U.S. Department of Transportation

Federal Aviation Administration

Advisory Circular

Subject: ARCHITECTURAL, ENGINEERING, AND PLANNING CONSULTANT SERVICES FOR AIRPORT GRANT PROJECTS

Date: 30 September 2005 **AC No.:** 150/5100-14D

Initiated by: AAS-100 **Change:**

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. AC 150/5100-14C, *Architectural, Engineering, and Planning Consultant Services for Airport Grant Projects*, dated 2/16/94, is canceled.

3. APPLICATION. Airport sponsors must use qualifications based selection procedures in the selection and engagement of consultants in the same manner as Federal contracts for architectural and engineering services negotiated under Title IX of the Federal Property and Administration Services Act of 1949, or equivalent State/sponsor qualifications based requirements. The guidelines contained in this AC are recommended by the Federal Aviation Administration (FAA) to comply with Title 49 Code of Federal Regulations (CFR) § 18.36 when selecting consultants for airport projects funded under Federal grant programs. This AC does not apply to airport projects that are fully funded with passenger facility charge (PFC) funds.

4. PRINCIPAL CHANGES.

a. Clarified Broad Form Indemnification. Added a statement addressing the consequences of expanding consultant liability beyond the scope or purpose of a contract.

b. Expanded selection criteria and the method of evaluating potential consultants. Added flowcharts.

c. Expanded Contractor Contractual Requirements section. Added new table summarizing Methods of Contracting and Allowable Costs.

d. Increased the limit for use of informal procedures from $25,000 to $100,000.

e. Clarified Independent Fee Estimates. Added methods of determining fair and reasonable consultant fees to the Fee Estimate section.

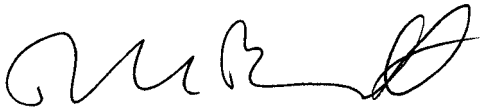
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f. Expanded discussion of analyzing fee estimates

g. Added Alternative Delivery Methods.

h. Updated contract provisions consistent with current laws and regulations.

i. Reorganized and expanded appendices to include referenced documents, definitions, and scope of services and record of negotiation examples.



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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 that normally would be 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 and cited 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 utilized for projects conducted under airport grant programs. The first category involves planning services. The second involves Architectural/ Engineering (A/E) services for the design and construction administration/inspection of airport projects. These two categories of consultant services are discussed below.

a. 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. Airspace analysis.

b. 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 four distinct and sequential phases summarized below:

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:

(a) Conferring with the sponsor on project requirements, finances, schedules, early phases of the project, and other pertinent matters and meeting with FAA and other concerned agencies and parties on matters affecting the project.

(b) Planning, procuring, and/or preparing necessary surveys, geotechnical engineering investigations, field investigations, and architectural and engineering studies required for preliminary design considerations.

(c) Developing design schematics, sketches, environmental and aesthetic considerations, project recommendations, and preliminary layouts and cost estimates.

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:

(a) Conducting and attending meetings and design conferences to obtain information and to coordinate or resolve design matters.

(b) Collecting engineering data and undertaking field investigations; performing geotechnical engineering studies; and performing architectural, engineering, and special environmental studies.

(c) Preparing necessary engineering reports and recommendations.

(d) Preparing detailed plans, specifications, cost estimates, and design/construction schedules.

(e) Preparing construction safety plans.

(f) Printing and providing necessary copies of engineering drawings and contract specifications.

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.

4. Construction Phase. This phase includes all basic services rendered after the award of a construction contract, including, but not limited to, the following activities:

(a) Providing consultation and advice to the sponsor during all phases of construction.

(b) Representing the sponsor at preconstruction conferences.

(c) Inspecting work in progress periodically and providing appropriate reports to the sponsor.

(d) Reviewing and approving shop and erection drawings submitted by contractors for compliance with design concept/drawings.

(e) Reviewing, analyzing, and approving laboratory and mill test reports of materials and equipment.

(f) Preparing and negotiating change orders and supplemental agreements.

(g) Observing or reviewing performance tests required by specifications.

(h) Determining amounts owed to contractors and assisting sponsors in the preparation of payment requests for amounts reimbursable from grant projects.

(i) Making final inspections and submitting punch-lists and a report of the completed project to the sponsor.

(j) Reviewing operations and maintenance manuals.

1-5. SPECIAL SERVICES. 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.

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:

a. Soil investigations, including core sampling, laboratory tests, related analyses, and reports.

b. Detailed mill, shop, and/or laboratory inspections of materials and equipment.

c. Land surveys and topographic maps.

d. Field and/or construction surveys.

e. Photogrammetry surveys.

f. 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.

g. Special environmental studies and analyses.

h. Expert witness testimony in litigation involving specific projects.

i. Project feasibility studies.

j. Public information and community involvement surveys, studies, and activities.

k. Preparation of record drawings.

l. Assisting the sponsor in the preparation of necessary applications for local, State, and Federal grants.

m. Preparation of or updating of the airport layout plan.

n. Preparation of property maps.

o. Construction management.

p. Preparation of quality control plan.

q. Preparation of final report.

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 CFR 18 § 18.36 and 49 USC § 47107(a) 17, as amended.

a. 49 CFR § 18.36(t) requires that grantees and subgrantees extend the use of qualifications based (e.g., architectural, environmental, planning, and engineering services) contract selection procedures to certain other related areas and award such contracts in the same manner as Federal contracts for architectural and engineering services are negotiated under Title IX of the Federal Property and Administrative Services Act of 1949, or equivalent State or sponsor qualifications based requirements.

b. 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.

   If a conflict exists between 49 CFR § 18.36 and 49 USC § 47107(a) 17, the statute will prevail.

c. 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. OBJECTIVE.

a. The selection of 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.

b. 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.

2-3. QUALIFICATIONS BASED SELECTION PROCEDURES. Consultants must be engaged on the basis of their qualifications and experience, with fees determined through negotiations following selection. This can be accomplished by means of qualifications based selection procedures, whereby Statements of Qualifications (SOQ) are requested from a number of consultants. The qualifications of consultants responding 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.

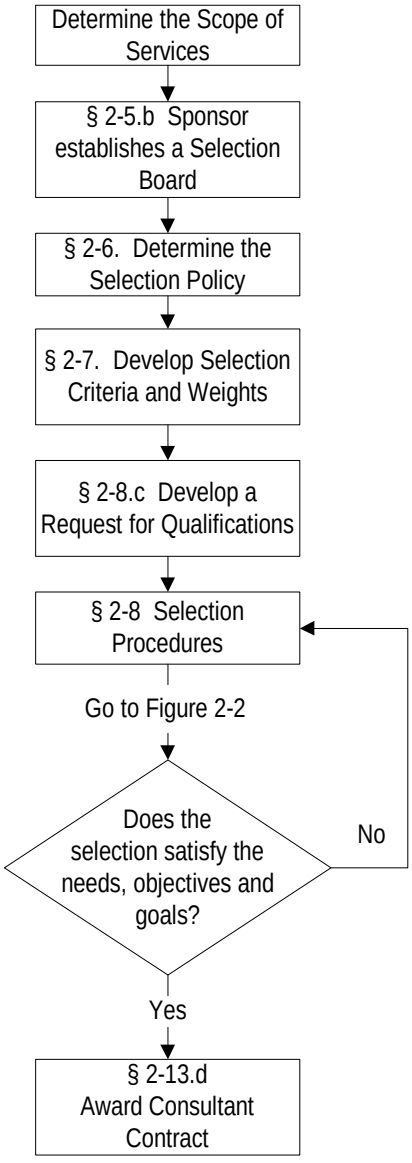


Figure 2-1. Qualifications Based Selection Process

2-4. OTHER SERVICES.

a. 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.

b. 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, but are not included in the basic A/E services, they must be procured using qualifications based procedures.

c. Where services are to be performed that are not in conjunction with A/E 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.

d. 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 2-10).

2-5. SELECTING ORGANIZATION.

a. 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. Section 18.36(b)3 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.

b. 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. Based upon the recommendations of the board, the administrator or the governing body makes the final selection of the consultant(s).

2-6. POLICY FOR SELECTION. 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.

