

Iowa DOT Policies and Procedures

Title Prequalification of Architectural, Engineering and Related Professional and Technical Firms		Policy No. 300.04
Responsible Office Design		Related Policies and Procedures 300.12, 300.18
Effective/Revision Dates 8-6-1976/ 1-25-2016	Approval(s) <i>Mitch Dillavou</i>	

Authority: Director of Transportation in accordance with administrative rules 761 IAC 20.8(307).

Contents: This policy provides guidelines for the review and evaluation of the work history and personnel of a firm for prequalification/approval to provide professional and technical services for the Department.

Affected Offices: District Offices; Offices of Aviation, Bridges and Structures, Construction and Materials, Design, Local Systems, Location and Environment, Maintenance, Public Transit, Rail Transportation, Right of Way, Support Services, Systems Planning, Traffic and Safety, Traffic Operations and Transportation Data; Project Delivery Bureau and Systems Operations Bureau.

Who to Contact for Policy Questions: Consultant Contract Coordinator in the Office of Design; telephone 515-239-1729.

Definitions:

Categories of work - Specific classes of work for which firms may prequalify. Descriptions of the categories of work, the minimum qualification standards for each category, and the organizational unit(s) of the Department generally responsible for administering contracts within each category (administering office) are listed in the **Appendix** of this policy.

Consultant Contract Coordinator – The person responsible for coordinating work with consultants.

Disadvantaged Business Enterprise (DBE) - A small business that is both owned and controlled by socially and economically disadvantaged individuals (see Policy No. 300.18).

Firm – An individual, business, organization, partnership, corporation, association, or other legal entity permitted by law to practice in the professions of architecture or engineering, or other areas permitted by law, to provide related professional and technical services.

Negotiation - Procurement by means other than formal advertising or solicitation of quotations.

Prequalification - A procedure to review and evaluate the qualifications of professional and technical firms for approval to provide specific services for the Department.

Responsible office(s) - The organizational unit(s), usually the "administering office" shown in the **Appendix** is responsible for prequalifying firms for a particular category of work. However, a division director may designate an alternate organizational unit within the division to be responsible for prequalification.

Forms:

102111 - Application for Prequalification: Architect, Engineer and Related Services

102113 - Application Supplement for Prequalification: Architect, Engineer and Related Services

Policy and Procedure:

I. General Information

Lists of firms prequalified for the various categories of work are available on the Department's website: www.dot.state.ia.us. Under the A-Z Index, find and click *Consultant utilization*.

II. Initial Prequalification Application

A firm wishing to prequalify with the Department in one or more categories of work must complete Form 102111 and Form 102113 online. An additional submission of Form 102113 is required for each category prequalification request. To begin the prequalification process, go to <http://www.prof-tech-consultant.dot.state.ia.us/default.asp> and click on *Prequalification for Iowa DOT Work*. From there, click on *Request for Prequalification - Blank Forms* and follow prompts to create a new application. For questions, contact the Consultant Contract Coordinator.

The application for each work category must list the members of the firm's key staff who will be directly performing the services of that work category and must include resume information and work experience for each. The application must also identify recent projects performed by the key staff members that correlate to the services identified for that work category. A firm is limited to identifying ten projects for each work category. The application shall identify only the key staff members who will be directly performing the services of that work category.

A. Review of Application

1. The consultant contract coordinator shall electronically forward a copy of Form 102113 to the responsible office(s) for evaluation.
2. Within 15 working days after receipt of Form 102113, the responsible office(s) shall:
 - a. Evaluate the submission in terms of the minimum qualification standards for the work category and, if applicable, the past performance of the firm on contracts with the Department for work falling within the category.

- b. Reply electronically to the Consultant Contract Coordinator to provide prequalification approval or denial. If prequalification is denied, the office shall state the reasons for denial in its reply; see Section V.
3. If the prequalification information is not satisfactory and the applicant firm is a DBE, the consultant contract coordinator shall contact the DBE and make a good faith effort to assist the firm in becoming prequalified before notifying the firm of denial.
4. If the Consultant Contract Coordinator receives both approvals and denials of prequalification for a specific category of work, the matter shall be referred to the responsible offices for resolution. If the matter is still unresolved, it shall be referred to the appropriate bureau director(s) and division director(s) for resolution.

B. Processing Approval or Denial

1. If the prequalification request is approved, the Consultant Contract Coordinator shall update the website to indicate the firm is prequalified for that category. A firm's prequalification status for all approved categories of work shall be effective during the calendar year of application and for one year thereafter, to expire on December 31.

III. Reapplication and Renewal

Within three months of the expiration date of the prequalification approval, the Consultant Contract Coordinator shall advise affected prequalified firms to reapply online. The Department shall process reapplications in the same manner as the initial prequalification. A firm's renewal of prequalification shall be effective for two more years, to expire on December 31.

IV. Amendment or Expansion of Prequalification

Prequalified firms may submit amended information or apply for prequalification for additional categories of work at any time. However, the prequalification expiration date assigned to the firm will remain the same.

The firm must first contact the consultant contract coordinator for instructions on how to proceed.

