-consultant management should be addressed as direct labor hours in the consultant fee derivation. Other sub-consultant management expenses must be addressed as a dollar value, as opposed to an applied percentage. The consultant's fee estimate must identify the markup value for other subconsultant management expenses within the non-salary expense section. Sponsors and consultants must also avoid situations where costs for managing sub-consultant agreements are duplicated within the agreement.

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APPENDIX A. DEFINITIONS

Some common terms used in this AC are defined below. Additional definitions of terms and phrases are available in Order 5100.38, Airport Improvement Program Handbook, current version.

1. **Architectural/Engineering (A/E) Services.** The term "architectural and engineering services" means:

   a. Professional services of an architectural or engineering nature, as defined by State law, if applicable, which are required to be performed or approved by a person licensed, registered, or certified to provide such services as described in this paragraph;

   b. Professional services of an architectural or engineering nature performed by contract that are associated with research, planning, development, design, construction, alteration, or repair of real property; and

   c. Such other professional services of an architectural or engineering nature, or incidental services, which members of the architectural and engineering professions (and individuals in their employ) may logically or justifiably perform, including studies, investigations, surveying and mapping, tests, evaluations, consultations, comprehensive planning, program management, conceptual designs, plans and specifications, value engineering, construction phase services, soil engineering, drawing reviews, preparation of operating and maintenance manuals, land acquisition services and other related services.

2. **Consultant.** A firm, individual, partnership, corporation, or joint venture that performs architectural, engineering or planning services as defined in paragraphs 1 and 4, employed to undertake work funded under an FAA airport grant assistance program.

3. **Fee.** Compensation paid to the consultant for professional services rendered.

4. **Planning Services.** Professional services of a planning firm include: airport master and system plan studies, airport noise compatibility plans (14 CFR part 150 studies), and environmental assessments and related studies.

5. **Primary Engineer or Principal Consultant.** A firm that is held responsible for the overall performance of the service, including that which is accomplished by others under separate or special service contracts.

6. **Sponsor.** A public agency or private Sponsor of a public-use airport that submits to the Secretary an application for financial assistance for the airport (49 USC § 47102(19)).

7. **Bridging Documents.** Preliminary engineering documents intended to define a scope of work for a subsequent design and construction efforts. These documents are typically prepared by a professional services firm who is not eligible to participate in further procurements on the project.

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APPENDIX B. BIBLIOGRAPHY

This bibliography covers Public Law, FAA Orders, Advisory Circulars (ACs), and Code of Federal Regulations (CFRs) referenced within this AC.

B.1 Public Law.

1. Brooks Act: Federal Government Selection of Architects and Engineers. Public Law 92-582, 92nd Congress, H.R. 12807, October 27, 1972. (See http://www.usa.gov/.)
2. *United States Code*. Title 40 Subtitle I, Chapter 11 Selection of Architects and Engineers. (See http://uscode.house.gov.)
3. *United States Code*. Title 42 Chapter 55 USC 4321 National Environmental Act of 1969. (See http://uscode.house.gov.)
4. *United States Code*. Title 49 Subtitle VII, Aviation Programs, USC §47123 Nondiscrimination. (See http://uscode.house.gov.)
5. *United States Code*. Title 49 Subtitle VII, Aviation Programs, §47107(a) (17), Project Grant Application Approval Conditioned on Assurances About Airport Operations. (See http://uscode.house.gov.)
6. *United States Code*. Title 49 Subtitle VII, Chapter 471 USC §47102 Definitions. (See http://uscode.house.gov.)
7. *United States Code*. Title 49 Subtitle VII, Chapter 471 USC §47105 Project Grant Applications. (See http://uscode.house.gov.)

B.2 Code of Federal Regulations.

Access the Code of Federal Regulations online at http://www.gpo.gov/fdsys/browse/collectionUScode.action?collectionCode=USCODE.

1. Airport Noise Compatibility Planning. *Code of Federal Regulations*. Title 14 CFR part 150.
2. Contract Cost Principles and Procedures. *Code of Federal Regulations*. Title 48 CFR part 31.
3. Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction. *Code of Federal Regulations*. Title 29 CFR part 5.
4. New Restrictions on Lobbying. *Code of Federal Regulations*. Title 49 CFR part 20.
5. Nondiscrimination in Federally-Assisted Programs of the Department of Transportation–Effectuation of Title VI of the Civil Rights Act of 1964. *Code of Federal Regulations*. Title 49 CFR part 21.

6. Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor. *Code of Federal Regulations.* Title 41 CFR part 60.
7. Participation by Disadvantaged Business Enterprises (DBE) in Department of Transportation Financial Assistance Programs. *Code of Federal Regulations.* Title 49 CFR part 26.
8. Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments. *Code of Federal Regulations.* Title 2 CFR part 200.

B.3 FAA Orders and Advisory Circulars. Please refer to current versions.

1. U.S. Department of Transportation. Federal Aviation Administration. Order 1050.1, Environmental Impacts: Policies and Procedures. (See http://www.faa.gov/regulations_policies/orders_notices/.)
2. U.S. Department of Transportation. Federal Aviation Administration. Order 5050.4, Airport Environmental Handbook. (See http://www.faa.gov/airports/resources/publications/orders/.)
3. U.S. Department of Transportation. Federal Aviation Administration. Order 5100.38, Airport Improvement Program Handbook. (See http://www.faa.gov/airports/resources/publications/orders/.)
4. U.S. Department of Transportation. Federal Aviation Administration. Advisory Circular 150/5300-15, Use of Value Engineering for Engineering and Design of Airport Grant Projects. (See http://www.faa.gov/airports/resources/advisory_circulars/.)

APPENDIX C. SCOPE OF SERVICES SAMPLES

C.1 This appendix contains three different examples of Scope of Services. Example 1 is a Design Services scope, Example 2 is a Planning Services scope, and Example 3 is a Construction Services scope. Samples may not necessarily include all provisions and terms required by this AC. If a conflict exists between these examples and the AC, the AC will prevail.

C.2 Example 1. Design Services Scope.

TAXIWAY A SOUTH AND HOLDING APRON RECONSTRUCTION AND NEW HARDSTAND

ABC INTERNATIONAL AIRPORT

The consultant will provide the required professional services to design the reconstruction of Taxiway A South and holding apron and the proposed hardstand (attach a drawing or exhibit if necessary). This work will be performed and constructed under a Federal Aviation Administration (FAA) Airport Improvement Program (AIP) grant to the airport.

Taxiway A South will be constructed in Portland Cement concrete and will be widened to 100 feet and have new 40-feet-wide asphalt shoulders added. The South Holding Apron will be reconstructed to essentially the same configuration as presently exists. Centerline taxiway lighting will be added to the taxiway and through the holding apron to Runway 18L/36R. Control panels in the FAA tower and field lighting electrical vault will also be modified for the new centerline lighting.

The new hardstand will be located north of the Airlift Airlines Maintenance Facility (currently under construction) south of the northeast Cargo Taxilane and west of the flying Bears hardstand. The hardstand will be a Portland Cement concrete apron with lighting similar to other hardstands, drainage to the Industrial Waste Sewerage System (IWS), and other utilities including fire protection. No downstream IWS changes are anticipated. It is anticipated that utilities are immediately available for fire protection adjacent to hardstand.

Professional services to be provided by the consultant will include civil, electrical and structural, and geotechnical engineering services required to accomplish the following items:

PHASE 1 - PRELIMINARY DESIGN

The preliminary design phase is intended to identify and evaluate alternatives to assure cost effective and practical solutions for the work items identified. The consultant will complete its evaluation of alternatives through contacts with local authorities and review of the preapplication, field investigations, and a practical design approach. The design will take advantage of local knowledge and experience and utilize expertise from recent construction projects to design a cost-effective project and ensure competitive construction bids. Activities include:

1. Coordinate with airport operations, FAA tower, and the airlines to minimize impacts in day-to-day operations of the airlines and air cargo lines. Also coordinate with facilities and

maintenance and fire department. (This will require four coordination meetings throughout the design.)

2. Prepare a preliminary estimate of probable construction costs and schematic design for each element of the project.
3. Provide all geotechnical investigation and analysis and pavement and other nondestructive testing and analysis required for the design.
4. Coordinate with the airport's project manager for required survey information.
5. Prepare an overall construction phasing plan in order to maximize project constructability and minimize interference with airport operations. The consultant's phasing plan must take into account other airport construction projects.
6. Determine aircraft usage through coordination with Airport staff and information furnished by the Sponsor. Design the pavements to meet the anticipated aircraft traffic.