Sponsors may procure a consultant for several grant projects through one procurement action provided the following conditions are met (FAA Order 5100.38, Chapter 9):

a. The consultant is selected using the qualifications based selection procedures described in paragraph 2-8.

b. The parties competing for the work must be advised that the work is expected to be accomplished during the course of several grant projects. The expected schedule of projects must be defined, together with the Scope of Work and the required services. The scope of work should be described in sufficient detail so that all parties are adequately informed of the items to be accomplished.

c. 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.

d. The services are limited to those projects that can reasonably be expected to be initiated within five (5) years of the date the contract is signed by the consultant.

e. The negotiation of the fee is limited to the services expected to be performed under the initial grant (first grant negotiated during the contract period). 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 2-12 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. However, rather than entering negotiations with the firm ranked next in place at the time the initial contract was negotiated, a new procurement action must be initiated (Order 5100.38, Chapter 9).

Unless there is a convincing reason to combine eligible and ineligible work in a single solicitation, sponsors should be discouraged from doing so (Order 5100.38, Chapter 9).

2-7. SELECTION CRITERIA. Based on the proposed scope of service(s) and prior to evaluating consultants, a sponsor(s) must develop an agreed-upon 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.

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:

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

b. 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.

c. Current workload and demonstrated ability to meet schedules or deadlines.

d. Quality of projects previously undertaken and capability to complete projects without having major cost escalations or overruns.

e. Qualifications and experience of outside consultants regularly engaged by the consultant under consideration.

f. 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.

g. Ability to furnish qualified inspectors for construction inspection if applicable.

h. Demonstrated understanding of the project's potential problems and the sponsor's special concerns.

i. Degree of interest shown in undertaking the project and their familiarity with and proximity to the geographic location of the project.

j. 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.

k. Evidence that the consultant has made good faith efforts in meeting Disadvantaged Business Enterprise (DBE) goals (49 CFR, § 26.53).

l. Capability to conduct a Value Engineering (VE) study for projects that are particularly complex or have unique features. Order 5100.38, Chapter 10, 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.

2-8. SELECTION PROCEDURES. The sponsor must use the following selection procedures or equivalent State/sponsor qualifications based requirements for projects involving Federal airport grants (see Figures 2-1 and 2-2).

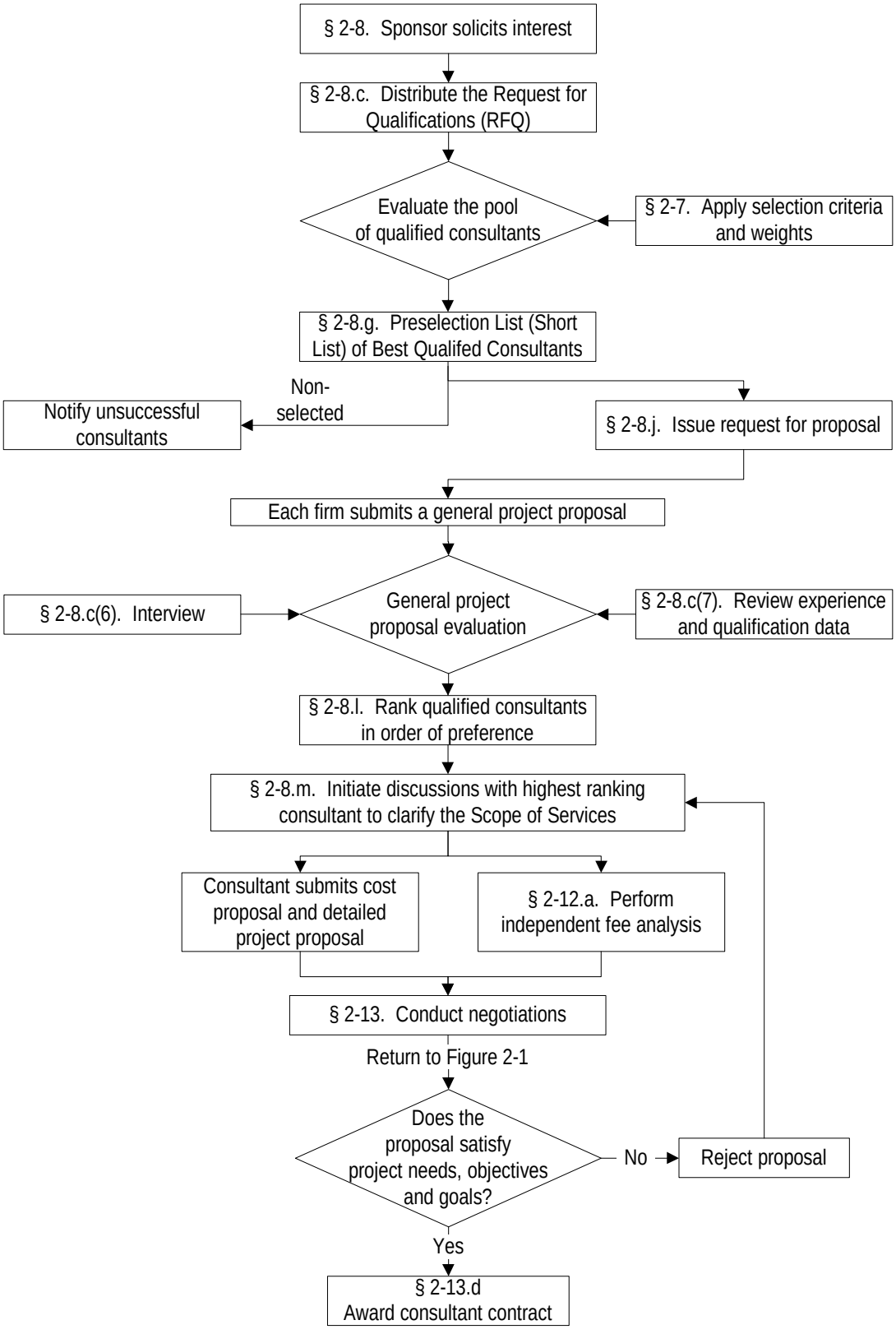


Figure 2-2. Consultant Selection Process

a. 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.

b. As discussed in paragraph 2.7, 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.

c. 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 and national trade journals and magazines. 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.

d. 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.

e. Affirmative steps pursuant to 49 CFR part 18 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.

f. There are many sources from which the names of consultants can be obtained. Appendix C contains a partial list of potential sources of consultant firms. 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/airports_airtraffic/airports/regional_guidance/.

g. 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.

h. 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.

i. 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.

j. At this point, the selection board should 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 may 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 49 CFR § 18.36(f). 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.

k. Conduct interviews with each consultant on the pre-selection short-list. On small projects, a telephone interview may be sufficient. The selection board may also, at its discretion, bypass the interview process ranking the pre-selection short-listed consultants based on submitted material.

l. 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.

m. Initiate discussion with the first-ranked consultant to fully define the scope of work and services to be provided (see paragraph 2-11). After agreement on a detailed scope of services has been reached, 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 paragraph 2-12 and 2-13.

n. Prepare a report recommending the consultant selected. The report should 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.

2-9. ALTERNATE SELECTION PROCEDURES.

a. Proposals Requested with Qualification Data. The selection procedure recommended in paragraph 2-8 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.

b. Informal Procedures. Informal Qualifications Based Selection procedures may be used for A/E procurements estimated to be less than $100,000. However, this does not preclude the sponsor from obtaining an independent fee estimate for A/E proposals less than $100,000 nor does it preclude the FAA from requiring independent cost estimates.

Under this procedure, a sponsor must call 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. Sponsors must consult with FAA Airport personnel before using informal procedures to

assure that the circumstances justify their use. After selection, using this procedure, the sponsor must submit a statement to the FAA explaining the basis for the selection and method used to determine reasonableness of the fee. This may include:

1. Sponsor-prepared fee estimate.

2. Comparison with previous contracts of a similar nature.

3. Based on previous business experience.

c. Non-competitive Procedures. The FAA may authorize non-competitive negotiation for professional services if the cost of the contract is not expected to exceed $10,000 and the professional 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 2-9b above.

2-10. 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 2-8 with the following exceptions:

a. The proposed scope of work is to be provided by the FAA.

b. The FAA must concur with the selection and evaluation criteria prepared by the sponsor.

c. The FAA will be invited to participate with the sponsor in the interviews with consultants on the pre-selection short-list.

d. 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.

e. Using the previous sponsor/FAA agreed upon selection and evaluation criteria, the FAA will independently evaluate and rank the consultants on the pre-selection short-list in order of preference, based on qualifications.

f. 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.

g. 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.

h. The FAA must prepare a selection report for its records.