V. Denial or Cancellation of Prequalification

Prequalification for a category of work may be denied or canceled if the firm fails to meet the minimum qualification standards or if the firm's performance on a contract with the Department was unacceptable. Prequalification may also be denied or canceled for good cause including, but not limited to, omissions or misstatements of material fact on the application forms.

An office wishing to deny or cancel prequalification for a category of work shall forward a written statement of reasons for the action to the Consultant Contract Coordinator. For

cancellations in categories of work where the initial prequalification involved other offices, the office initiating the cancellation must obtain the concurrence of the other offices.

The Consultant Contract Coordinator shall notify the firm by e-mail or postal letter of denial or cancellation, provide the reason(s) for the denial or cancellation and provide information for the person to contact in writing to protest the Department's action.

Appendix

Work Category Descriptions, Minimum Qualification Standards and Administering Offices For Architectural, Landscape Architectural, Engineering and Related Professional And Technical Services

Firms may be prequalified in the categories of work listed below. Descriptions are the minimum qualification standards (MQS) for the category and the Department office(s) that administer contracts for work falling within the category. MQS Statements are described on page A- .

100 TRANSPORTATION PLANNING

110 MULTIMODAL

111 Statewide/Regional Systems Planning

Description: Work generally includes the evaluation of transportation systems needed to serve the state, taking into consideration all modes of transportation. Basic elements of this category of work are data collection, alternate system tests, and cost estimates. The work may also include ecological and community value determinations, attitude and economic surveys, system needs evaluations, traffic capacity studies, airport systems planning, and engineering feasibility analyses. Recommendations include the type, number and approximate location of facilities however; precise locations or designs of facilities or systems are not included.

MQS: Statement A. Prequalification generally requires a large professional staff with an extremely broad background in all aspects of transportation planning.

Administering Office: Office of Systems Planning.

112 Urban Area Transportation Planning

Description: Work generally consists of making a comprehensive study of factors affecting transportation within an urban area, forecasting future transportation needs, and developing plans for meeting these needs. Included in this category are data collection, modeling, alternate systems tests and cost determinations. Consideration of ecological and community-value factors may also be involved. This category does not include determination of the precise location of a transportation facility, or the preparation of construction plans for highways, bridges, drainage systems, or other physical features of transportation systems.

MQS: Statement A.

Administering Office: Office of Systems Planning.

113 Local/Regional Systems Planning

Description: Work includes the analysis of transportation systems within local or regional boundaries. Surveys may be conducted, environmental impacts evaluated, alternative solutions

developed, costs determined, and public input meetings held. These studies may involve individual modes or a combination of modes.

MQS: Statement A.

Administering Office: Office of Systems Planning.

120 PLANNING OPERATIONS APPLICABLE TO SURFACE, AIR AND WATER TRANSPORTATION

123 Location Studies

Description: Work includes all professional and technical efforts required to provide engineering location studies of alternative corridors. This may include a feasibility study, corridor alternatives analysis, preparation of design assumptions, participation in public hearings and public information meetings, description of recommended alternatives, and preparation of location study reports. The gathering of data and preparation of reports to be presented at public hearings and public information meetings to assure the public that adequate consideration has been given to the relocation of people and businesses may also be required. This category of work may require coordination with other firms doing environmental studies and traffic studies.

MQS: Statement B.

Administering Office: Office of Location and Environment.

125 Interchange Justification Report (IJR)

Description: Work includes all data collection and analysis necessary to prepare a single Interchange Justification Report (IJR) that addresses each of the criteria in the Federal Highway Administration's (FHWA's) policy statement *Additional Interchanges to the Interstate System*. Data collection and analysis includes completing traffic engineering and analysis, developing interchange concepts, and providing traffic signal analysis. The report will be used to obtain approval to add or revise access points (interchanges) to interstate; Priority I, Priority II, and Priority III state highways.

MQS: Statement B.

- The firm must identify at least one staff person that is familiar with the FHWA's policy statement. This person must be responsible for deliverables to the Department.
- The firm must identify at least one staff person that has successfully performed traffic engineering and analysis, interchange concepts, and traffic signal analysis in the last five years. This includes evidence that staff is proficient with traffic operations modeling software and has the ability to provide traffic forecasting and analysis. Proficiency and experience with interchange design are also required.
- The firm must be capable of producing an Interchange Justification Report that meets FHWA policy and will be accepted by the Department.

Administering Office: Office of Design; Office of Location and Environment; Office of Systems Planning.

130 AIRPORT PLANNING**131 Airport Planning Miscellaneous**

Description: Work consists of miscellaneous types of services and planning studies that might be completed for an individual airport or for the statewide system of airports, as part of a larger planning effort or as stand-alone studies. The work may include pavement inspections, economic analyses, air service market analyses, land use studies, navigational studies, or other studies relating to airport facilities or operations. Knowledge of Federal Aviation Administration standards and regulations is essential. This category of work does not include design or construction of airport facilities.

MQS: Statement A

Administering Office: Office of Aviation.