PHASE 2 - ENGINEERING PHASE ACTIVITIES

1. Evaluate local conditions.
   a. Evaluate local material suppliers, sources, and capabilities.
   b. Evaluate drainage alternatives.
   c. Review electrical lighting layouts and determine system relocation capacities.
2. Review and evaluate project layout.
   a. Verify master plan dimensions and data.
   b. Review findings and recommendations with airport personnel.
3. Complete a soils investigation, soils report, and recommendations including:
   a. Field Exploration.
      i. Conduct test pit explorations with a rubber-tired backhoe at various locations to a maximum depth of 8 feet in the runway, taxiway, and apron areas. Log and field classify soils and obtain samples for laboratory testing.
   b. Laboratory Testing.
      i. Perform laboratory index and strength tests as follows:
         (1) Compacted CBR test (3 compaction points/test).
         (2) Standard Proctor (4 point) compaction tests.
         (3) Atterberg limit determinations.
         (4) Sieve analysis.
         (5) Unit weight and water content determinations.
         (6) FAA soil classifications for all samples.
4. Complete necessary topography and site surveying, including establishment of project control points.

5. Complete pavement section alternatives analysis and provide recommendations including:
   a. Conduct an initial cost analysis, life-cycle cost analysis, and analysis of locally available resources for up to three alternatives.
   b. Strategize bidding procedures and pavement section alternatives to provide a basis for competitive bidding.
6. Complete preliminary plan and profile design for the runway, taxiway, and apron area.
7. Complete preliminary runway lighting, signing, and system circuitry layout.
8. Provide recommendations for construction phasing to the Sponsor for their review.
9. Complete estimates of probable construction costs for the recommended alternatives.
10. Provide five sets of review documents.
11. Complete the preliminary design report including:
    a. Geotechnical investigation.
    b. Topographical survey.
    c. Preliminary plans.
    d. Pavement section design and analysis.
    e. Drainage design analysis.
    f. Estimates of probable construction costs.
    g. Final summary and recommendations.
    h. Phasing and scheduling recommendations.
12. Solicit comments on preliminary design from airport personnel and the FAA.

PHASE 3 - FINAL DESIGN

In the decision phase, the consultant will provide well-defined construction requirements, with selected bid alternatives as appropriate to provide a basis for competitive construction bids. Construction schedules will be closely coordinated to endeavor the best possible weather conditions and the least possible interference with airport operations. Assist the airport with the advertisement, notification of local airport users, and generally complete the final construction contract documents for the project. The following outline describes in greater detail the tasks and products.

1. Incorporate preliminary design comments and respond as necessary to requests for additional information.
2. Provide final design drawings, specifications, and final estimate of probable construction costs and schedule for the project.
3. Provide Engineering Report.
4. Develop specifications using Advisory Circular 150/5370-10, Standards for Specifying Construction of Airports, as amended, and utilize standard provisions supplied by the Sponsor.

5. Develop a safety plan in accordance with AC 150/5370-2, Operational Safety on Airports During Construction.
6. Design all improvements in accordance with FAA standards and guidelines and in accordance with the Airport Certification Manual.
7. Coordinate the design of the project with existing and ultimate grades established at adjacent areas.
8. Provide for all required design of utilities and services within the area defined in the preliminary design.
9. Complete final quantity calculations.
10. Solicit Sponsor and FAA review and approval.
11. Provide ___ sets of contract documents.
12. Assist airport with advertising and interpretation of project requirements.
13. Assist airport with preparation of the FAA application.
14. Provide review of all submittal and shop drawings during construction.
15. Provide technical assistance and recommendations to the Sponsor during construction.
16. The following project schedule will be utilized unless otherwise approved by the Sponsor: Taxiway A South and the Holding Apron portion of the project will be phased to be constructed on an accelerated basis to be completed within two (2) months of the construction consultant's notice to proceed or earlier, if possible. During construction, runway 18L/36R will be kept in service at all times. The project limits will be defined such that the construction activities will not impact the operation of the runway as defined by airport and FAA operational criteria.
17. The construction budget for the project is $____, including construction change order contingency. The consultant will evaluate the feasibility of this budget and keep the Sponsor apprised during each phase of the design. The consultant will advise the Sponsor as to options available for reducing construction costs to stay within the budget, if it appears likely that construction bid prices will exceed this budget.

The design schedule is anticipated to be as follows:

Commission Authorization of Consultant Contract - 10/10/XX
Contract Execution - 10/10/XX
Start Design - 10/11/XX
50 Percent Design Review - 11/22/XX
Complete Design, Submit Estimates, Plans and Specs for Review 1/12/XX

Advertise for Bids - 3/21/XX
Open Bids - 4/11/XX
Prepare Award Memo - 4/12/XX
Award Construction Contract - 4/25/XX
Construction Contract Executed - 5/08/XX
Construction Notice to Proceed - 5/14/XX

Complete Taxiway A South & Holding Apron - 7/13/XX
Complete Hardstand Construction - 11/01/XX

PHASE 4 - CONSTRUCTION SERVICES

During the construction phase of the project, the consultant will assist the Sponsor to monitor and document progress for quality and cost. Review contractor payment requests, complete necessary quality control testing, establish necessary survey control, continually inform the Sponsor on project progress and problems, conduct the final project inspection, and complete the associated certification.

ACTIVITIES

1. Assist with prebid conference and bid opening. Issue addenda, prepare an abstract of bids, and make recommendations for award.
2. Assist in award notification to successful bidder and notify and return bid bonds to the unsuccessful bidders.
3. Solicit and review bonds, insurance certificates, construction schedules, etc.
4. Conduct preconstruction conference.
5. Provide horizontal and vertical control.
6. Provide resident project representative to monitor and document construction progress, confirm conformance with schedules, plans and specifications, measure and document construction pay quantities, document significant conversations or situations, document input or visits by local authorities, etc.
7. Prepare change orders and supplemental agreement, if required.
8. Prepare and submit inspection reports.
9. Prepare and confirm monthly payment request.
10. Conduct necessary quality control testing.
11. Conduct and document periodic wage rate interviews.
12. Conduct a final project inspection with airport personnel, the FAA, and the consultant.
13. Prepare as-constructed drawings and the final project report from information furnished by the consultant.

C.3 **Example 2. Planning Services Scope.**

AIRPORT LAYOUT PLAN UPDATE

ANYTOWN MUNICIPAL AIRPORT

The purpose of this Airport Layout Plan Update (ALPU) is to identify potential development options specifically associated with closed Runway 10-28 at Anytown Municipal Airport. The existing Airport Layout Plan (ALP) is an integral component of the Airport Master Plan Update (AMPU) completed in 2005, which was based on data compiled in the mid-2000s, which is now

nearly 10 years old. Since that time, a number of critical growth and operational issues have surfaced that need to be assessed and factored into the preferred layout plan.

This ALPU will help the community focus on the best course of action for continued development of the airport, by identifying the key critical issues the airport faces in the next five to ten years.

CRITICAL ISSUES

Anytown is in a multiyear airport development plan that includes the reconstruction of Runway 15-33, expansion of hangar and aircraft parking facilities, construction of an airport access road, plus plans for the development of a new terminal building, expanded aircraft parking, and fueling facilities.

The airport is now in a position to start focusing on long-term landside development, particularly along the closed runway, with a realistic assessment of the existing terminal area configuration on the east end of the closed runway. An equally important component of this study is the identification of aviation development limits on the west end of the closed runway over the next 20 years.

TASKS

XYZ Company proposes to provide the following services. To the maximum extent possible, and unless otherwise noted, data from the most recent AMPU and ALP will be used. In the interest of cost savings, updated aerial mapping will not be obtained for this project. XYZ Company will rely on existing data.

CONCEPT

XYZ Company will prepare a written report and update the ALP, focusing on development of airport landside facilities, with emphasis on the closed runway, and the limits of compatible aviation development. Findings will be presented in written form at key phases through the term of this project, with each subsequent part building on previously submitted information. This concept will result in the development of a complete draft report that will then be updated to reflect agreed upon changes, resulting ultimately in the final ALPU.

TASK A - STUDY DESIGN/ADMINISTRATIVE

1. Project Scoping Meeting. The consultant will arrange and attend a project scoping meeting with the FAA, state, and city of Anytown (Sponsor) to review the project scope and tasks and to confirm the specific requirements of the ALPU.
2. Refine Scope of Services. XYZ Company will refine and prepare a detailed scope of services and fee to complete the defined tasks for submission to the Sponsor, state, and FAA.
3. Prepare Grant Application. XYZ Company will prepare and submit applications for Federal assistance. The Sponsor will sign and distribute the applications to state and FAA. The grant application will be submitted on or about April 15, 20XX.
4. Attend City Council Meeting. XYZ Company will attend a regularly scheduled city council meeting for the purpose of answering questions and addressing issues concerning this project.
5. Grant Administration.

a. XYZ Company will submit a monthly invoice to the Sponsor, including supporting documentation which specifically describes the work and other items for which the billing is submitted. The billing report will also include an estimate of the percent complete of each task appearing on the report. The Sponsor will be billed on a monthly basis for all work conducted in association with this project.

b. The FAA and state will reimburse the Sponsor for these fees through the grant reimbursement process. XYZ Company will prepare these grant reimbursement requests for the Sponsor's signature and distribution to the FAA and state. It is anticipated that seven grant reimbursement requests will be prepared during the life of this project.