2-11. SCOPE OF SERVICES.

a. 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 2-12c) 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.

b. The scope of service(s) must be sufficiently detailed so that the consultant can make a reasonable fee estimate (see Appendix F). Although the scope of service(s) will vary from project to project (see samples in Appendix E), 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. Inspection 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.

2-12. FEE ESTIMATE.

A sponsor must perform some form of fee analysis for every A/E contract (49 CFR § 18.36). The method and degree of analysis is dependent on the facts surrounding the contract. Sponsors have an obligation to obtain a fair and reasonable fee in all cases, and the FAA retains the right to disallow negotiated fees that are determined to be unreasonable.

a. In order to properly evaluate the consultant's cost proposal, a sponsor having a staff with experience in estimating the professional services and negotiating contracts for these services must develop its own fee estimate for the services, based on the scope of services agreed upon in paragraph 2-11.

b. Sponsors having no staff with this expertise or having minimal or no previous experience may not be able to perform these services in-house. In these instances, if the sponsor has a consultant on retainer who has experience with the services involved and who is not being considered for the project, the sponsor may engage the consultant to develop the fee estimate. State aviation personnel who have experience with the services involved may also be used.

c. Alternatively, an independent engineering, architecture, or planning firm may be retained by the sponsor to aid in developing the scope of services and/or fee estimate for professional services. A preliminary fee estimate should be made prior to advertising for an SOQ and experience and a detailed fee estimate must be made after discussions to determine a detailed scope of service (see paragraph 2-11). The firm retained to make the detailed fee estimate must not have been on the pre-selection short-list. The firm 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 firm meets the above requirements.

d. The firm hired to perform any of these functions may be retained using informal qualifications based procedures if the cost is under $100,000 (see paragraph 2-9b); however, that firm will not be eligible for consideration for work on the project.

e. The sponsor must have a detailed fee estimate to properly evaluate the cost of professional services. Appendices F and G present sample formats for consultant

services fee/cost and detailed fee/cost analysis respectively, however any format that meets this purpose is acceptable.

f. Prior to initiating further discussions with the first-ranked consultant, the sponsor must sign and date the independent cost estimate and retain it for their records.

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 independent fee estimate. In general, when the consultant's fee proposal and the sponsor's independent fee estimate are within 10% of each other, the fee can be determined to be reasonable. When differences exceed 10%, however, the sponsor should review those areas with the consultant to determine if there is a misunderstanding of the scope of services or level of effort required and attempt to resolve the differences. 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 independent fee estimate.

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. NEGOTIATIONS.

a. After developing a detailed scope of services and an independent fee estimate, the sponsor must enter into negotiations with the consultant given first preference by the selection board. At this time the sponsor may elect to 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.

b. Based on the scope of services agreed upon in paragraph 2-11, 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.

c. 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 G.

d. 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.

e. 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 H.

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

g. 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.

h. 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 9).

2-14. SPONSOR FORCE ACCOUNT PROJECTS. 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. Most of the factors considered in the selection of a consultant would be applicable to approval of services to be done by force account. The sponsor's proposal to use force account rather than contract-engineering services must be fully documented and should contain as a minimum:

a. Justification for doing the work by force account rather than by contract;

b. Estimate of costs, including detailed data on estimated work hours, hourly rates, non-salary expenses, and indirect costs;

c. Names and engineering qualifications of personnel that will be accomplishing specific tasks;

d. 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;

e. Summary of sponsor's experience with airport engineering pertaining to projects with similar design scopes; and

f. 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.

Intentionally left blank.

CHAPTER 3. CONTRACT FORMAT AND PROVISIONS

3-1. GENERAL.

a. 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.

b. 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.

a. 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.

b. The contract between the sponsor and consultant is based on the scope of services established earlier in the process (see paragraph 2-11) 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.

c. 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 49 CFR part 18 and may impact Federal eligibility.

3-4. MANDATORY CONTRACT PROVISIONS. 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.

The provisions that pertain to consultant contracts, including the source of each requirement are listed in Table 3-1. Specific wording of Federal contract provisions is available on the FAA website at http://www.faa.gov/airports_airtraffic/airports/aip/procurement/.

Table 3-1. Mandatory Federal Contract Provisions for Professional Services (A/E) Contracts

Provision	Law/Statute
Provisions for all A/E Contracts	
Civil Rights Act of 1964, Title VI - Contractor Contractual Requirements	49 CFR part 21
Airport and Airway Improvement Act of 1982, Section 520	49 USC § 47123
Disadvantaged Business Enterprise	49 CFR part 26
Lobbying and Influencing Federal Employees	49 CFR part 20
Access to Records and Reports	49 CFR § 18.36
Breach of Contract Terms	49 CFR § 18.36
Rights to Inventions	49 CFR § 18.36
Trade Restriction Clause	49 CFR part 30
Additional Provisions for A/E Contracts Exceeding $10,000	
Termination of Contract	49 CFR § 18.36
Additional Provisions for A/E Contracts Exceeding $25,000	
Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion	49 CFR part 29

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.

a. 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. Copies of disks 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.

b. 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.

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.

a. Effective date of contract.

b. 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.

c. Nature, extent, and character of the project, the location thereof, and the time limitations.

d. Services, including performance and delivery schedules, to be rendered by the consultant.

e. 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.

f. Delineation of the duties and responsibilities of the resident engineer/inspector.

g. Inclusion of mandatory contract provisions identified in paragraph 3-4.

h. Provision for renegotiation of the contract on the basis of change in the scope of the project, changes in conditions, additional work, etc.

i. Provision that reproducible copies of planning and design drawings and specifications be made available to the sponsor upon request.

j. Compensation, including methods of payment and payment schedules, for services to be rendered by consultants.

k. Provision for the termination of the consultant services before completion of work.

l. Provision for preparation of a Quality Control Plan as required by the special provisions of the grant agreement.

m. Provision for preparation of an Engineer's Design Report and Final Report.

3-8. FAA CONTRACT REVIEW.

a. 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.

b. 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.

c. Pre-award review of proposed contracts is required under certain circumstances. Additional guidance is available in Order 5100.38, Chapter 9.

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 10 and Appendix 5, *Sponsor Certification Forms*, “Selection of Consultants;” and 49 USC 47105 (d).

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 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.

4-2. DIRECT PERSONAL SERVICES.

a. 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.

b. 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.

c. 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.

d. 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.

e. 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.

f. 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. Methods of Contracting and Allowable Costs

Type of Service	Compensation	Allowable Cost
§4-2. Direct Personal Services	▪ Per Diem. ▪ Hourly Rate (§4-2.e).	Costs must be allowable, reasonable, and allocable to the project. Costs must be consistent with 49 CFR § 18.36, FAA Order 5100.38 and OMB Circular A-87.
§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. 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 49 CFR § 18.36, FAA Order 5100.38 and OMB Circular A-87.
§4-8. Alternative Delivery Methods ▪ Construction Manager-At-Risk. ▪ Task Order Contracting. ▪ Design Build.	▪ Negotiated ceiling ▪ Annual ceiling w/ maximum/order ▪ May include lump sum, cost plus, cost w/ guaranteed maximum, etc.	

NOTE: Non-allowable costs for all types of service:

a. Costs of amusement and social activities and incidental costs relating thereto such as meals, lodging, rentals, transportation, and gratuities.
b. Contributions and donations.
c. Bad debts, including losses due to uncollectible customer's accounts and other claims, related collection costs, and related legal costs, arising from other businesses of the consultant.
d. Dividend provisions or payments and, in the case of sole proprietors and partners, distributions of profit.
e. Interest on borrowed capital.
f. Bonus payment for early completion of work.

4-3. RETAINER.

a. 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.

b. 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.

c. 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.

d. 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.

e. 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)).

a. The cost-plus-a-fixed-fee contract is frequently used when the consultant is required to start work before the cost and scope of the project can be accurately determined. It is recommended that services for the construction phase of a project be paid for under a cost-plus-a-fixed-fee type contract.