132 Airport Master Planning

Description: Work consists of planning that provides a framework to guide future airport development to meet aviation demands of the statewide system or individual airports through airport master planning, airport layout plans, and feasibility studies. Federal Aviation Administration (FAA) guidelines and advisory circulars should be used as guidance for the process and the deliverables. The planning consists of determining the extent and nature of airport development needed by an existing or a proposed publicly owned airport by reviewing aviation forecasts, current facilities, environmental concerns, land use, financial implications, federal and state regulations, and other issues concerning local airports. The planning is to be based on short (5-year), intermediate (10-year) and long range (20-year) aeronautical service demands of the area which the airport development is intended to serve. The planning may involve the expansion and modernization of existing airports or the establishment of new airports. The planning involves coordination with local and regional governmental entities and planning agencies. This work category includes airport layout plan drawings required by FAA.

MQS: Statement A. The firm must identify a staff person that has completed an Airport Master Plan or Airport Layout Plan with narrative according to Federal Aviation Administration guidelines within the last ten years.

Administering Office: Office of Aviation.

140 PUBLIC TRANSIT PLANNING**141 Public and Rapid Transportation Planning**

Description: Work is concerned with solutions to problems involving the movement of people efficiently, economically, safely and comfortably. Modes of transportation include air, bus, rail, and other modes. This category of work may include the comparison of system alternatives as well as improvement or expansion of existing systems. This category may also include management, system planning, system operations and facility design.

MQS: Statement A.

Administering Office: Office of Systems Planning; Office of Public Transit

150 RAIL PLANNING

151 Rail Transportation Planning

Description: Work consists of evaluating the rail transportation system in the state to determine the needs of existing or proposed facilities. This may include any studies or surveys necessary to obtain sufficient information to make an accurate analysis of the situation. This category does not include the detailed design of facilities.

MQS: Statement A.

Administering Office: Office of Systems Planning; Office of Rail Transportation.

160 BICYCLE AND PEDESTRIAN PLANNING

161 Bicycle and Pedestrian Transportation Planning

Description: Work consists of evaluating bicycle and pedestrian systems in the state to determine the needs of existing or proposed facilities. The work may include the improvement or expansion of existing systems, comparisons and, selection of the best system. Surveys and counts may be conducted. This category does not include the detailed design of facilities.

MQS: Statement A.

Administering Office: Office of Systems Planning.

200 TRANSPORTATION FACILITIES ENGINEERING AND DEVELOPMENT

201 Project Management/General Engineering Consultant (PM/GEC)

Description: Work includes all professional and technical efforts required to provide project management and/or general engineering functions to support the Department's strategic plan, development, construction, administration, maintenance and project evaluation needs. The services may include, but are not limited to:

- Project administration including planning, project development, construction, ROW, materials inspection, and environmental compliance phases.
- Development or maintenance of a project management plan in accordance with FHWA requirements.
- Schedule Management including project scheduling, Critical Path Method (CPM) schedule for development and construction, and administrative work to keep all project aspects on schedule.
- Cost Management including cost estimating; risk-based and Best Value evaluations; financial and fiscal management such as development or maintenance of a project financial plan in accordance with FHWA requirements, budget, and cash-flow projections; development of financing and cost management alternatives which could include innovative financing alternatives.
- Provide professional services normally associated with planning, project delivery, and construction administration. The firm may be required to provide services with qualified staff, or administer and review the work of other qualified firms, subconsultants or DOT staff.
- Contract Management including contract administration of professional services, general services, construction contracts, scope development and cost control associated with these tasks.
- Public outreach including conducting formal public meetings; issuing press releases; creating, implementing, and maintain a social media strategy.
- Third party coordination, including relocations of utilities and railroads, preparation of agreements with local agencies, providing construction updates to the region's and DOT's traffic operations centers, and being a point of contact for special interest groups.
- Document and data management services to ensure that project documents and data are maintained at the project site and are able to be imported into the Department's records management, Geographic Information Systems (GIS), and computer aided design and drafting (CADD) systems.
- Staffing of an on-site project office in coordination with the public and Department staff.
- Post construction services including submittal of final reports, analysis of maintenance or traffic issues and, capture of best practices or lessons learned.

MQS: Statement A or Statement B.

- **Project Manager:** The firm must identify at least 3 staff members that have successfully served as project manager on a large scale, multidisciplinary, transportation project in the last five years.
- **Supporting Staff:** Generally requires a multi-disciplinary professional staff with broad background in all aspects of PM/GEC. Firms must identify the team expertise in planning, highway design, structural design, and construction phases, or verify commitment to obtain subconsultant services in these areas.

Administering Office: Office of Bridges and Structures; Office of Design; Office of Location and Environment.

210 POST PLANNING--PRECONSTRUCTION ENGINEERING

211 Airport Design

Description: Work is defined as the design of new and modifications to existing runways, taxiways, terminals, lighting systems and other airport facilities to meet state, local and federal requirements, including but not limited to Federal Aviation Administration design standards. It includes analyses related to feasibility and acceptability of new facilities and new equipment.

MQS: Statement B.