TASK B - ALPU REPORT

XYZ Company will prepare an ALPU report consisting of five chapters and various appendices, developed in two phases (draft and final).

Chapter 1 - Inventory and Forecasts

1. Update Existing Activity: This task will update existing based aircraft totals and evaluate current aircraft operations using industry standards, observations, and discussions with airport operators and users. The Sponsor will provide XYZ Company will an accurate list of all based aircraft by aircraft make and model, sorted by hangared aircraft and aircraft parked on open aprons.
2. Field Inventory: XYZ Company will conduct a site field investigation of the airport that will provide an update of recently constructed facilities as well as potential development areas.
3. Identify On-Airport Developable Land: XYZ Company will use existing base mapping superimposed by the airport property line and resource protection limits to identify areas of airport property that can be "disturbed" or used for future airport development. This task will focus on the closed runway.
4. Evaluate Existing Lease Agreements. XYZ Company will obtain and evaluate existing airport lease agreements for compliance with FAA grant assurances.
5. Review SASP: XYZ Company will obtain and review aircraft and operational data in the current State Aviation Systems Plan (SASP) as applicable to Anytown.
6. Update 19XX Forecasts. The 20XX AMPU forecasts will be updated based on current aircraft loading and operations and projected forward 5, 10 and 20 years using SASP forecasts, as applicable.
7. Forward Draft Findings. XYZ Company will prepare and submit a draft Inventory and Forecasts Chapter, providing 10 copies of the draft chapter to the Sponsor and one copy each to the state and FAA. It is recommended that the Sponsor post this report on its website. XYZ Company will provide a copy of the report as it progresses, in Adobe® PDF format, to the Sponsor's webmaster or information technology (IT) department.
8. Meeting. XYZ Company will present the Inventory and Forecast data to the Sponsor; answering questions and resolving any conflicts prior to starting the next phase of the project.

Chapter 2 - Demand/Capacity Analysis & Facility Requirements. Pending receipt and resolution of comments from the Sponsor, state, and the FAA on Chapter 1, XYZ Company will prepare Chapter 2. XYZ Company will review and respond to comments to all parties.

1. Landside Facility Capacities: XYZ Company will identify the capacity of the existing landside facilities including, but not limited to aviation facilities: hangars, aircraft parking, fuel facilities; compatible non-aviation facilities: industrial park; and common facilities: automobile parking and access roads
2. Airside Facility Requirements: This ALPU will not evaluate airside facilities (runway, taxiways, etc).
3. Landside Facility Requirements: XYZ Company will evaluate existing landside facilities and compliance with FAA safety and design requirements. Based on the safety and capacity computations as well as the forecasts of aviation demand for the airport, XYZ Company will identify the needed improvements for the landside facilities (i.e., hangars, aircraft parking, automobile parking and access, and aircraft fueling facilities).
4. Forward Draft Findings: XYZ Company will prepare and submit the Capacity and Facilities Chapter, providing 10 copies of the draft chapter to the Sponsor and one copy each to the state and FAA.
5. Meeting. XYZ Company will present its findings from the first two chapters to the Sponsor; answering questions and resolving any conflicts prior to starting the next phase of the project.

Chapter 3 - Alternative Developments. Pending receipt and resolution of comments from the Sponsor, state, and FAA on Chapter 2, XYZ Company will prepare Chapter 3. XYZ Company will review and respond to comments to all parties.

1. Identify Limits of Short-Term Aviation Development. Based on previously developed forecasts (Chapter 1) and identified facility needs (Chapter 2), XYZ Company will identify areas of airport property that can be used for future airport development. Emphasis will be placed along the entire close runway corridor, with particular attention given to realistic development of the existing terminal area.
2. Identify Potential Nonaeronautical Use. XYZ Company will analyze future aviation needs (projected in 5, 10, and 20 year periods) and then identify on-airport areas potentially available for compatible nonaeronautical use. Emphasis will be placed on development in the area along or in the vicinity of the west end of the closed runway.
3. Identify Development Alternatives: The objective of this task is to identify feasible landside alternative development plans for the airport based on Tasks A and B above. While a variety of alternative solutions could be considered, for the purposes of this study, XYZ Company will develop a series of possible alternatives consistent with the needs of the Sponsor.
4. Forward Draft Findings: XYZ Company will prepare and submit the Alternatives Chapter addressing the tasks in this chapter, providing 10 copies of the draft chapter to the city, and one copy each to the state and FAA.
5. Preferred Alternative Meeting: XYZ Company will meet with the Sponsor to assist him in evaluating and selecting the preferred alternative. Subsequent to the selection of the preferred alternative, XYZ Company will complete and submit an updated Alternatives Chapter to all parties.

Chapter 4 - Environmental Evaluation. Pending receipt and resolution of comments from the Sponsor, state, and FAA on Chapter 3, XYZ Company will prepare Chapter 4. XYZ Company will review and respond to comments to all parties.

1. Identify Existing Environmental Conditions.

    2. This task will include the collection of data to identify protected resources and environmental issues as defined by the 23 impact categories found in FAA Order 5050.4, Airport Environmental Handbook, in the vicinity of the airport that are anticipated to be impacted by the proposed capital improvements or existing operations. A review of existing data and coordination with appropriate regulatory agencies will identify potential protected resources and issues important to the human and natural environment that may require additional data collection beyond the scope of this study. XYZ Company will conduct one site visit to compare existing conditions to written data.

    3. In addition, XYZ Company will review previous environmental permitting and, if applicable, protected resource mitigation performed as part of previous airport and industrial park improvement projects. This information will be useful to the Sponsor when future environmental permits need to be obtained.

    4. Delineated flagged wetlands will be identified and evaluated using the current Federal and State (and local, if applicable) methodologies. These wetland boundaries, which are already digitized, will be placed on the appropriate airport plans and figures.

5. Identify Potential Adverse Impacts: Based upon the recommended airport improvements identified as the preferred alternative, potential impacts to the environment that are protected by local, State, and Federal regulations will be identified for the first five years of the planning period.

6. Describe Regulatory Requirements: XYZ Company will identify the permit requirements for the anticipated first five years of airport improvements. This information can then be used to plan the phasing requirements for each project (refer to Chapter 5 – Implementation Schedule & Financial Analysis).

7. Forward Draft Findings: XYZ Company will prepare and forward the Environmental Chapter covering the tasks described in this section. This chapter will provide the basis for the environmental permitting requirements and financial impacts presented in Chapter 6. XYZ Company will provide copies as previously described above.

Chapter 5 - Implementation & Financial Analysis. Pending receipt and resolution of comments from the Sponsor, state, and FAA on Chapter 4, XYZ Company will prepare Chapter 5. XYZ Company will review and respond to comments to all parties.

1. Implementation Schedule. Based on the adopted preferred alternative, a phased implementation schedule will be developed. This schedule will be based on demand levels and their estimated timeframes for realization. This schedule will not only include the development previously mentioned, but also major maintenance projects that were identified and necessary to maintain the viability of the airport.

2. Capital Improvement Plan. The ALPU will include a CIP using planning-level opinions of cost for each of the projects, both for development and maintenance of the airport. The distribution of eligible costs between the Sponsor, state, FAA, and private investors will be

evaluated for the presence of extensive financial burdens during any one timeframe; if necessary, projects may be shifted to offset this burden.

3. Funding Sources: XYZ Company will identify typical and potential funding sources for paying for proposed airport improvements or necessary maintenance projects.
4. Forward Draft Findings. XYZ Company will prepare and forward the Implementation Schedule and Financial Analysis Chapter covering the tasks described in this section. This chapter will provide the basis for future capital planning considerations on the part of the state and FAA. XYZ Company will provide copies as previously described above.

TASK C – UPDATE ALP

Three key components of the ALP will be updated: Existing Airport Layout Plan, Terminal Plan, and Ultimate Airport Layout Plan. The Approach Plan and Profile, Land-Use, and CFR Part 77 Analysis sheets **will not** be updated. Based on the selection of the preferred alternative, several drawings of the existing ALP set will require revisions and updating. All plans will be prepared to conform to state and FAA CADD standards and will be made available in electronic format.