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

c. A cost-plus-a-fixed-fee proposal should be accompanied by the consultant's estimate. The estimate should detail the direct labor costs by categories of employees, work hours, and hourly rate; overhead; direct non-salary expenses; and the fixed fee.

d. The fee is fixed and does not vary no matter what the costs turn out to be. In most instances, however, a ceiling is applied which establishes an upper limit on the allowable costs. In establishing the upper limit, an allowance for contingencies should be included so that, as such contingencies are encountered, renegotiation of the upper limit will not be necessary. The intent of the upper limit is to ensure that the allowable costs do not exceed an agreed-upon ceiling without prior approval of the sponsor. (If Federal participation is desired in the increased cost, the sponsor must obtain the prior approval of the FAA.) Such contracts should contain provisions that provide for renegotiation of both the upper limit and the fixed fee if the scope of work described in the contract has changed.

e. Any increase in costs should be fully justified by the consultant prior to approval by the sponsor. As the consultant is approaching the upper limit and it becomes apparent that the project cannot be completed within that limit, he should alert the sponsor. Approval must be obtained before the upper limit is exceeded.

f. Overhead charges will vary according to the nature, type, diversity, size of firm, and number/amount of contracts currently held by the firm. The consultant should be prepared to validate the overhead costs with a certified statement from the sponsor's auditor, state's auditor, or consultant's accountant. A firm can demonstrate that the non-allowable costs are not included in its overhead calculation rather than requiring a complete audit in advance of contracting. Otherwise, if the consulting firm has been audited by an agency of the Federal Government within the previous 12 months, the overhead rate determined by this audit may be used.

g. Fixed-fee is in addition to reimbursement for salary, overhead, and direct non-salary expenses. The consultant is paid a fixed amount for profit, willingness to serve, and assumption of responsibility. This may be an amount based on the estimated design cost of the project at the time the consultant is engaged and will vary with the scope of the services involved.

4-5. FIXED LUMP-SUM PAYMENT.

a. The fixed lump-sum payment contract is normally used when the scope of work can be clearly and fully defined at the time the agreement for services is prepared.

b. 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 all expressed as a single lump sum. A lump sum proposal must be accompanied by the consultant's estimate. The estimate must detail the direct labor costs by categories of employees, work hours, and hourly rate; overhead; direct non-salary expenses; and profit.

c. 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.

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

e. Overhead charges will vary according to the nature, type, diversity, size of firm, and number/amount of contracts currently held by the firm. Guidance is provided in paragraph 4-4f.

4-6. COST-PLUS-A-PERCENTAGE-OF-COST. 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:

a. Salary Cost Times a 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.

b. 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. 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.

4-8. ALTERNATIVE DELIVERY METHODS. There are three basic forms of alternative delivery methods (see FAA Order 5100.38, Chapter 9, Section 3, *Alternative Delivery Methods*):

a. Construction Manager-At-Risk (CM-A-R). The sponsor would engage a design firm for the design of the project. At an early stage of design, a contract is let for the CM-A-R in which the contractor reviews designs as they evolve to provide expertise for the construction phase. The CM-A-R and the sponsor also negotiate a ceiling amount for the construction beyond which the CM is “at risk.”

b. Task Order Contracting. The sponsor would procure for an annual need and estimate a ceiling amount and most frequently a maximum per order amount. The contract is also

procured on the basis of criteria such as standard fees or unit rates and provides the standard contract clauses.

c. Design Build. This is a method of contracting in which two distinct phases of project accomplishment, design phase and construction phase, are combined into a seamless process performed by one contractor who retains single-source responsibility for that entire process. Due to time savings in the contracting process as well as earlier commencement of construction, design build may provide cost savings. There are many recognized forms of design build and the following is a brief description. There may be hybrid types of design build that use variations of the basic philosophies.

1. Design build project delivery can be performed by a single company with both design and construction capability in-house or by a team of design firms and contracting firms working under a single design build contract. The design build firm/team contracts to design and build the facility and retains the risk for overall project completion, budget, and schedule. There is no division of responsibility to the sponsor between the design organization and the construction organization.

2. Design build services can be performed under all of the contractual methods used for construction including lump sum, cost plus (excluding cost-plus-percentage-of-costs which is unauthorized), cost with a guaranteed maximum, etc. Design fees can be included in the overall contract price or separated as a subset of the price.

3. Contracting for design build services can be done by either of two basic methods, Qualifications Based Selection or Competitive Proposal Selection.

   (a) Qualifications based selection (QBS). In this method, contracting for design-build services is nearly identical to selection procedures commonly used for professional design services. The sponsor solicits proposals for the project, and design-build firms and teams respond with qualification information as prescribed in the solicitation. The sponsor chooses a short list of the most qualified firms/teams, and presentations/interviews are made by those firms/teams. The sponsor then selects the most qualified firm/team and negotiates a contract for professional services. The contract provides for subsequent establishment of a guaranteed maximum price (or lump sum, cost-plus fee or another approved form) and guaranteed completion date for the entire project at an agreed level of completion of the preliminary design work.

   (b) Competitive Proposal Selection (CPS). The contracting process for design-build services is accomplished in two steps. The sponsor first prepares a design criteria package for the project using in-house staff or a retained design firm. Design-build firms/teams respond to a solicitation, and are short-listed in the same process used for QBS. In the second step, a design criteria package is issued to the short-listed firms/teams, who respond with separate technical and price proposals. Technical proposals are evaluated first, using a numerical "points earned" system. Then, price proposals are opened and prices are factored into the "points earned" system to determine the final selection. A

common method of "scoring" price information is to divide the price by the technical points score and the resulting low score is selected.

(c) Under CPS, the sponsor must bear the cost of design criteria package preparation. Each short-listed design-build firm/team must bear the cost of preparing a technical proposal with preliminary drawings and outline specifications, along with a conceptual cost estimate to establish a price. To control this substantial cost, sponsors short-lists should not be longer than 3-4 firms/teams. Sponsors should also consider granting a stipend to each unsuccessful firm/team in return for the right to use any concepts from the unsuccessful firms/teams technical proposals for the project.

(d) Refer to FAA Order 5100.38, Chapter 9 for information on the limitations on the approval of projects for design-build contracting

4-9. ALLOWABLE COSTS. Costs incurred must be consistent with the Federal cost principles contained in 48 CFR part 31, Office of Management and Budget (OMB) Circular A-87, 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:

a. Direct Salary Costs.

1. 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.

2. 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.

b. Overhead Costs. Overhead costs include overhead on direct salary costs and general and administrative overhead.

1. Labor Overhead. Overhead on direct salary costs includes sick leave, vacation, and holiday pay; unemployment, excise and payroll taxes; contributions for social security, employment compensation insurance, retirement benefits, and medical insurance benefits; and any other benefits customarily paid to or available to all employees. The allowable percentage for labor overhead allocable to a project is the ratio of (a) a firm's total direct labor overhead costs to (b) a firm's total direct salary costs (excluding overtime) for a given period.

2. General and Administrative Overhead. General and administrative overhead includes the following indirect costs which are not directly attributable to specific projects:

(a) Provisions for office, light, heat, and similar terms for working space, depreciation allowances or rental of furniture, computer equipment and

engineering instruments, and office and computer/CADD supplies not identifiable to specific projects.

(b) Taxes and insurance other than those included as salary cost, but excluding State and Federal income taxes.

(c) Library and periodical expenses and other means of keeping abreast of advances in engineering such as attendance at technical and professional meetings and subscriptions to trade, business, professional, or technical periodicals.

(d) Executive, administrative, accounting, legal, and administrative support salaries and expenses (other than identifiable salaries included in salary costs and expenses included in reimbursable non-salary expenses, plus salaries or imputed salaries of partners and principals) to the extent that they perform general executive and administrative services as distinguished from technical or advisory services directly applicable to particular projects.

(e) Costs of memberships in trade, business, technical, and professional organizations.

(f) Incentive compensation for management employees, cash bonuses except for early completion of work, suggestion awards, safety awards, and incentive compensation based on production, cost reduction, or efficient performance are allowable to the extent that the overall compensation is determined to be reasonable, and such costs are paid or accrued pursuant to an agreement entered into in good faith between the consultant and the employees before the services are rendered or pursuant to an established plan followed by the consultant so consistently as to imply, in effect, an agreement to make such payment. The allowable percentage for general and administrative overhead allocable to a project is the ratio of (a) all general and administrative costs to (b) total direct salary costs (excluding overtime) for a given period.

c. 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):

1. 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.)

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

3. 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.

4. 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.

5. Identifiable reproduction costs applicable to the work.

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

7. Sub-consultant and outside services.

4-10. NON-ALLOWABLE COSTS. The expenses listed below are not allowable for reimbursement under an airport grant:

a. Costs of amusement and social activities and incidental costs such as meals, lodging, rentals, transportation, and gratuities.

b. Contributions and donations.

c. Bad debts, including losses due to uncollectible customer's accounts and other claims, related collection costs, and related legal costs, arising from other businesses of the consultant.

d. Dividend provisions or payments and, in the case of sole proprietors and partners, distributions of profit.

e. Interest on borrowed capital.

f. Bonus payment for early completion of work.