Administering Office: Office of Aviation.

212 Highway Design--Minor Facility

Description: Work is defined as the production of highway plans and related design studies that conform to design standards used by the Department and other specific requirements of the Department or the Federal Highway Administration. A minor facility is a secondary, primary or interstate highway that is generally located in a rural area, but could include interstate rest areas, institutional properties, parks, and other public properties. The projects usually present no unique or complex design problems. The work generally includes widening, resurfacing, pavement inlays and reconstruction, but may include other work types. The category may include work in urban areas, including drainage design for culvert replacement or storm sewer design, sanitary sewer design, water main replacement, accommodation of other utilities, design of pedestrian accommodations, trails, and parking lot design.

MQS: Statement B.

Administering Office: Office of Design.

213 Highway Design--Major Facility

Description: Work is defined as the production of highway plans and related design studies that conform to design standards used by the Department and other specified requirements of the Department or the Federal Highway Administration. A major facility is a complex, non-routine, four-lane primary or interstate highway that is generally located in a rural area and presents unique staging or complex design problems. The work may include adding two lanes to an existing roadway, reconstruction of an existing multi-lane facility, new construction on new alignment, accommodation of utilities, and any work involved in Category 212.

MQS: Statement B.

Administering Office: Office of Design.

214 Highway Design--Major Facility--Urban

Description: Work is defined as the production of highway plans and related design studies that conform to design standards used by the Department and other specified requirements of the Department or the Federal Highway Administration. A major urban facility is a complex, non-

routine, urban multi-lane roadway requiring detail design and intricate staging and traffic control. The work may include curb and gutter and storm sewer design, accommodation of utilities, and any work involved in Category 212.

MQS: Statement B.

Administering Office: Office of Design.

215 Culvert and Standard Bridge Design

Description: Work is defined as the production of bridge plans that conform to the Department's design standards, Bridges and Structures Design Manuals, and those of the Federal Highway Administration. It includes preparation of construction plans for reinforced concrete box (RCB) culverts or standard single or multi-span, non-steel bridges using established standards with no or minor modifications. Design of non-standard RCB culverts will require prequalification in Category 216.

MQS: Statement B.

Administering Office: Office of Bridges and Structures.

216 Non-Standard, Non-Steel Bridge Design

Description: Work is defined as the production of bridge plans that conform to the Department's design standards, including the Bridges and Structures Design Manual, and those of the Federal Highway Administration. It includes preparation of construction plans for multi-span, non-steel bridges using established standards, but requiring significant modifications. More specifically, these modifications include but are not limited to features such as staged construction, tapered bridge widths, curved alignment, frame pier or non-standard T-pier, non-standard bridge widths, non-standard prestressed beam lengths, or non-standard span configurations.

MQS: Statement B. Prequalification requires complete structural design of three structures in this category within the past ten years. The designer or designers of these structures must be currently employed by the firm.

Administering Office: Office of Bridges and Structures.

217 Steel Bridge Design

Description: Work is defined as the production of bridge plans that conform to the Department's design standards, Bridges and Structures Design Manuals, and those of the Federal Highway Administration. It includes preparation of construction plans for multi-span steel girder bridges.

MQS: Statement B. Prequalification requires complete structural design, or rehabilitation requiring design procedures consistent with complete structural design of two structures in this category within the past ten years. At least one of these two structures must be a welded plate girder design. The designer or designers of these structures must be currently employed by the firm.

Administering Office: Office of Bridges and Structures.

218 Traffic Operations Design

Description: Work includes the preparation of construction plans and/or specifications for improvements such as those proposed in Category 236. It includes design of improvements intended to relieve major traffic problems, such as signalization, pavement marking, signing, lighting, and minor highway reconstruction, and determination of right of way requirements necessary to implement the proposed improvements.

MQS: Statement B.

Administering Office: Office of Traffic and Safety.

219 Rail Design

Description: Work is defined as the design of new or modifications of existing rail transportation facilities to meet state, local, and federal requirements, and related work as necessary. This may include railroad bridges, tracks, yards, buildings, electromagnetic interference, signals and communication equipment, and roadways.

MQS: Statement B.

Administering Office: Office of Rail Transportation.

220 CONSTRUCTION INSPECTION AND PROJECT MANAGEMENT

221 Highway Roadway Construction

Description: Work consists of managing and inspecting projects associated with the construction of new and modifications to existing secondary, primary, and interstate highways. The work may include improvements in rest areas, parks, and other public properties and may involve work associated with grading, culverts, paving, resurfacing, pavement inlays, pavement widening, construction of storm and sanitary sewers, water mains, utilities, parking lots, sidewalks, trails, and other miscellaneous improvements. The work may involve the identification and resolution of issues relating to materials, work, progress, disputes and mutual rights between contractors, and fulfillment of the construction contract in accordance with applicable specifications. It may require the firm to act as the contracting authority's authorized representative.

MQS: Statement B.

Administering Office: Office of Construction and Materials.