1. Existing Airport Facilities Plan: This drawing will be updated reflecting changes since completion of the existing drawing. This drawing will be prepared at a scale of either 1" = 300' or 1" = 400'.
2. Ultimate Airport Layout Plan: This drawing will be revised reflecting the preferred alternate layout. This drawing will be prepared at a scale of either 1"= 300'or 1"= 400'.
3. Terminal Area Plan: This drawing will be prepared at a scale of either 1"= 50'or 100' reflecting the revised preferred layout.
4. Forward Draft Findings: XYZ Company will prepare and submit the revised ALP drawings. One full-size 24" x 36" set will be provided each to the Sponsor, FAA, and the state. In addition, a reduced 11" x 17" set will be provided in Adobe PDF to the Sponsor's webmaster for inclusion on the city's website.

TASK D – FINAL DOCUMENTATION

1. Final Meeting. XYZ Company will hold a final project meeting with the Sponsor, state, and FAA to review the project and solicit all final comments.
2. Final Report. Pending receipt of comments from all interested parties, a final ALPU report will be prepared. Bound, printed copies will be distributed to the Sponsor, state, and FAA. Additional copies of the final report will be available upon request on CD-ROM in Adobe PDF format.
3. Airport Layout Plan. Four (4) full-size sets of the final ALP set will be distributed to the Sponsor, state, and FAA for approval signatures. All signatory parties and XYZ Company will receive one (1) signed ALP set for their files.

ANTICIPATED PROJECT SCHEDULE

The following anticipated project schedule is based on the timely receipt and resolution of comments from the Sponsor, state, and FAA:

Anticipated Project Schedule

Task	Date
Study Design	May 20XX
Inventory and Forecasts	June 20XX
Capacity Analysis and Facility Requirements	August 20XX
Alternatives Development	September 20XX
Environmental Evaluation	October 20XX
Financial Analysis	November 20XX
Airport Plans	December 20XX
Final Documentation	January 20XX

C.4 Example 3. Construction Services Scope.

DESIGN AND CONSTRUCT 6-UNIT HANGAR

ANYTOWN MUNICIPAL AIRPORT

ARTICLE A - DATA COLLECTION AND PROJECT DEVELOPMENT

1. Predesign Conference - A representative of the engineer will attend a predesign meeting at the offices of the state to provide the representatives of the Sponsor, the FAA, and the state with the opportunity to review and discuss the nature and extent of the project and to establish the project design criteria, budget, and schedule. The engineer will coordinate the date and time of the predesign conference via teleconferences, letters, faxes and emails to the representatives of the Sponsor, the FAA and the state. The engineer will prepare a presentation of the project components for discussion at the predesign conference. The engineer will use the Airports Division Predesign Conference Form XX to determine the design and construction parameters that will be used for this project.
2. Review and Evaluate Existing Data - The engineer will compile the existing data that was prepared for previous projects at the airport, that is germane to the project, and that might be useful in the design of the project. The existing data includes airport master plan, airport Exhibit “A” property plan, engineering drawings, airspace obstruction analyses, aerial photogrammetry data, and aerial photographs. The engineer will utilize the pertinent data and information as appropriate to prepare worksheets to facilitate the development of the project. The engineer will review the existing data for accuracy and completeness and to determine the feasibility of utilizing the data to prepare plans and specifications for the design and construction of the project.
3. Site Location Survey - The engineer will retain a professional land surveyor who is licensed in the State to provide site location survey services in the vicinity of the proposed hangar project area sufficient to prepare the project plans. The land surveyor may be required to locate the pertinent existing physical features within the vicinity of the project including

pavements, drainage structures, swales and ditches, fence lines, property lines, rights-of-way, and tree and brush lines. The engineer will incorporate the results of the survey into the project plans to supplement the available existing data for the project locations.

Expenses - The engineer will incur certain miscellaneous project related expenses during this phase of the work which may include but will not be limited to: meals, lodging, mileage cost at $0.405 per mile, tolls, overnight shipping, plans, photocopies, photographic materials, equipment rental, survey materials, long distance telephone calls from the field, newspaper advertisements, and miscellaneous vendor invoices. These expenses will be included in the engineer's contract with the Sponsor.

Outside Services - The engineer will incur certain project related costs during the data collection and project development phase of the work in the form of subconsultant costs for land surveying. These costs will be included in the engineer's contract with the Sponsor.

ARTICLE B - DESIGNS, PLANS AND SPECIFICATIONS

1. Project Plans - The engineer will prepare preliminary and final plans based on the existing conditions plans that were prepared during the data collection phase of the project. The engineer will prepare the plans based on the locations of pavements, buildings, wetlands, tree lines, pole lines, fences, property lines, aviation easements, rights-of-way and other considerations to sufficiently depict the project area for the construction of the hangar. The engineer will evaluate the project work area to identify other necessary incidental improvements that should be included in the project. The engineer will incorporate the electrical and structural plans into the project plans. The engineer will coordinate the development of the project plans with the staff of their aviation planning and environmental departments including:

    - Title sheet
    - Site plan
    - Grading Plan
    - Civil Details
    - Cross Sections
    - Hangar Elevations and Details
    - Floor Plan and Details
    - Foundation Plan and Details
    - Building Details and Typical Sections
    - Electrical Layout Plan
    - Electrical Schedules and One-Line Diagram
    - Electrical Specifications

    a. The engineer will distribute the preliminary plans to the Sponsor, the state, and the FAA for review. The engineer will provide the Sponsor with one (1) set of preliminary plans for review and comments. The engineer will provide the state with two (2) sets

of preliminary plans for review and comments. The engineer will provide the FAA with five (5) sets of preliminary plans for review and comments. The engineer will further develop the preliminary plans into final plans subsequent to the review and comment period.

b. The engineer will distribute the final plans to the Sponsor, the state, and the FAA. The engineer will provide the Sponsor with one (1) set of final plans. The engineer will provide the state with one (1) set of final plans. The engineer will provide the FAA with one (1) set of final plans.

2. Project Specifications and Contract Documents – The engineer will prepare preliminary and final specifications and construction contract documents based on the preliminary and final plans. The engineer will incorporate the electrical and structural specifications into the project specifications. The specifications will establish the requirements for the project in accordance with the current version of and changes to FAA AC 150/5370-10, *Standards for Specifying Construction of Airports,* including general provisions and technical specifications.

   a. The contract documents will include: Invitation to Bid, Information for Bidders, Bid Proposal, Schedule of Items, consultant's Qualifications and Certifications, Buy American Requirements, Contract Agreement, Notice to Bidders (Bonding), Bid Bond, Payment Bond, Performance Bond, Maintenance Bond, and Insurance Requirements. The contract documents will include Federal special provisions including: Federal Requirements for Construction Contracts $100,000 and Over, Instructions to Bidders, Certification for Nonsegregated Facilities, Required Assurances, Disadvantaged Business Enterprise Eligibility Requirements, and Federal wage rate requirements for Anytown USA.

   b. The engineer will distribute the preliminary specifications and contract documents to the Sponsor, the state, and the FAA for review and approval. The engineer will provide the Sponsor with one (1) set of preliminary specifications and contract documents for review and comment. The engineer will provide the state with one (1) set of preliminary specifications and contract documents for review and comment. The engineer will provide the FAA with one (1) set of preliminary specifications and contract documents for review and comment. The engineer will further develop the preliminary specifications and contract documents into final specifications and contract documents subsequent to the review and comment period.

   c. The engineer will distribute the final specifications and contract documents to the Sponsor, the state, and the FAA. The engineer will provide the Sponsor with one (1) set of final specifications and contract documents. The engineer will provide the state with one (1) set of final specifications and contract documents. The engineer will provide the FAA with one (1) set of final specifications and contract documents.

3. Estimates - The engineer will prepare estimates of material quantities and construction costs based on the plans, specifications, and environmental permitting requirements. The engineer will incorporate the electrical and structural estimates into the project estimates. The estimates will be distributed to the Sponsor, the state, and the FAA for review and modification. The Sponsor, the state and the FAA each will be provided with one (1) copy of the estimates.

Note: The construction cost estimates will reflect the engineer's opinion of probable construction costs and will be based on the engineer's experience with similar recent construction. The engineer has no control over the actual cost of consultant labor and materials or over the competitive bidding and construction market conditions. The engineer cannot guarantee the accuracy of the construction cost estimates when compared to the consultants' construction bids or to the final project construction cost.