4-11. FIXED FEE. To all the estimated costs, including overhead, a percentage rate is applied to determine payment for profit, willingness to serve, and assumption of responsibility.

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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.

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

   1. 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;

   2. 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

   3. 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, and other related services.

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

c. Fee. Compensation paid to the consultant for professional services rendered.

d. 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.

e. 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.

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

Intentionally left blank.

APPENDIX B. BIBLIOGRAPHY

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

PUBLIC LAW

a. Brooks Act: Federal Government Selection of Architects and Engineers. Public Law 92-582, 92nd Congress, H.R. 12807, October 27, 1972.

(See http://www.firstgov.gov.)

b. *United States Code.* Title 40 Subtitle I, Chapter 11 Selection of Architects and Engineers.

(See http://uscode.house.gov or http://www.gpoaccess.gov/uscode.)

c. *United States Code.* Title 42 Chapter 55 USC 4321 National Environmental Act of 1969.

(See http://uscode.house.gov or http://www.gpoaccess.gov/uscode.)

d. *United States Code.* Title 49 Subtitle VII, Aviation Programs, USC §47123 Nondiscrimination.

(See http://uscode.house.gov or http://www.gpoaccess.gov/uscode.)

e. *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 or http://www.gpoaccess.gov/uscode.)

f. *United States Code.* Title 49 Subtitle VII, Chapter 471 USC §47102 Definitions.

(See http://uscode.house.gov or http://www.gpoaccess.gov/uscode.)

g. *United States Code.* Title 49 Subtitle VII, Chapter 471 USC §47105 Project Grant Applications.

(See http://uscode.house.gov or http://www.gpoaccess.gov/uscode.)

CODE OF FEDERAL REGULATIONS (See http://www.gpoaccess.gov/cfr/.)

a. Airport Noise Compatibility Planning. *Code of Federal Regulations.* Title 14 CFR part 150.

b. Contract Cost Principles and Procedures. *Code of Federal Regulations.* Title 48 CFR part 31.

c. Government-wide Debarment and Suspension (Nonprocurement). *Code of Federal Regulations.* Title 49 CFR part 29.

d. Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction. *Code of Federal Regulations.* Title 29 CFR part 5.

e. New Restrictions on Lobbying. *Code of Federal Regulations.* Title 49 CFR part 20.

f. 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.

g. Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor. *Code of Federal Regulations.* Title 41 CFR part 60.

h. Participation by Disadvantaged Business Enterprises (DBE) in Department of Transportation Financial Assistance Programs. *Code of Federal Regulations.* Title 49 CFR part 26.

i. Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments. *Code of Federal Regulations.* Title 49 CFR part 18.

FAA ORDERS AND ADVISORY CIRCULARS

a. 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/.)

b. U.S. Department of Transportation. Federal Aviation Administration. Order 5050.4, *Airport Environmental Handbook.*

(See http://www.faa.gov/airports_airtraffic/airports/resources/publications/orders/.)

c. U.S. Department of Transportation. Federal Aviation Administration. Order 5100.38, *Airport Improvement Program Handbook.*

(See http://www.faa.gov/airports_airtraffic/airports/resources/publications/orders/.)

d. 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_airtraffic/airports/resources/advisory_circulars/.)

Intentionally left blank.

APPENDIX C. SOURCES OF CONSULTANTS

Sources of consultants include, but are not limited to, the following professional societies.

AIRPORT CONSULTANTS COUNCIL (ACC)
908 King Street, Suite 100
Alexandria, VA 22314
Telephone: 703-683-5900
FAX: 703-683-2564
http://www.acconline.org/

AMERICAN COUNCIL OF ENGINEERING COMPANIES (ACEC)
1015 15th Street 8th Floor, N.W.
Washington, DC 20005-2605
Telephone: 202-347-7474
FAX: 202-898-0068
e-mail: acec@acec.org
www.acec.org/

AMERICAN INSTITUTE OF ARCHITECTS (AIA)
1735 New York Ave., NW
Washington, DC 20006-5292
Telephone: 800-AIA-3837 or
202-626-7300
FAX: 202-626-7547
www.aia.org

AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE)
101 Constitution Avenue, NW Suite 375 East
Washington, DC 20001
Telephone: 800 548-2723 X7850 or
202-789-7850
FAX: 202-789-2501
www.asce.org

NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS (NSPE)
1420 King Street
Alexandria, VA 22314-2794
Telephone: 703-684-2800
FAX: 703-836-4875
www.nspe.org

Other sources of consultants are available from:

- The professional services directories published in aviation magazines and trade journals.
- Other airport operators having undertaken similar projects.
- State boards of professional engineering registration.
- State aviation agencies and local telephone directories.

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, FAA personnel will not recommend consultants or participate in the selection process.

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APPENDIX D. FAA AND STATE AGENCY ADDRESSES

FEDERAL AVIATION ADMINISTRATION. The FAA Airports Regional or District/Development Office (ADO) addresses may be found by accessing http://www.faa.gov/airports_airtraffic/airports/regional_guidance/.

STATE AGENCY ADDRESSES. Information pertaining to the National Association of State Aviation Officials (NASAO), State aviation offices, and U.S. Territory aviation offices is listed below.

NASAO

NATIONAL ASSOCIATION OF STATE AVIATION OFFICIALS (NASAO)
1010 Wayne Avenue - Suite 930
Silver Spring, MD 20910
Telephone: 301-588-0587
FAX: 301-585-1803
http://www.nasao.org

State Aviation Offices

ALABAMA
Alabama Department of Transportation
Aeronautics Bureau
1409 Coliseum Blvd.
Montgomery, AL 36130
Telephone: 334-242-6820
FAX: 205-240-3274
http://www.dot.state.al.us/Docs/Bureaus/Aeronautics

ALASKA
Department of Transportation &
Public Facilities
Statewide Aviation
4111 Aviation Ave.
P.O. Box 196900
Anchorage, AK 99519-6900
Telephone: 907-269-0730
FAX: 907-269-0489
http://www.dot.state.ak.us/

ARIZONA
Division of Aeronautics
Arizona Department of Transportation
255 E. Osborn Road, Suite 101
Phoenix, AZ 85012
or
Mail Drop 426M
Phoenix, AZ 85002-3588
Telephone: 602-294-9144
FAX: 602-294-9141
http://www.dot.state.az.us/Aviation/index.asp

ARKANSAS
Department of Aeronautics
Regional Airport Terminal Building
1 Airport Drive, 3rd Floor
Little Rock, AR 72202
Telephone: 501-376-6781
FAX: 501-378-0820
http://www.ahtd.state.ar.us

CALIFORNIA
Division of Aeronautics Program
Department of Transportation
1120 N. Street-Room 3300
P.O. Box 942874
Sacramento, CA 94274-0001
Telephone: 916-654-4959
FAX: 916-653-9531
Postal Address:
Division of Aeronautics, MS 40
P. O. Box 942874
Sacramento, CA 94274-0001
http://www.dot.ca.gov/hq/planning/aeronaut/htmlfile/index.php

COLORADO
Colorado Department of Transportation
Division of Aeronautics
5126 Front Range Parkway
Watkins, CO 80137
Telephone: 303-261-4418
FAX: 303-261-9608
http://www.colorado-aeronautics.org

CONNECTICUT
Bureau of Aviation and Ports
Connecticut Department of Transportation
2800 Berlin Turnpike
P.O. Box 317546
Newington, CT 06131-7546
Telephone: 860-594-2529
FAX: 860-594-2574
http://www.ct.gov/dot

DELAWARE
Office of Aeronautics
Delaware Transportation Authority
Department of Transportation
800 Bay Road
P.O. Box 778
Dover, DE 19903
Telephone: 302-760-2149
FAX: 302-739-2251
http://www.state.de.us/deldot/info/air.html

FLORIDA
Aviation Office
Florida Department of Transportation
605 Suwannee Street
Mail Stop 46
Tallahassee, FL 32399-0450
Telephone: 850-414-4500
FAX: 850-412-4508
http://www.dot.state.fl.us/aviation/

GEORGIA
Georgia Department of Transportation
Office of Intermodal Programs-Aviation
276 Memorial Drive, SW
Atlanta, GA 30303-3743
Telephone: 404-651-9221
FAX: 404-657-5209
http://www.dot.state.ga.us