222 Bridge Construction Coordination/Inspection

Description: Work consists of managing and inspecting projects associated with the construction of new and modifications to existing reinforced concrete box (RCB) culverts and single and multi-span bridges. The work may involve the identification and resolution of issues relating to materials, work, progress, disputes and mutual rights between contractors, and fulfillment of the construction

contract in accordance with applicable specifications. It may require the firm to act as the contracting authority's authorized representative.

MQS: Statement B.

Administering Office: Office of Construction and Materials.

223 Runway and Related Airport Construction

Description: Work consists of managing and inspecting projects associated with the construction of new and modifications to existing runways, taxiways, terminals and lighting. The work may involve the identification and resolution of issues relating to materials, work, progress, disputes and mutual rights between contractors, and fulfillment of the construction contract in accordance with applicable specifications. It may require the firm to act as the contracting authority's authorized representative.

MQS: Statement B.

Administering Office: Office of Aviation.

224 Railway Construction

Description: Work consists of managing and inspecting projects associated with the construction of new and modifications to existing rail transportation facilities. This may include construction of railroad bridges, tracks, yards, buildings, electromagnetic interference, signals and communication equipment, and roadways. The work may involve the identification and resolution of issues relating to materials, work, progress, disputes and mutual rights between contractors, and fulfillment of the construction contract in accordance with applicable specifications. It may require the firm to act as the contracting authority's authorized representative.

MQS: Statement B.

Administering Office: Office of Rail Transportation.

226 Traffic Operations Improvements Involving Construction

Description: Work consists of managing and inspecting a construction project that is intended to relieve major traffic problems, such as signalization, pavement marking, signing, lighting, and minor highway reconstruction. The work may involve the identification and resolution of issues relating to materials, work, progress, disputes and mutual rights between contractors, and fulfillment of the construction contract in accordance with applicable specifications. It may require the firm to act as the contracting authority's authorized representative.

MQS: Statement B.

Administering Office: Office of Construction; Office of Traffic and Safety.

227 Building Construction

Description: Work consists of managing and inspecting projects associated with the construction of new and modifications to existing office facilities and other transportation related structures. This

may include construction of highway maintenance garages, rest area buildings, truck weigh station buildings, welcome centers and terminal, shelter, maintenance, storage and operational facilities for public transit systems. The work may involve the identification and resolution of issues relating to materials, work, progress, disputes and mutual rights between contractors, and fulfillment of the construction contract in accordance with applicable specifications. It may require the firm to act as the contracting authority's authorized representative.

MQS: Statement B or Statement D.

Administering Office: Office of Support Services.

230 OPERATIONS RESEARCH, ANALYSIS AND ENGINEERING

231 Public Transit Program and (Systems) Management

Description: Work is defined as the general management of a bus-facility and/or multi-modal public transit system from concept to operational readiness. When performing the work, the firm shall be the principal coordinator between the state, local and federal agencies and affiliated firms and contractors. The firm shall have an established management organization staffed with technical, economic, quality control, systems safety, environmental, sociological, marketing and other disciplines as necessary for all phases of work involving operating a bus-facility or multi-modal operational management system. The work includes responsibilities for program control and integration including: work definition and plans, schedule implementation and critical path methodology, cost control, and the development of program procedures and guidelines. The firm shall have the capability to prepare and negotiate contracts for services, capital and operating projects, supervise and inspect construction and installations, test and check out components and the integrated system, issue reports, prepare operation and maintenance manuals, and records, and provide an overall evaluation of system performance.

MQS: Statement A.

Administering Office: Office of Public Transit.

232 Public Transit Vehicle Systems

Description: Work is defined as the development of state of art (or future) land and water transit drive systems. The basic elements of this category of work require the physical and technical capabilities to design, model, build, install, test, analyze, evaluate and demonstrate rapid transit vehicles and related subsystems. The firm shall be responsive to program objectives including cost, quality control, systems safety, environmental impact, interfacing sub-systems, subcontracting for services and hardware, and the preparation of technical and operational reports.

MQS: Statement A.

Administering Office: Office of Public Transit.

233 Public Transit Controls, Communications and Information Technology Systems

Description: Work is defined as the modification of existing or the development, installation and integration of technology for automatic or manual operation controls and signals, communications, operational equipment information, public information displays, and other information technology systems applicable for a bus-facility or multi-modal transit system. The firm shall have an established project management and technical staff to perform independent work or work in support of a firm performing work under Category 231. This category of work may include the design of bus-facility or multi-modal technology, which includes fail-safe controls for operating equipment; remote and local display of information for equipment operations; malfunction detection; position location; proximity detection; system security and safety; open and closed loop communications with operational elements and the public; automated ticketing, fare collection, or billing systems. Other subcategories which may apply to this work are development, integration, maintenance, supply and/or training of the use of technology systems; including vehicle location equipment, routing, reporting, scheduling and dispatching, hardware and software.

MQS: Statement A.

Administering Office: Office of Public Transit.