4. Electrical Design, Specifications and Estimates - The engineer will utilize the staff of their electrical division for the design of the electrical components of the hangar building. The engineer will visit the project site to determine the availability and suitability of the existing electrical system for the proposed project. The engineer will prepare electrical plans in the form of one line diagrams, electrical service installation details, panel schedules, lighting plan, power plan, and fixture schedule. The engineer will prepare electrical specifications and cost estimates for the construction of a pre-engineered metal building. The engineer will incorporate the electrical plans, specifications, and cost estimates into the project plans, project specifications and project cost estimates.
5. Structural Design, Specifications and Estimates - The engineer will utilize the staff of their structural division for the design of the structural components of a hangar building measuring approximately 33-feet wide by 252-feet long. The engineer will visit the project site to determine the suitability of the proposed site for the hangar building. The engineer will utilize the geotechnical data compiled for the recent runway, taxiway, and apron reconstruction projects to evaluate the suitability of the existing soils to design the building foundation. The engineer will prepare structural plans in the form of building elevations, floor plans, foundation plans, reinforcing plans, structural cross sections, and details suitable for establishing the requirements of a pre-engineered metal building. The engineer will prepare structural specifications and cost estimates for the construction of the pre-engineered metal building. The engineer will incorporate the structural plans, specifications, and cost estimates into the project plans, project specifications and project cost estimates.
6. Quality Control and Design Review - The engineer will conduct in-house quality control and design review meeting with experienced representatives of the engineer. The engineer will provide staff members with the opportunity to perform independent analyses of the final plans and specifications to ensure clarity, accuracy, completeness, and constructability. The electrical and structural plans will be reviewed separately by senior staff members in those disciplines. Subsequent to the independent reviews, a special in-house project review meeting will be conducted to discuss and consolidate the findings of the reviewers. The recommendations of the design review team will be incorporated into the final plans and specifications.

Expenses - The engineer will incur certain miscellaneous project related expenses during this phase of the work which may include but will not be limited to: meals, lodging, mileage cost at $0.405 per mile, tolls, overnight shipping, plans, photocopies, photographic materials, equipment rental, survey materials, long distance telephone calls from the field, and miscellaneous vendor invoices. These expenses will be included in the engineer's contract with the Sponsor.

ARTICLE C - ENVIRONMENTAL SERVICES

1. Regulatory Review - The engineer will evaluate the preliminary design of the project to determine the environmental impacts of the project. The engineer will review the latest

pertinent Federal, State, and local environmental regulatory measures for recent changes and compliance issues. The engineer will contact the appropriate Federal, State, and local regulatory authorities to ascertain the permitting requirements for the project based on the anticipated final design and its potential environmental impacts. The engineer will contact regulatory authorities through telephone calls, letter correspondence, fax, and email to confirm environmental, aviation, and municipal zoning regulations. The engineer will review the available environmental documents including the airport master plan and wetlands studies for environmental issues and recommendations. The engineer will incorporate the recommendations of the regulatory agencies into the final design of the project to mitigate the environmental aspects of the project.

2. Facility Storm Water Pollution Prevention Plan - The engineer will amend the Sponsor's airport Storm Water Pollution Prevention Plan (SWPPP) which was prepared in 1996 for the Sponsor's airport industrial use as required by the National Pollution Discharge Elimination System (NPDES) regulations. The engineer will prepare a revised airport base map depicting the hangar development and other incidental changes. The engineer will prepare a narrative describing the changes at the airport. The engineer will deliver the revised base map and narrative to the Sponsor for inclusion in the SWPPP as an appendix.

Expenses - The engineer will incur certain miscellaneous project related expenses during this phase of the work which may include but will not be limited to: meals, lodging, mileage cost at $0.405 per mile, tolls, overnight shipping, plans, photocopies, photographic materials, equipment rental, survey materials, long distance telephone calls from the field, newspaper advertisements, permit application fees, and miscellaneous vendor invoices. These expenses will be included in the engineer's contract with the Sponsor.

ARTICLE D - PROJECT ADMINISTRATION

1. Scope of Services and Contract - The engineer will communicate and coordinate with the Sponsor via telephone, letters, fax, and email requesting the authority to proceed with the preliminary phases of the proposed project pending the execution of the engineering services agreement. The engineer will prepare an engineering services agreement including a detailed work scope narrative and itemized fee schedules for submission to the Sponsor, the state, and the FAA for review and approval. The engineer will coordinate the preparation of the contract with the staff of their planning, CADD, and environmental departments.

   a. The engineer will make changes to the work scope narrative and the fee schedules of the selected proposal. The engineer will make changes to the contract document standard provisions at the request of the Sponsor’s legal counsel and with the approval of the engineer’s executive management. The engineer will prepare letters of transmittal and will distribute three (3) copies the final contract to the Sponsor and the engineer’s executive management for original authorized signatures. The engineer will prepare letters of transmittal and will distribute one (1) signed original copy of the fully executed contract to the Sponsor, one (1) signed original copy to the engineer’s executive management, one (1) signed photocopy to the state, and one (1) signed photocopy to the FAA.

2. FAA Grant Application - The engineer will prepare seven (7) copies of the formal FAA grant application including letters of transmittal, Standard Form 424, Standard Form 5100-100, project narrative, cost estimate, project schedule, location sketch, statement of environmental

action, statement of airport user coordination, statement of intergovernmental coordination, statement of Sponsor DBE program status, Sponsor certifications, and grant assurances. The engineer will submit the grant application to the Sponsor with transmittal letters for signatures and forwarding to the FAA and state. The engineer will review the Federal grant offer and assist the Sponsor in complying with the terms and conditions of the grant offer.

3. Executive Order 12372 - The engineer will communicate with the Anystate Office of State Planning to confirm the requirements of the submission package for intergovernmental agency review in accordance with Executive Order 12372. The engineer will prepare and submit six (6) copies of the submission package with a cover letter. The engineer will also prepare and deliver one (1) submission package with a cover letter directly to the U.S. Fish and Wildlife Service to facilitate Federal agency review of the proposed project. The engineer will obtain response letters at the end of the review period identifying specific requirements to be incorporated into the proposed project.

4. Reimbursement Requests - The engineer will prepare the Federal and State reimbursement requests including letters of transmittal to the FAA and state. The engineer will compile the Sponsor administration costs, engineering costs, subconsultant costs and construction costs.

   a. The engineer will compile, review, and approve the contractor's construction cost data and will prepare periodic cost estimates. The engineer will submit periodic cost estimates to the contractor for signature and return to the engineer for inclusion in the reimbursement requests.

5. In-House Administration - The engineer will provide general project administration and coordination including in-house staff review of the project's progress, in-house staff communication, and dissemination of project data and information to in-house staff in the form of internal memos, discussions, meetings, and updates to apprise the project team of new developments throughout the design phases of the project. The engineer will prepare an in-house project work plan for distribution to the engineer's design team members to inform them of the project goals and objectives including scope of work, team assignments and responsibilities, project budget, project schedule, project contacts, and contract requirements, obligations, and limitations.

6. Outside Administration - The engineer will provide general project administration and coordination including disseminating interim project data and information to the Sponsor, the state, the FAA, and the engineer's subconsultants in the form of telephone conversations, letters, faxes, email, copies, etc. to apprise the Sponsor, the state, and the FAA of new developments throughout the design phase of the project.

7. Accounting Administration - The engineer will provide general project administration and coordination with the staff of their accounting department. The engineer will prepare the internal close out forms. The engineer will verify and reconcile the monthly accounting statements and will prepare memos for adjustments and corrections when necessary. The engineer will approve and process invoices received from subconsultants and vendors providing services to the engineer throughout the design phases of the project. The engineer will prepare and submit monthly invoices to the Sponsor for services provided to the Sponsor and for costs incurred by the engineer and their subconsultants. It is anticipated that a total of six (6) invoices will be prepared and submitted during the course of the project.

8. Miscellaneous Administration - The engineer will provide miscellaneous project administration and coordination duties which are not specifically addressed or anticipated in other project related tasks including telephone conversations with the Sponsor, the state, the FAA, and other interested parties; disseminating interim project information to the Sponsor, the state, the FAA, and other interested parties; and organizing, maintaining, and archiving the project records for six (6) years.

9. Disadvantaged Business Enterprise Program - The engineer will update the airport Disadvantaged Business Enterprise (DBE) program in accordance with 49 CFR Part 26, *Participation by Disadvantaged Business Enterprises in Department of Transportation Financial Assistance Programs.* The engineer will review the methodology for evaluating the availability of DBE businesses to provide services and products for airport projects in the Federal fiscal year 20XX. The engineer will review the airport's service area by analyzing the utilization of DBE businesses on previous airport projects. The engineer will prepare a legal advertisement describing the revised DBE utilization goal and methodology. The engineer will deliver the advertisement to the Sponsor to publish in one (1) newspaper as a public notice to provide a thirty day public comment period. The engineer will submit the revised DBE program to the FAA Office of Civil Rights review and comments. The engineer will prepare the DBE program annual update on Form 4XXX at the conclusion of Federal fiscal year 20XX to reflect the actual DBE utilization on airport projects.