HAWAII
Airports Division
Hawaii Department of Transportation
Honolulu International Airport
400 Rodgers Blvd. Suite 700
Honolulu, HI 96819-1898
Telephone: 808-838-8600
FAX: 808-838-8734
http://www.hawaii.gov/dot/airports

IDAHO
Division of Aeronautics
Idaho Department of Transportation
3483 Rickenbacker Street
P.O. Box 7129
Boise, ID 83705
Telephone: 208-334-8775
FAX: 208-334-8789
http://www.itd.idaho.gov/aero/

ILLINOIS
Division of Aeronautics
Department of Transportation
Abraham Lincoln Capital Airport
One Langhorne Bond Dr.
Springfield, IL 62707-8415
Telephone: 217-785-8500
FAX: 217-785-4533
http://www.dot.state.il.us/aero/

INDIANA
Aeronautics Section
Indiana Department of Transportation
100 N. Senate Ave. Room N901
Indianapolis, IN 46204-2219
Telephone: 317-232-1496
FAX: 317-232-1499
http://www.in.gov/dot/modetrans
http://www.state.in.us/dot/sitemap/#4

IOWA
Office of Aviation
Air and Transit Division
Iowa Department of Transportation
800 Lincoln Way
Ames, IA 50010
Telephone: 515-239-1659
FAX: 515-233-7983
www.iawings.com

KANSAS
Division of Aviation
Kansas Department of Transportation
700 SW Harrison
Topeka, KS 66603-3754
Telephone: 785-296-2553
FAX: 785-296-3833
http://www.ksdot.org/divaviation/

KENTUCKY
Division of Aeronautics
Kentucky Transportation Cabinet
200 Mero Street W3-09-02
Frankfort, KY 40622
Telephone: 502-564-4480
FAX: 502-564-7953
http://www.kytc.state.ky.us/aviation

LOUISIANA
Aviation Division
Department of Transportation &
Development
8900 Jimmy Wedell Drive
P.O. Box 94245
Baton Rouge, LA 70804-9245
Telephone: 225-274-4112
FAX: 225-274-4181
http://www.dotd.louisiana.gov/intermodal/aviation

MAINE
Office of Passenger Transportation
Maine Department of Transportation
16 State House Station
Augusta, ME 04333
Telephone: 207-624-3250
FAX: 207-624-3251
http://www.maine.gov/mdot-stage/aviation/aviation-home.php

MARYLAND
Maryland Aviation Administration
Maryland Department of Transportation
P.O. Box 8766
Baltimore/Washington Intl. Airport, MD
21240
Telephone: 410-859-7111
FAX: 410-850-4729
http://www.marylandaviation.com

MASSACHUSETTS
Massachusetts Aeronautics Commission
10 Park Plaza, Suite 3510
Boston, MA 02116-3966
Telephone: 617-973-8881
FAX: 617-973-8889
http://www.massaeronautics.org

MICHIGAN
Bureau of Aeronautics
Department of Transportation
2700 East Airport Service Drive
Capital City Airport
Lansing, MI 48906-2160
Telephone: 517-335-9568
FAX: 517-321-6522
www.michigan.gov

MINNESOTA
Aeronautics Office
Minnesota Department of Transportation
222 East Plato Boulevard
St. Paul, MN 55107-1618
Telephone: 651-296-8202
FAX: 651-297-5643
http://www.dot.state.mn.us/aero/

MISSISSIPPI
Mississippi Department of Transportation
Aeronautics Division
401 Northwest Street
Jackson, MS 39201
Telephone: 601-359-7850
FAX: 601-359-7855
www.gomdot.com

MISSOURI
Department of Highways & Transportation
Aviation Section
DOT Bldg.
2217 St. Mary's Blvd
P.O. Box 270
Jefferson City, MO 65102
Telephone: 573-751-2589
FAX: 573-526-4709
http://www.modot.state.mo.us/othertransportation/

MONTANA
Aeronautics Division
Department of Transportation
P.O. Box 200507
Helena, MT 59620-0507
Telephone: 406-444-9547
FAX: 406-444-2519
http://www.mdt.state.mt.us/aeronautics

NEBRASKA
Nebraska Department of Aeronautics
P.O. Box 82088
Lincoln, NE 68501
Telephone: 402-471-2371
FAX: 402-471-2906
www.aero.state.ne.us

NEVADA
Nevada Department of Transportation
1263 South Stewart Street
Carson City, NV 89712
Telephone: 775-888-7464
FAX: 775-888-7207
http://www.nevadadot.com

NEW HAMPSHIRE
Division of Aeronautics
Municipal Airport
65 Airport Road
Concord, NH 03301-5298
Telephone: 603-271-2551
FAX: 603-271-1689
http://www.nh.gov/dot/aeronautics

NEW JERSEY
Division of Aeronautics and Freight Systems
New Jersey Department of Transportation
1035 Parkway Avenue CN 610
Trenton, NJ 08625
Telephone: 609-530-2900
FAX: 609-530-4549
http://www.state.nj.us/transportation

NEW MEXICO
Aviation Division
State Highway and Transportation Department
P.O. Box 1149
1550 Pacheco St.
Santa Fe, NM 87504-1149
Telephone: 505-476-0930
FAX: 505-476-0942
www.nmshtd.state.nm.us/

NEW YORK
Aviation Services Bureau
New York State Department of Transportation
50 Wolf Rd.
Albany, NY 12232-0414
Telephone: 518-457-8343
FAX: 518-457-9779
http://www.dot.state.ny.us/pubtrans/airhome.html

NORTH CAROLINA
Division of Aviation
1050 Meridian Dr.
RDU Airport, NC 27623
or
North Carolina Department of Transportation
Division of Aviation
1560 Mail Service Center
Raleigh, NC 27699-1560
Telephone 919-840-0112
FAX 919-840-9267
http://www.dot.state.nc.us/transit/aviation

NORTH DAKOTA
North Dakota Aeronautics Commission
2301 University Drive
Bldg. 1652-22
Box 5020
Bismarck, ND 58502
Telephone: 701-328-9650
FAX: 701-328-9656
http://www.state.nd.us/ndaero/

OHIO
Ohio Department of Transportation
Division of Aviation
2829 West Dublin-Granville Road
Columbus, OH 43235
Telephone: 614-793-5040
FAX: 614 761-9609
http://www.dot.state.oh.us/aviation

OKLAHOMA
Oklahoma Aeronautics Commission
Department of Transportation Building
3700 N. Classen Blvd. Suite 240
Oklahoma City OK 73118
Telephone: 405-604-6900
FAX: 405-604-6919
http://www.aeronautics.state.ok.us

OREGON
Department of Aviation
Oregon Department of Transportation
3040 25th Street, SE
Salem, OR 97302
Telephone: 503-378-4880
FAX: 503-373-1688
http://www.aviation.state.or.us

PENNSYLVANIA
Bureau of Aviation
Pennsylvania Department of Transportation
PO Box 3457
Harrisburg International Airport
Middletown, PA 17057
Telephone: 717-705-1260
FAX: 717-705-1255
http://www.dot.state.pa.us

PUERTO RICO
Puerto Rico Ports Authority
P.O. Box 362829
San Juan, PR 00936-2829
Telephone: 809-723-2260
FAX: 809-722-7867
www.dtop.gov.pr

RHODE ISLAND
Rhode Island Airport Corporation
Department of Airports
Theodore Francis Green Airport
2000 Post Road
Warwick, RI 02886-1533
Telephone: 401-737-4000
FAX: 401-732-3034
http://www.pvdairport.com

SOUTH CAROLINA
Division of Aeronautics
2553 Airport Blvd.
P.O. Box 280068
Columbia, SC 29228-0068
Telephone: 803-896-6260
FAX: 803-922-0574
http://www.scaeronautics.com

SOUTH DAKOTA
Office of Aeronautics
Becker-Hansen Building
700 Broadway Avenue East
Pierre, SD 57501-2586
Telephone: 605-773-7045
FAX: 605-773-3921
http://www.sddot.com/fpa/aeronautics/index.htm

TENNESSEE
Aeronautics Division
Tennessee Department of Transportation
607 Hanger Lane Bldg. 4219
P.O. Box 17326
Nashville, TN 37217
Telephone: 615-741-3208
FAX: 615-741-4959
http://www.state.tn.us

TEXAS
Texas Department of Transportation
Division of Aviation
125 E. 11th St.
Austin, TX 78701-2483
Telephone: 512-416-4500
FAX: 512-416-4510
http://www.dot.state.tx.us