234 Public Transit Operations Management and Infrastructure Support Services

Description: Work is defined as a supporting service to a bus-facility or multi-modal public transit system as a management or technical consultant or project manager for the day-to-day operation of the system and its infrastructure for elements of work performed under Category 231. The firm will advise or provide direct services all-inclusively or as a contractor or sub-contractor, in the areas of public affairs, marketing, financial operations, maintenance, scheduling, equipment and system modifications, regional interfaces, and other operational aspects including elements supporting bus facility design and construction and infrastructure, in order to maintain and/or expand an economically sound and dependable transit system.

MQS: Statement A.

Administering Office: Office of Public Transit.

235 Traffic Control Systems Analysis, Design and Implementation

Description: Work involves the use of electrical engineering, electronics engineering, computer science, and traffic engineering to analyze, design, and implement traffic control systems which provide an area-wide, coordinated approach to traffic control. It includes system performance and cost analysis, system hardware and software design, development of management plans, supervision of system installation and operation, system testing and "de-bugging", system documentation, and the training of operating personnel.

MQS: Statement B.

Administering Office: Office of Traffic and Safety.

236 Traffic Operations Studies

Description: Work includes studies of existing traffic problems and determination of the most effective ways to improve traffic flow and safety, largely by the application of traffic engineering techniques and other corrective measures. It includes street and signal inventories, intersection and crossing diagrams, highway lighting information at high nighttime accident locations, and analysis of accident records, traffic counts, travel times, parking practices, and laws and ordinances affecting transportation. This category of work is limited to generalized descriptions and schematic layouts of the proposed improvements; it does not include the preparation of construction plans or the writing of specifications.

MQS: Statement B.

Administering Office: Office of Traffic and Safety.

237 Highway Maintenance Equipment, Materials and Methods Research and Analysis

Description: Work concerns investigation and analysis of a maintenance program in total or in specific problem areas and may require studies relating to management, operations, design and equipment, personnel and materials requirements. The basic elements of this category require a capacity to perform comparative technical, economic, and environmental analyses of state of art systems; and to design, model, build, install, test, analyze, demonstrate and evaluate prototype or innovative maintenance concepts. Firms performing this work shall be responsive to program objectives including cost, quality control, safety, environmental impact, and interfacing subsystems and shall be responsible for preparing technical and operational reports.

MQS: Statement A.

Administering Office: Office of Maintenance.

238 Intelligent Transportation Systems

Description: Work is defined as the application of advanced computing and communication technologies to the transportation field. Activities included within this category include:

- Concept development and feasibility studies: Identify and investigate potential advanced technology solutions to transportation needs and consider the feasibility of these solutions in a specific real-world scenario.
- Program and project strategic planning: Identify and analyze trends and developments in the advanced transportation technology field, assess local or statewide short-, medium- or long-term needs, and propose how emerging or proven technologies could be implemented in a strategic manner to meet these needs.
- Detailed design: Provide in-depth, technical design of advanced transportation technology applications.
- Project management: Manage or provide additional support for the management of advanced transportation technology initiatives on either a high-level, strategic basis or on a day-to-day project monitoring and coordination basis.

- Deployment and operations: Deploy and operate advanced transportation technology applications on behalf of or in collaboration with the agency.
- Evaluation of technologies and systems: Independently evaluate advanced transportation technology applications in accordance with applicable state and federal evaluation guidelines.

MQS: Statement A

Administering Office: Office of Traffic Operations.

239 Traffic Safety Engineering Studies

Description: Work includes the evaluation and development of traffic safety engineering studies. Work tasks within this category include, but are not limited to: crash analysis, roadway safety audits, regional/local agency road safety support, safety improvement plan development, corridor safety planning studies, access management evaluations and studies, policy/manual reviews/updates, strategic highway safety plan support, interactive highway safety design module support and studies, and other traffic safety work/studies/reports. This category of work is limited to generalized descriptions and schematic layouts of the proposed improvements; it does not include the preparation of construction plans or the writing of specifications.

MQS: Statement B

Administering Office: Office of Traffic and Safety

300 PROFESSIONAL--TECHNICAL SUPPORT SERVICES

310 TOPOGRAPHY

311 Land Surveying

Description: Work includes the determination of boundaries of tracts of land by the laying off or the measurement of the lengths and directions of lines forming the boundaries of a tract and the writing of descriptions of land areas for conveyance purposes in accordance with Iowa Code chapters 354 and 355.

MQS: Statement C.

Administering Office: Office of Design.

312 Engineering Surveying

Description: Work is concerned with making physical measurements to obtain both horizontal and vertical distances for use in the planning, design and construction of engineering projects. It includes route surveys for transportation facilities, topographic surveys to determine the relief of a particular tract of land, and hydrographic surveys to determine the shore and bank of bodies of water and depths at particular points.

MQS: Statement B or Statement C.

Administering Office: Office of Design.

313 Geodetic Surveying

Description: Work includes making precise surveys over areas of such considerable extent that the curvature of the earth must be considered. It includes traverse triangulation, trilateration, precise leveling, and astronomic direction finding.

MQS: Statement C.

Administering Office: Office of Design.

314 Aerial Photography

Description: Work includes taking precision quality photographs from air in conformance with the Department's specifications for aerial photography. The photography must be suitable for subsequent photogrammetric mapping.