Expenses - The engineer will incur certain miscellaneous project related expenses during this phase of the work which may include but will not be limited to: meals, lodging, mileage cost at $0.405 per mile, tolls, overnight shipping, plans, photocopies, photographic materials, equipment rental, survey materials, long distance telephone calls from the field, and miscellaneous vendor invoices. These expenses will be included in the engineer's contract with the Sponsor.

ARTICLE E - BIDDING SERVICES AND CONSTRUCTION ARRANGEMENTS

1. Bid Documents - The engineer will prepare XX sets of bid documents comprising the construction plans, construction specifications, and construction contract in accordance with the requirements of the Sponsor, the state, and the FAA.

2. Bid Advertisement - The engineer will prepare a legal advertisement and deliver it to three (3) newspapers to publish as a solicitation for construction bids in accordance with the Sponsor's bidding procedures. The engineer will deliver the bid advertisement to five (5) plan viewing rooms for publication in order to maximize the project exposure and generate widespread consultant interest in the project. The engineer will communicate with the plan viewing rooms and similar industry entities to provide technical information for their publications. The engineer will notify the state and the FAA of the project's advertisement.

3. Distribute Bid Documents - The engineer will contact consultants who are potential bidders in order to maximize consultant participation in the project. The engineer will issue the bid documents to the interested bidders and to five (5) plan viewing rooms. The engineer will maintain a list of the bid document recipients including the recipient's name, overnight mailing address, telephone number, and fax number for use in issuing addenda. The engineer will distribute the bid document recipient list to interested parties if requested by potential bidders.

4. Pre-Bid Conference - The engineer will attend the pre-bid conference at the airport to present the project to interested parties and to answer consultants' and subconsultants' questions. The engineer will conduct a site walk of the project area to allow the consultants and subconsultants to observe the existing conditions first-hand and to ask questions regarding their observations. The engineer will prepare written responses to questions that require additional information that is not available at the time of the pre-bid conferences. The engineer will distribute the responses to the bid document recipients and pre-bid conference attendees.

5. Bid Questions and Addenda - The engineer will answer questions and provide technical advice to the potential bidders concerning the bid documents. The engineer will answer questions and provide technical advice to the Sponsor concerning the bid documents. The engineer will prepare and issue one (1) addenda to the bid document recipients to clarify, modify, or correct the bid documents.

6. Bid Analyses, Recommendation and Award - The engineer will conduct a detailed analysis of the consultants' bids for completeness and accuracy and will note omissions and discrepancies. The engineer will compile a bid summary comprising the results of the bids for distribution to the bid document recipients. The engineer will write a letter to the Sponsor recommending the award of the construction contract to the apparent low bidder based on the bid analyses. With the concurrence of the Sponsor, the state and the FAA, the engineer will issue a written notification to the successful bidder informing the bidder of the bid results. The engineer will disseminate the bid results to the plan viewing rooms.

7. Bid Sureties - The engineer will issue letters to the unsuccessful bidders returning the bid sureties, distributing the bid summary, and describing the bid results. The engineer will return the bid surety to the successful bidder after the bidder has executed the construction contract. The engineer will return the bid surety to the second low bidder after the successful bidder has executed the construction contract.

8. Consultant Coordination - The engineer will prepare six (6) copies of the consultant's bid proposal package for use as the construction contract document. The engineer will coordinate with and provide information to the consultant to facilitate the preparation and execution of the construction contract document. The engineer will review the consultant's construction contract for accuracy and completeness before submitting the document to the Sponsor for final signatures. The engineer will prepare a checklist of tasks to be performed by the Sponsor to fully execute the construction contract. The engineer will distribute the construction contract documents at the preconstruction conference.

Expenses - The engineer will incur certain project related expenses during this phase of the work which may include but will not be limited to: meals, lodging, mileage cost at $0.405 per mile, tolls, overnight shipping, plans, photocopies, photographic materials, equipment rental, survey materials, long distance telephone calls from the field, and miscellaneous vendor invoices. These expenses will be included in the engineer's contract with the Sponsor.

ARTICLE F - CONSTRUCTION ADMINISTRATION

1. Preconstruction Conference - The engineer will coordinate the time, date, and location of the preconstruction conference. The engineer will notify the Sponsor, the FAA, the state, the consultant, the resident engineer, and other interested parties of the preconstruction

conference and will invite their representatives to attend. The engineer will conduct the preconstruction conference in accordance with FAA AC 150/5300-9, *Predesign, Prebid, and Preconstruction Conferences for Airport Grant Projects,* to ensure that the attendees are aware of the design, construction, and safety requirements of the project and are informed of their individual responsibilities.

2. Shop Drawing Review - The engineer will review the shop drawings and materials submittals that are furnished by the consultant as required by the construction contract documents. The engineer will either fully approve, conditionally approve, or reject the shop drawings and materials. The engineer will return conditionally approved and rejected shop drawings and materials submittals to the consultant for changes or revisions prior to the use of the materials on the project. The engineer will review only one resubmission of a conditionally approved or rejected shop drawing or submittal. The engineer will prepare and maintain a submittal register identifying the submittal number, description, specification section, specification paragraph, received date, action date, and action taken. The engineer will distribute copies of the submittals and the updated submittal register to the Sponsor and the consultant.

3. Construction Administration - The engineer will provide general consultation and advice to the Sponsor during the construction phase of the project. The engineer will provide general coordination between the Sponsor, the state, and the FAA during the construction phase of the project. The engineer will assist the Sponsor with the preparation and issuance of change orders, recommend construction specification waivers, and advise the Sponsor as to the consultant's performance. The engineer will review daily progress reports, monthly construction progress reports, wage survey records, and certified payrolls. The engineer will distribute copies of the monthly construction progress reports to the Sponsor, the FAA, and the state.

   a. The engineer will provide general supervision and support to the resident engineer including, but not limited to, coordinating field survey personnel, processing the resident engineer’s weekly time sheets and expense sheets, providing technical documentation, providing field office supplies and materials, performing construction contract interpretation, analyzing unusual or unique developments or complications during construction, and communicating and corresponding with the consultant regarding contract administration, project changes, bonding and insurance issues, and other construction related matters.

   b. The engineer will communicate and coordinate with the consultant on a regular basis throughout the construction phase of the project in the form of teleconferences, letters, memos, faxes, and email.

4. Site Visits - The engineer will make visits to the construction site to observe the progress, safety, and quality of the construction. The engineer will coordinate the site visits with the Sponsor and representatives of the electrical and structural divisions. The engineer’s representatives will meet with the representatives of the Sponsor and the consultant to discuss the project’s progress and to identify areas of concern to facilitate the construction.

5. Final Inspection - The engineer will conduct a site walk and final inspection of the project to confirm the completeness and quality of the construction. The engineer will coordinate the date and time of the final inspection via teleconferences, letters, faxes and email to the Sponsor, the FAA, the state, the resident engineer, and the consultant. The engineer will

prepare a summary report of the final inspection, including a punch list of work items that the consultant must accomplish to complete the project. The engineer will distribute the summary report to the Sponsor, the FAA, the state, the resident engineer, and the consultant.

6. Record Drawings - The engineer will prepare four (4) sets of paper copies of the record drawings and final quantities representing the completed project and reflecting the actual work accomplished during construction. The engineer will distribute the four (4) sets of record drawings to the Sponsor, the FAA, and the state for signatures. The engineer will prepare and distribute one (1) set of mylar copies of the record drawings to the Sponsor after the record drawings have been signed by all parties. The engineer will provide the Sponsor with electronic files of the record drawings in AutoCAD DWG format and PDF format on CD-ROM.

7. Airport Layout Plan Drawing - The engineer will update the electronic versions of the Ultimate Airport Layout Plan drawing which is identified as Sheet 3 of the Airport Layout Plan drawing set. The engineer will update the drawing to reflect the actual work accomplished by the project.

8. Airport Terminal Area Plan Drawing - The engineer will update the electronic version of the Airport Terminal Area Plan drawing which is identified as Sheet 4 of the Airport Layout Plan drawing set. The engineer will update the drawing to reflect the actual work accomplished by the project and previous airport development.

9. Project Close Out Report - The engineer will prepare the final project documentation in the form of a project close out report that consolidates the project related information that will be required by the FAA to formally close out the project. The engineer will include in the close out report all general, fiscal, miscellaneous, engineering and construction information, and submissions/certifications listed on the FAA project closure summary checklist. The engineer will distribute one (1) copy of the project close out report each to the Sponsor, the FAA and the state.

Expenses - The engineer will incur certain project related expenses during this phase of the work which may include but will not be limited to: meals, lodging, mileage cost at $0.405 per mile, tolls, overnight shipping, plans, photocopies, photographic materials, equipment rental, survey materials, and long distance telephone calls from the field. These expenses will be included in the engineer's contract with the Sponsor.