UTAH
Aeronautical Operations Division
Utah Department of Transportation
135 North 2400 West
Salt Lake City, UT 84116
Telephone: 801-715-2260
FAX: 801-715-2276
http://www.dot.state.ut.us

VERMONT
Agency of Transportation
Maintenance and Aviation Division
National Life Building, Drawer 33
Montpelier, VT 05633
Telephone: 802-828-2833
FAX: 802-828-2848
http://www.vermontairports.com/air.htm

VIRGINIA
Department of Aviation
5702 Gulfstream Rd.
Richmond, VA 23250-2422
Telephone: 804-236-3624
FAX: 804-236-3635
http://www.doav.virginia.gov

WASHINGTON
Washington Department of Transportation
WSDOT Aviation
3704 172nd St. NE
Arlington, WA 98223-6336
Telephone: 360-651-6300
FAX: 360-651-6319
http://www.wsdot.wa.gov/aviation

WEST VIRGINIA
Department of Transportation
Aeronautics Commission
1900 Kanawha Blvd. East
Building 5, Room A-503
Charleston, WV 25305
Telephone: 304-558-3436
FAX: 304-558-03333
http://www.wvdot.com/1_airports/1e_commission.htm

WISCONSIN
Bureau of Aeronautics
Wisconsin Department of Transportation
P.O. Box 7914
Madison, WI 53707-7914
Telephone: 608-266-3351
FAX: 608-267-6748
www.dot.wisconsin.gov/modes/air.htm

WYOMING
Wyoming Department of Transportation
Aeronautics Division
5300 Bishop Boulevard
Cheyenne, WY 82009-3340
Telephone: 307-777-3952
FAX: 307-637-7352
www.dot.state.wy.us

US Territory Aviation Offices

AMERICAN SAMOA
Director
Department of Port Administration
American Samoa Government
P.O. Box 1539
Pago Pago, American Samoa 96799
Telephone: 684-633-4251
FAX: 684-633-5281
www.asg-gov.net

GUAM
Executive Manager
A.B. Won Pat Guam International
Airport Authority (GIAA)
P.O. Box 8770
Tamuning, GU 96931
Telephone: 671-646-0300
FAX: 671-646-8823
www.guamairport.com

NORTHERN MARIANA ISLANDS
Executive Director
Commonwealth Ports Authority
Saipan International Airport
P.O. Box 501055
Saipan, MP 96950-1055
Telephone: 670-644-3500
FAX: 670-234-5962
www.cpa.gov.mp

PUERTO RICO
Puerto Rico Ports Authority
P.O. Box 362829
San Juan, PR 00936-2829
Telephone: 809-723-2260
FAX: 809-722-7867
www.dtop.gov.pr

VIRGIN ISLANDS
Virgin Islands Port Authority
P.O. Box 301707
St. Thomas, VI 00803-1707
Telephone: 340-714-6601
Fax: 340 774-0025
http://www.viport.com

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APPENDIX E. SCOPE OF SERVICES SAMPLES

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.

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:

a. 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.)

b. Prepare a preliminary estimate of probable construction costs and schematic design for each element of the project.

c. Provide all geotechnical investigation and analysis and pavement and other nondestructive testing and analysis required for the design.

d. Coordinate with the airport's project manager for required survey information.

e. 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.

f. 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

a. Evaluate local conditions.

   1. Evaluate local material suppliers, sources, and capabilities.

   2. Evaluate drainage alternatives.

   3. Review electrical lighting layouts and determine system relocation capacities.

b. Review and evaluate project layout.

   1. Verify master plan dimensions and data.

   2. Review findings and recommendations with airport personnel.

c. Complete a soils investigation, soils report, and recommendations including:

   1. Field Exploration.

      (a) 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.

   2. Laboratory Testing.

      (a) 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.

d. Complete necessary topography and site surveying, including establishment of project control points.

e. Complete pavement section alternatives analysis and provide recommendations including:

1. Conduct an initial cost analysis, life-cycle cost analysis, and analysis of locally available resources for up to three alternatives.

2. Strategize bidding procedures and pavement section alternatives to provide a basis for competitive bidding.

f. Complete preliminary plan and profile design for the runway, taxiway, and apron area.

g. Complete preliminary runway lighting, signing, and system circuitry layout.

h. Provide recommendations for construction phasing to the sponsor for their review.

i. Complete estimates of probable construction costs for the recommended alternatives.

j. Provide five sets of review documents.

k. Complete the preliminary design report including:

1. Geotechnical investigation.

2. Topographical survey.

3. Preliminary plans.

4. Pavement section design and analysis.

5. Drainage design analysis.

6. Estimates of probable construction costs.

7. Final summary and recommendations.

8. Phasing and scheduling recommendations.

l. 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 assure 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.

a. Incorporate preliminary design comments and respond as necessary to requests for additional information.

b. Provide final design drawings, specifications, and final estimate of probable construction costs and schedule for the project.

c. Provide Engineering Report.

d. Develop specifications using Advisory Circular 150/5370-10, *Standards for Specifying Construction of Airports*, as amended, and utilize standard provisions supplied by the sponsor.

e. Develop a safety plan in accordance with AC 150/5370-2, *Operational Safety on Airports During Construction*.

f. Design all improvements in accordance with FAA standards and guidelines and in accordance with the Airport Certification Manual.

g. Coordinate the design of the project with existing and ultimate grades established at adjacent areas.

h. Provide for all required design of utilities and services within the area defined in the preliminary design.

i. Complete final quantity calculations.

j. Solicit sponsor and FAA review and approval.

k. Provide ___ sets of contract documents.

l. Assist airport with advertising and interpretation of project requirements.

m. Assist airport with preparation of the FAA application.

n. Provide review of all submittal and shop drawings during construction.

o. Provide technical assistance and recommendations to the sponsor during construction.

p. The following project schedule will be utilized unless otherwise approve 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.

q. 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 that likely consultant 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 consultant 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

a. Assist with prebid conference and bid opening. Issue addenda, prepare an abstract of bids, and make recommendations for award.

b. Assist in award notification to successful bidder and notify and return bid bonds to the unsuccessful bidders.

c. Solicit and review bonds, insurance certificates, construction schedules, etc.

d. Conduct preconstruction conference.

e. Complete construction staking, provide horizontal and vertical control.

f. 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.

g. Prepare change orders and supplemental agreement, if required.

h. Prepare and submit inspection reports.

i. Prepare and confirm monthly payment request.

j. Conduct necessary quality control testing.

k. Conduct and document periodic wage rate interviews.

l. Conduct a final project inspection with airport personnel, the FAA, and the consultant.

m. Prepare as-constructed drawings and the final project from information furnished by the consultant.

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 1999, which was based on data compiled in the mid 1990s, 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. Included in this assessment is a fresh look at terminal area development, growth within the adjoining (off-airport) industrial park, and an evaluation of airport land usage for aeronautical/nonaeronautical purposes.

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. These limits are critical to future expansion of both the airport and adjacent industrial park.

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

a. 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.

b. 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.

c. 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.

d. 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.

e. Grant Administration. 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.

   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

a. 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.

b. 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.

c. 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.

d. Evaluate Existing Lease Agreements. XYZ Company will obtain and evaluate existing airport lease agreements for compliance with FAA grant assurances.

e. Review SASP: XYZ Company will obtain and review aircraft and operational data in the current State Aviation Systems Plan (SASP) as applicable to Anytown.

f. Update 19XX Forecasts. The 19XX AMPU forecasts will be updated based on current aircraft loading and operations and projected forward 5, 10 and 20 years using SASP forecasts.

g. 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.

h. 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.

a. 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

b. Airside Facility Requirements: This ALPU will not evaluate airside facilities (runway, taxiways, etc).

c. 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).

d. 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.

e. 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.

a. 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.

b. 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.

c. 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.

d. 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.

e. 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.

a. Identify Existing Environmental Conditions. This task will include the collection of data to identify protected resources and environmental issues as defined by the 21 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.

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.