MQS: Statement A. Prequalification requires ownership of the necessary equipment that meets Department specifications.

Administering Office: Office of Design.

315 Photogrammetry

Description: Work includes obtaining information about physical objects and the environment through processes of recording, measuring and interpreting photographic images and electromagnetic energy in order to create and produce digital and planimetric data. It includes creation of digital orthophotography. It may include survey work necessary to establish reference points for photo control.

MQS: Statement A.

Administering Office: Office of Design.

316 Remote Sensing

Description: Work consists of acquiring information about an object or phenomenon using an information-gathering device that does not have to come in contact with the object under investigation. The data reduction phase of this work involves expertise in the interpretation and analysis of sensor records by individuals competent in one or more of the following disciplines: civil engineering (e.g., soil mechanics and hydrology); engineering geology; soil science; and several specialized areas of biological science, geography and urban and regional planning.

MQS: Statement A.

Administering Office: Office of Design; Office of Construction and Materials.

317 Cartography

Description: Work involves expressing graphically, by the use of maps and charts, the known physical features of the earth's surface including the works of man-made infrastructure and activities.

MQS: Statement A.

Administering Office: Office of Transportation Data.

318 Pavement Condition Data Collection

Description: Work consists of collecting data related to the condition of pavements using non-destructive testing methods and equipment. Condition data will be collected at highway speeds for both Portland Cement Concrete (PCC) and Hot Mix Asphalt (HMA) pavements. Data to be collected may include the following: Pavement Roughness (IRI) Faulting, Cracking, and joint distress for PCC pavements; Pavement Roughness (IRI), Rutting, and Cracking on HMA pavements.

The processing of data will be done using an automated or semi-automated method. Distress type and severity will be as defined in the "Distress Identification manual for the Long-Term Pavement Performance Project" (SHRP-P-338). Global positioning system (GPS) will be utilized to provide the location of the condition data and pavement segments.

MQS: Statement A.

Administering Office: Office of Design

319 Subsurface Utility Engineering (SUE)

Description: Work is defined as an engineering process for accurately identifying subsurface utility facility locations. The firm should be able to precisely identify, locate, and map the horizontal and vertical position of underground utilities, as well as the type, size, condition, material, and other characteristics. These services shall be performed by using existing utility records, survey, surface geophysical techniques, and nondestructive digging methods. Firms should be able to present this information using CADD and tie it into project plans. Work in this category includes:

- Mapping at designated quality levels
- Utility coordination
- Utility relocation design and coordination
- Utility condition and assessment
- Communication of utility data to concerned parties
- Utility relocation cost estimates
- Implementation of utility accommodation policies
- Utility design for highway plans during the development of a highway project

MQS: Statement B or Statement C. The project manager should have been involved in the management of at least three SUE projects.

Administering Office: Office of Design; Office of Traffic and Safety.

320 SOILS, FOUNDATIONS, MATERIALS, AND STRUCTURES

321 Geological and Geophysical Studies

Description: Work includes comprehensive geotechnical and geological design services for the location and design of transportation facilities. Activities include site investigation and characterization, laboratory testing, evaluation of site materials, stability analysis, settlement analysis, soils-related remediation design, and soil-related foundation design, drainage design, borrow selection and design, coordination with other design disciplines or parties, determination of constructability and cost effectiveness, preparation of plan documents and construction-related geotechnical services.

MQS: Statement B.

Administering Office: Office of Design.

322 Complex Hydraulic and Hydrologic Studies

Description: Work includes complex hydraulic modeling of highway structures which shall include analysis to comply with National Flood Insurance Program (NFIP) requirements regarding no-rise criteria or Flood Insurance Study (FIS) map changes. Knowledge and experience using 2D modeling programs is recommended.

MQS: Statement B.

Administering Office: Office of Bridges and Structures.

323 Hydraulic and Hydrologic Studies

Description: Work includes large-scale studies of drainage basins, stream diversions, hydraulic analysis of highway structures, or alternate route analysis to optimize highway locations over bodies of water or marsh areas where ground water could seriously affect subgrades and foundation conditions.

MQS: Statement B or Statement C.

Administering Office: Office of Bridges and Structures; Office of Design.

324 Materials Testing

Description: Work involves conducting tests in accordance with Department approved specifications on aggregates, concrete, bituminous materials including testing of field mixes, and soils. Approval in this category does not qualify or certify the firm's facility (laboratory) or personnel. Refer to Materials Instructional Memorandums 208 and 213 for requirements.

MQS: Statement A.

Administering Office: Office of Construction and Materials.

325 Bridge Inspection and Analysis

Description: Work involves the performance of bridge inspections and load ratings. The work must be done in accordance with the current National Bridge Inspection Standards (NBIS), the AASHTO Manual for Bridge Evaluation, and Department policy.