Outside Services - The engineer will incur certain project related costs during the construction administration phase of the work in the form of subconsultant costs for geotechnical testing services. These costs will be included in the engineer’s contract with the Sponsor.

ARTICLE G - TECHNICAL OBSERVATION OF CONSTRUCTION

1. Resident Engineer - The engineer will provide a qualified construction resident engineer to observe that the construction is carried out in reasonable conformity with the contract documents and in accordance with the customary practices of professional engineers and consultants. The resident engineer will be available for both full-time and part-time construction observation services during the 90 calendar day duration of the project as required by the nature of the ongoing construction activities.

a. For budgeting purposes, the resident engineer can be available sixteen (16) hours per week for twelve (12) weeks including travel time for a total of 192 hours during the course of the construction. The resident engineer can also be available for eight (8) hours to attend the final inspection. Variations to this proposed manhour distribution may be necessary as the work progresses but must not exceed 200 manhours. Additional manhours for the resident engineer must be addressed by a supplemental agreement.

b. The resident engineer will be the engineer's primary contact with the consultant and their subconsultants during the course of construction. The resident engineer will be available to meet with the representatives of the Sponsor, the FAA, the state, and other interested parties at the project location. The resident engineer will coordinate and supervise the engineer's subconsultants and personnel who are performing on-site testing, surveying, or other project related services.

c. The resident engineer will monitor and coordinate the construction progress; will coordinate with the Sponsor, the engineer, and the consultant; will provide construction oversight to ensure that the work is proceeding according to the construction contract documents; and will notify the engineer if problems, disputes, or changes arise during the course of construction.

d. The resident engineer will prepare and maintain cost estimates and construction quantity estimates for use in preparing monthly payment reimbursement requests and for monitoring the progress of the consultant's work. The resident engineer will prepare daily construction progress reports of the construction activities that are observed and will submit the reports to the engineer for review. The resident engineer will prepare monthly construction summary reports of completed work that has been accepted and approved by the consultant and will submit the reports to the engineer for review.

e. The resident engineer will conduct Federal wage rate surveys with the consultant's personnel and their subconsultants' personnel to ensure compliance with the U.S. Department of Labor regulations for federally funded construction projects. The resident engineer will submit the wage rate survey records to the engineer for review.

f. The resident engineer will assist the consultant with construction surveying to identify the limits of work, to determine elevations and grades, to locate physical features discovered during the course of construction, and to calculate quantities of materials either removed or utilized on the project. The consultant's construction survey data will be incorporated into the record drawings at the completion of the project. The engineer will provide the resident engineer with CADD support to plot the results of the construction survey data and to generate electronic drawings, sketches, and details at the request of the resident engineer to facilitate the construction.

Expenses - The engineer will incur certain project related expenses during the course of the technical observation of construction phase of the work which may include but will not be limited to: meals, lodging, mileage cost at $0.405 per mile, tolls, overnight shipping, blueprints, photocopies, photographic materials, equipment rental, survey materials, long distance telephone calls from the field, and miscellaneous vendor invoices. These expenses will be included in the engineer's contract with the Sponsor.

Outside Services - The engineer will incur certain project related costs during the technical observation phase of the work in the form of geotechnical subconsultant costs for quality assurance testing of construction materials and practices. These costs will be included in the engineer's contract with the Sponsor.

APPENDIX D. CONSULTANT SERVICES FEE/COSTS SAMPLE

This example can be modified as necessary for any type of project.

SALARY COSTS

TASKS VARY WITH SCOPE AND TYPE OF SERVICES

CLASSIFICATIONS WILL VARY PER FIRM AND PROJECT TYPE

HOURS WILL VARY PER LEVEL OF EFFORT AND NEGOTIATIONS

TASKS	CLASSIFICATIONS HOURS					TOTALS
	Principal	Project Manager	Sr. Airport Planner	Environ. Analyst	Technician Clerical	
1. Project Scoping Meeting	0	0	0			
2. Refine Scope and Fee	0	0	0			
3. Prepare Grant Application	0	0	0			
4. Attend Airport Board Meeting	0	0	0	0	0	
5. Update Existing Activity	0	0	0	0	0	
6. Field Inventory	0	0	0	0	0	
7. Identify On-Airport Development Land	0	0	0	0	0	
8. Evaluate Existing Lease Agreements	0	0	0	0	0	
9. Update Forecast	0	0	0	0	0	
10. 1st Review and Response to Comments	0	0	0	0	0	
11. Landside Facility Capacity & Requirements	0	0	0	0	0	
12. Meeting	0	0	0	0	0	
13. 2nd Review and Response to Comments	0	0	0	0	0	
14. Identify Limits of Aviation Development	0	0	0	0	0	
15. Identify Development Alternatives	0	0	0	0	0	
16. Review and Responsd to Comments	0	0	0	0	0	
17. Identify Existing Environmental Conditions	0	0	0	0	0	
18. Describe Regulatory Requirements	0	0	0	0	0	
19. Prepare and Forward Draft Findings	0	0	0	0	0	
20. Implementation/Capital Improvement Plan	0	0	0	0	0	
21. Existing Airport Facilities Plan				0	0	
22. Ultimate Airport Facilities Plan	0	0	0	0	0	
23. Final Meetings	0			0	0	
24. Prepare and Forward Final Report	0	0	0	0	0	
25. Prepare and Forward Final Airport Layout Plan	0	0			0	
Subtotal Hours	0	0			0	
Basic Hourly Rate	$0.00	$0.00	$0.00	$0.00	$0.00	
Direct Salary Costs	$0.00	$0.00	$0.00	$0.00	$0.00	
Labor & General Administrative Overhead (0.00%)	$0.00	$0.00	$0.00	$0.00	$0.00	
Subtotal Salary Costs	$0.00	$0.00	$0.00	$0.00	$0.00	

RATES WILL VARY PER FIRM

LABOR HOURS MULTIPLIED BY HOURLY RATE

A/E'S CERTIFIED OVERHEAD RATE

PROFIT BASED ON LABOR HOURS

Total Salary Costs = $0.00

Profit (Labor Costs) = $0.00

REIMBURSABLE EXPENSES ARE PASS-THROUGH COSTS NOT SUBJECT TO MARKUP

NON-SALARY COSTS

A. Reimbursable Expenses	Quantity	Unit	Rate	Subtotal
Mileage	0	Miles	$0.00	$0.00
Lodging	0	Day	$0.00	$0.00
Subsistence Per Diem	0	Day	$0.00	$0.00
Printing	0	LS	$0.00	$0.00
Mailing	0	LS	$0.00	$0.00
Supplies	0	LS	$0.00	$0.00
B. Subcontracting Expenses	**Contract Value**	**Contract Type**	**Prime Fixed Fee**	**Subtotal**
Services	0	Hourly	$0.00	$0.00
Sub-Consultant No. 1	0	Cost-Plus	$0.00	$0.00
Sub-Consultant No. 2	0	Lump Sum	$0.00	$0.00

AMOUNT OF ANY MARK-UP FEE MUST REFLECT VALUE ADDED BY PRIME AND CANNOT DUPLICATE EFFORT ADDRESSED UNDER SALARY COSTS

Total Direct Non-Salary Costs = $0.00

TOTAL FEE FOR SERVICES = $0.00

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APPENDIX E. DETAILED FEE/COST ANALYSIS SAMPLE

DATE: _____

PROJECT: _____

ESTIMATED CONSTRUCTION COSTS (ECC): $_____

ESTIMATED CONSTRUCTION DURATION: _____
i.e. calendar days

**THIS IS A SAMPLE
ANY SIMILAR FORM MAY BE USED**

ITEM	SPONSOR'S INDEPENDENT ESTIMATE	CONSULTANT FEE PROPOSAL	NEGOTIATION	
			DIFFERENCE	OBJECTIVE
Wages and Overhead	$	$	$	
Overhead Percent				
Principal $/Hour				
Project Mangager $/Hour				
Civil Engineer $/Hour				
Electrical Engineer $/Hour				
CADD Technician $/Hour				
Resident Engineer $/Hour				
Inspector $/Hour				
Project Engineer (Construction) $/Hour				
Surveyor $/Hour				
2-Man Crew				
WORKHOURS				
Principal				
Project Manager				
Civil Engineer				
Electrical Engineer				
CADD Technician				
Resident Engineer				
Inspector				
Project Engineer (Construction)				
Surveyors				
Workhour Totals				
Geotech	$	$	$	
Travel	$	$	$	
Printing	$	$	$	
Total Fee	$	$	$	
As percent of ECC				