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.

b. 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.

c. 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).

d. 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.

a. 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.

b. 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.

c. Funding Sources: XYZ Company will identify typical and potential funding sources for paying for proposed airport improvements or necessary maintenance projects.

d. 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.

a. 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′.

b. 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′.

c. Terminal Area Plan: This drawing will be prepared at a scale of either 1″ = 50′ or 100′ reflecting the revised preferred layout.

d. 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

a. 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.

b. 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.

c. 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:

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

EXAMPLE 3. CONSTRUCTION SERVICES SCOPE

DESIGN AND CONSTRUCT 6-UNIT HANGAR

ANYTOWN MUNICIPAL AIRPORT

ARTICLE A - DATA COLLECTION AND PROJECT DEVELOPMENT

a. Predesign Conference - A representative of the engineer will attend a predesign meeting at the offices of the state to provide the representatives of the owner, 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 owner, 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.

b. 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.

c. 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 owner.

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 owner.

ARTICLE B - DESIGNS, PLANS AND SPECIFICATIONS

a. 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

The engineer will distribute the preliminary plans to the owner, the state, and the FAA for review. The engineer will provide the owner 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.

The engineer will distribute the final plans to the owner, the state, and the FAA. The engineer will provide the owner 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.

b. 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.

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.

The engineer will distribute the preliminary specifications and contract documents to the owner, the state, and the FAA for review and approval. The engineer will provide the owner 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.

The engineer will distribute the final specifications and contract documents to the owner, the state, and the FAA. The engineer will provide the owner 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.

c. 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 owner, the state, and the FAA for review and modification. The owner, 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.*

d. 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.

e. 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.

f. 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 owner.

ARTICLE C - ENVIRONMENTAL SERVICES

a. 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.

b. Facility Storm Water Pollution Prevention Plan - The engineer will amend the owner's airport Storm Water Pollution Prevention Plan (SWPPP) which was prepared in 1996 for the owner'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 owner 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 owner.

ARTICLE D - PROJECT ADMINISTRATION

a. Scope of Services and Contract - The engineer will communicate and coordinate with the owner 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 owner, 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.

   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 owner’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 owner 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 owner, 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.

b. 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 owner DBE program status, sponsor certifications, and grant assurances. The engineer will submit the grant application to the owner with transmittal letters for signatures and forwarding to the FAA and state. The engineer will review the Federal grant offer and assist the owner in complying with the terms and conditions of the grant offer.

c. 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.

d. Reimbursement Requests - The engineer will prepare the Federal and State reimbursement requests using FAA Forms 5100-X and 5100-6X and State Form 55XX including letters of transmittal to the FAA and state. The engineer will compile the sponsor administration costs, engineering costs, subconsultant costs and construction costs. The engineer will submit five (5) copies of each reimbursement request package to the owner with transmittal letters for signature and forwarding to the FAA and the state for payment. It is anticipated that a total of six (6) reimbursement request packages including the final reimbursement request will be prepared and submitted during the course of the project.

   The engineer will compile, review, and approve the consultant's construction cost data and will prepare FAA Form 51XX-8 periodic cost estimates. The engineer will submit seven (7) copies of the periodic cost estimates to the consultant for signature and return to the engineer for inclusion in the reimbursement request packages. It is anticipated that a total of four (4) periodic cost estimates will be prepared and submitted during the course of the project.

e. 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.

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

g. 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 owner for services provided to the owner 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.

h. 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 owner, the state, the FAA, and other interested parties; disseminating interim project information to the owner, the state, the FAA, and other interested parties; and organizing, maintaining, and archiving the project records for six (6) years.

i. 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 owner 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 owner.

ARTICLE E - BIDDING SERVICES AND CONSTRUCTION ARRANGEMENTS

a. 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 owner, the state, and the FAA.

b. 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 owner'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.

c. 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.

d. 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.

e. 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 owner 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.

f. 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 owner recommending the award of the construction contract to the apparent low bidder based on the bid analyses. With the concurrence of the owner, 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.

g. 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.

h. 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 owner for final signatures. The engineer will prepare a checklist of tasks to be performed by the owner 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 owner.

a. Preconstruction Conference - The engineer will coordinate the time, date, and location of the preconstruction conference. The engineer will notify the owner, 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.

b. 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 owner and the consultant.

c. Construction Administration - The engineer will provide general consultation and advice to the owner during the construction phase of the project. The engineer will provide general coordination between the owner, the state, and the FAA during the construction phase of the project. The engineer will assist the owner with the preparation and issuance of change orders, recommend construction specification waivers, and advise the owner 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 owner, the FAA, and the state.

   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.

   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.

d. Supervisory Site Visits - The engineer will make supervisory visits to the construction site to observe the progress, safety, and quality of the construction. The engineer will coordinate the site visits with the owner and representatives of the electrical and

structural divisions. The engineer's representatives will meet with the representatives of the owner and the consultant to discuss the project's progress and to identify areas of concern to facilitate the construction.

e. 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 owner, 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 owner, the FAA, the state, the resident engineer, and the consultant.

f. 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 owner, 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 owner after the record drawings have been signed by all parties. The engineer will provide the owner with electronic files of the record drawings in AutoCAD DWG format and PDF format on CD-ROM.

g. 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.

h. 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.

i. 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 owner, 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 owner.

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 owner.

ARTICLE G - TECHNICAL OBSERVATION OF CONSTRUCTION

a. 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.

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.

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 owner, 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.

The resident engineer will monitor and coordinate the construction progress; will coordinate with the owner, 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.

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.

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.

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 owner.

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 owner.

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APPENDIX F. CONSULTANT SERVICES FEE/COSTS SAMPLE

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

Airport: _____

Project: _____

Date: _____

THIS IS A SAMPLE ANY SIMILAR FORM MAY BE USED

TASKS	EMPLOYEE CLASSIFICATIONS					
	DIRECTOR AVIATION	PROJECT MANAGER	AIRPORT PLANNER	ENVIRO. ANALYST	CADD TECH	CLERICAL
	HOURS					
1 Project Scoping Meeting						
2 Refine Scope and Fee						
3 Prepare Grant Application						
4 Attend City Council Meeting						
5 Update Existing Activity						
6 Field Inventory						
7 Identify On-Airport Developable Land						
8 Evaluate Existing Lease Agreements						
9 Update 1999 Forecasts						
10 Review and Respond to Comments						
11 Landside Facility Capacity & Requirements						
12 Meeting						
13 Review and Respond to Comments						
14 Identify Limits of Aviation Development						
15 Identify Development Alternatives						
16 Review and Respond to Comments						
17 Identify Existing Environmental Conditions						
18 Describe Regulatory Requirements						
19 Prepare and Forward Draft Findings						
20 Implementation Plan & Capital Improvement Plan						
21 Existing Airport Facilities Plan						
22 Ultimate Airport Layout Plan						
23 Final Meeting						
24 Prepare and Forward Final Report						
25 Prepare and Forward Final Airport Layout Plan						
TOTAL HOURS	**0**	**0**	**0**	**0**	**0**	**0**
HOURLY RATE	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
DIRECT SALARY COST	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

TASKS VARY WITH SCOPE AND CATEGORY/PHASE OF SERVICE

EMPLOYEE CLASSIFICATIONS VARY WITH EACH CONSULTANT AND PROJECT

HOURS WILL VARY BY LEVEL OF WORK AND AS NEGOTIATED

TOTAL HOURS IS THE SUM OF EACH COLUMN

HOURLY RATE VARIES BY CONSULTANT

DIRECT SALARY COST ARE TOTAL HOURS MULTIPLIED BY HOURLY RATE

Direct Nonsalary Expenses	
Travel (x miles at $x.xx/mile)	$0.00
Per Diem	$0.00
Reproduction	$0.00
Testing	$0.00
Consultants/Outside Services	$0.00
Other	$0.00
Total Direct Nonsalary Expenses	**$0.00**

Total Direct Salary Costs	$0.00
Overhead (xxx % of Direct Labor Costs)	$0.00
Total Labor Cost	**$0.00**
Fixed Fee (xx % of Total Labor Cost)	$0.00
Subtotal	**$0.00**
Total Direct Nonsalary Expenses	$0.00
TOTAL COST (Total Labor, Fixed Fee & Expenses)	**$0.00**

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APPENDIX G. 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

Intentionally left blank.

APPENDIX H. RECORD OF NEGOTIATIONS SAMPLE

ARCHITECTURAL AND ENGINEERING SERVICES

DATE:

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

a. 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.

b. The scope of work and request for fee proposal were sent to XYZ Consultants on February 23.

c. 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.

d. The consultant submitted their fee proposal for the work on March 2, broken down as follows:

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

e. 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.

f. 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.

g. 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

h. The detailed cost analysis was revised on March 12 to reflect the consultant's revised fee proposal.

i. 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.

j. 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

k. 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.

l. 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