EMPLOYEE CLASSIFICATIONS AND THEIR TITLES VARY WITH EACH CONSULTANT AND THE PROJECT SCOPE

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APPENDIX F. RECORD OF NEGOTIATIONS SAMPLE

ARCHITECTURAL AND ENGINEERING SERVICES

DATE:

Job Title
Location:
Anticipated A.I.P. Grant:

1. The consulting firm of XYZ was selected on January 21, 20XX, from those consultants who submitted their qualifications. A scope of work and detailed independent cost estimate in the amount of $44,364 for the design phase and $54,956 for the construction phase were prepared by the Sponsor on February 21 and submitted to the ADO on February 23.
2. The scope of work and request for fee proposal were sent to XYZ Consultants on February 23.
3. The meeting was held on February 27 with the Sponsor, consultant, and FAA to ensure the consultant had a thorough understanding of the scope of work.
4. The consultant submitted their fee proposal for the work on March 2, broken down as follows:

   Design Phase $58,224
   Construction Phase $66,345

5. A detailed cost analysis comparing the detailed independent estimate with the consultant's fee proposal was done on March 6 and negotiation objectives were established.
6. The Sponsor's negotiator, Mr. A called Mr. X of XYZ Consultants on March 7 to discuss the fee proposal. It was agreed that the construction duration of 60 days was adequate. The consultant was told that their overhead rate appeared high and asked to submit a detailed statement of overhead expenses for the previous year to verify their rate. Also the man hours for the principal and project manager seemed excessive. It was also noted that both a resident engineer and an inspector were not needed on the construction site fulltime. The surveying manhours during construction were also excessive. The consultant agreed to revise their fee proposal and resubmit it to the Sponsor.
7. The consultant submitted a revised fee proposal for the work on March 9, broken down as follows:

   Design Phase $51,286
   Construction Phase $59,432

8. The detailed cost analysis was revised on March 12 to reflect the consultant's revised fee proposal.
9. The Sponsor's negotiator met with Mr. X of XYZ Consultants at the Sponsor's office on March 13. Ineligible costs for entertainment and interest expense were deleted from the consultant's overhead and an acceptable overhead rate of 134 percent was agreed upon. A combined time of 60 man hours for the principal and project manager were agreed upon allowing 15 for the principal and 45 for the project manager. The consultant's figures of 302

civil work hours, 120 electrical work hours, and 410 drafting work hours were accepted. The consultant agreed to have a full time inspector on the job with a resident engineer also on the job one third of the time. The construction surveying work hours were reduced to 32 hours of a three-man crew. The consultant agreed to make the discussed changes and submit a final fee proposal.

10. The consultant submitted a final fee proposal for the work on March 14, broken down as follows:

    Design Phase $47,324
    Construction Phase $56,658

11. The final fee proposal is considered reasonable by the Sponsor. A contract has been prepared for the agreement between the Sponsor and consultant. The scope of work, draft contract, Sponsor's independent cost estimate, consultant's fee proposals with revisions and detailed cost analysis are attached to this record of negotiation and hereby submitted to the ADO for a reasonableness of cost determination.

12. The negotiations were conducted in good faith to ensure the fees are fair and reasonable. The procedures outlined in AC 150/5100-14 have been followed.

Sponsor's Signature

APPENDIX G. ALTERNATIVE PROJECT DELIVERY SYSTEMS

G.1 Alternative Project Delivery Systems.

G.1.1 Alternative project delivery systems (APDS) are popular construction methods in State and local governments. The philosophy behind these types of delivery systems is that there is a potential to reduce delivery time and minimize change orders that results in overall lower costs and greater efficiency.

G.1.2 Before undertaking alternative project delivery for an AIP funded project, the conditions for the project must be evaluated to determine if alternative delivery is more beneficial than the traditional design-bid-build method. The information contained in this appendix is offered to provide Sponsors with some insight when pursuing alternative project delivery. Sponsors should follow all applicable State and local laws but must include the required Federal contract clauses and provisions in the procurement documents. See Title 2 CFR § 200.326.

G.2 Alternative Project Delivery System Requirements.

The ADO must approve the use of an alternative project delivery system in advance of the project starting. The Sponsor must submit the following documentation to the ADO for review:

5. A description of the delivery system to be used.
6. A full description of the project with preliminary drawings of the proposed work.
7. Documentation that provides the reason and justification for using the alternative delivery system.
8. Documentation that the selection process is allowed under State or local law.
9. An organizational chart that shows contractual relationships between all the parties.
10. A statement describing what safeguards are in place to prevent conflicts of interest.
11. Documentation that the system will be as open, fair and objective as the traditional design-bid-build project delivery system.
12. Documentation of the amount of experience the parties involved in the project have in the proposed project delivery method.

G.3 Alternative Project Delivery Items Not Allowed Under AIP.

Because of federal contract and procurement requirements, some of the characteristics of APDS are not eligible on AIP funded projects. Some of these include:

1. Early completion bonuses
2. Cost overruns greater than 15%
3. Shared cost savings

4. Sponsor contingency costs
5. Price escalation
6. Sponsor insurance costs
7. In-state or local preferences

G.4 Design-Build Project Delivery.

G.4.1 49 U.S.C §47142 establishes design-build contracting as an approvable form of project delivery under AIP. Under the statute, design-build contracting is defined as an agreement that provides for both design and construction of a project by a single contractor. That contractor holds responsibility for the entire contract. Design-build may provide cost savings because of time savings in the contracting process as well as earlier start of construction.

G.4.2 Design-build project delivery can be performed by a single company with both design and construction ability in-house, or by a joint venture working under a single design-build contract. Design-build services can be performed under all the contractual methods used for construction including lump-sum, cost reimbursable with not-to-exceed ceiling (excluding cost-plus-percentage of costs) and time and material. If an outside firm is used to develop the initial qualifications package that firm may not participate as a competing party or sub-party in step 2. However, they may participate as a Sponsor representative on the selection board. Design fees are part of the overall contract price, but are separated as a subset of the total price.

G.4.3 2 CFR Part 200.320 limits the situations where price is not used as a selection factor to procurement of A/E professional services. Contracting for design-build services can be done through a two-step Competitive Proposal Selection (CPS) as described below:

1. **Step one:** The Sponsor prepares a design criteria package for the project using in-house staff or a separate professional services firm. The Sponsor also advertises for Design-Build firms or Joint Ventures to submit a qualifications package for consideration of the proposed project. Interested firms will respond to the solicitation, and are short-listed using a similar process used for QBS.
2. **Step two:** The design criteria package is issued to the short listed firm or teams, who respond with separate technical and price proposals. 49 U.S.C §47142 requires at least 3 firms submit proposals. Technical proposals which include preliminary drawings, outline specifications, and project schedules, are evaluated first, using a numerical **points earned** system. Then, price proposals are opened and prices are factored into the **points earned** system to decide the final selection.

G.5 Construction Manager-At-Risk (CM-A-R).

G.5.1 Utilizing the CM-A-R delivery system, the Sponsor engages a professional services design firm and in the early design phase, a construction manager/general contractor (CM-A-R) is selected.

G.5.2 The design firm is selected using professional services QBS. The CM-A-R is selected using a two-step competitive proposal.

1. **Step one:** The Sponsor and design firm prepare a RFQ with preliminary project information and use qualifications based criteria to rank and short list the top firms.
2. **Step two:** More detailed design information is provided to the short listed firms who reply with price information for various items such as, profit/contractor fee, insurance, bonding and general conditions.

G.5.3 The CM-A-R is then selected with qualifications and price as a consideration.

G.5.4 After selection, the Sponsor then negotiates the fees for pre-construction services that may include:

1. Design document reviews
2. Construction scheduling and sequencing
3. Cost Estimating at various stages of the design
4. Constructability reviews with recommended cost savings based on construction expertise.

G.5.5 At some point either in the design stage or after subcontractor bidding, the CM-A-R and the Sponsor negotiate a Guaranteed Maximum Price (GMP) for the project. The GMP is generally comprised of construction/ materials, contractor fee, general conditions, insurance, bonding and a contingency percentage which varies depending on the state of the design. The Sponsor and the design firm are directly involved in fixing the GMP through cost estimating at different levels of design completion, typically the 30, 60, and 90% completion levels. Some State and local laws require that the GMP can only be fixed after the CM-A-R publically bids the project design packages.

G.5.6 If the CM-A-R and the Sponsor cannot agree on a GMP, the project may be converted to the traditional design-bid-build method. Please consult the FAA program manager to discuss any consequences associated with such a change.

G.5.7 During the construction phase, the CM-A-R role is of a general contractor. Since the GMP is designed to prevent cost overruns for the Sponsor, the CM-A-R bears the responsibility for ensuring the project stays on schedule, within budget and conforms to the plans and specifications.