MQS: Statement B. The firm shall demonstrate that its personnel meet the qualifications specified in Article 650.309 of the National Bridge Inspection Standards. The application should clearly identify the names, training and experience of each of the firm's Program Manager(s) and Team Leader(s) in Section 9 of Form 102113. The information provided shall include the following:

1. Name of Program Manager or Team Leader:
2. Degree (if appropriate):
3. Licensed State(s):
4. Years of Bridge Inspection Experience as per NBIS:
5. Individual held the title of, and was active as, "Program Manager" prior to 1/14/2005 (Y/N):
6. Completion date of two week National Highway Institute (NHI) course 130055:
7. Completion date of NHI refresher training course 130053 (if more than 5 years since NHI course 130055 was taken):

8. Completion date of NHI Fracture Critical Inspection Techniques for Steel Bridges (Required to perform Fracture Critical inspections):

The listed Team Leaders shall meet one of the following qualifications to be considered a Team Leader:

1. Licensed Professional Engineers are qualified if one of the following is true: successful completion of the Safety Inspection of In-Service Bridges Course (FHWA-NHI-130055) or was a Program Manager prior to 2005 and have taken the NHI Bridge Inspection Refresher training course 130053 within the past five years.
2. Technicians having five years of bridge inspection experience as defined in the NBIS, including the completion of a minimum of 500 field inspections under the supervision of a qualified Team Leader and successful completion of the Safety Inspection of In-Service Bridges Course (FHWA-NHI-130055).
3. Technicians with National Institute for Certification in Engineering Technologies (NICET) certification as Level III or IV Bridge Safety Inspectors and successful completion of the Safety Inspection of In-Service Bridges Course (FHWA-NHI-130055).
4. Engineering Interns that have successfully completed the Fundamentals of Engineering Exam; have at least two years of bridge inspection experience; have completed a minimum of 200 field inspections under the supervision of a qualified Team Leader; and successful completion of the Safety Inspection of In-Service Bridges Course (FHWA-NHI-130055).
5. Individuals having an associate's degree in engineering or engineering technology; a minimum of four years of bridge inspection experience; completion of 400 field inspections under the supervision of a qualified Team Leader; and successful completion of the Safety Inspection of In-Service Bridges Course (FHWA-NHI-130055).

Program Managers in Iowa shall meet the following qualifications to be considered a Program Manager:

1. Must be a P.E. licensed in Iowa – to approve inspection reports that include load ratings
2. Have taken a required refresher training or have successfully completed the Safety Inspection of In-Service Bridges course (FHWA-NHI-130055)

Administering Office: Office of Bridges and Structures.

329 Underwater Bridge Inspection

Description: Work involves using trained and qualified divers to inspect portions of bridges that are normally under water, and/or waterways under and adjacent to bridges. The work must be done in accordance with the current National Bridge Inspection Standards, Department policy and the documents describing the specific project.

MQS: Statement B. The firm shall demonstrate that its personnel meet the qualifications specified in Article 650.309 of the National Bridge Inspection Standards. The application should clearly identify

the names, training and experience of each of the firm's Team Leaders and divers in Section 9 of Form 102113. The information provided shall include the following:

1. Name of Team Leader and/or Diver (specify Team Leader and/or Diver):
2. Degree (if appropriate):
3. Licensed State(s):
4. Years of Bridge Inspection Experience as per NBIS:
5. Completion date of NHI course 130055 or 130091:
6. Completion date of NHI refresher training course 130053 (for Team Leaders, if more than 5 years since NHI course 130055 was taken):

The listed Team Leader(s) shall meet one of the following qualifications to be considered a Team Leader:

1. Licensed Professional Engineers are qualified if they have successfully completed the Safety Inspection of In-Service Bridges Course (FHWA-NHI-130055) and have taken the NHI Bridge Inspection Refresher training course 130053 every five years since completion of course 130055.
2. Technicians having five years of bridge inspection experience as defined in the NBIS, including the completion of a minimum of 500 field inspections under the supervision of a qualified Team Leader and successful completion of the Safety Inspection of In-Service Bridges Course (FHWA-NHI-130055).
3. Technicians with National Institute for Certification in Engineering Technologies (NICET) certification as Level III or IV Bridge Safety Inspectors and successful completion of the Safety Inspection of In-Service Bridges Course (FHWA-NHI-130055).
4. Engineer Interns that have successfully completed the Fundamentals of Engineering Exam; have at least two years of bridge inspection experience; have completed a minimum of 200 field inspections under the supervision of a qualified Team Leader; and successful completion of the Safety Inspection of In-Service Bridges Course (FHWA-NHI-130055).
5. Individuals having an associate's degree in engineering or engineering technology; a minimum of four years of bridge inspection experience, completion of 400 field inspections under the supervision of a qualified Team Leader; and successful completion of the Safety Inspection of In-Service Bridges Course (FHWA-NHI-130055).

Administering Office: Office of Bridges and Structures.

330 Structures Fabrication Inspection

Description: Work involves inspection of metal structures during fabrication. The structures being fabricated may include lighting, signing or bridge structures.

MQS: Statement A.

- The firm must identify team staff qualified and experienced as Certified Welding Inspectors (CWI) in conformance with the provisions of the American Welding Society (Standard QC1). The certification number of the individual(s) shall be included on the application along with their experience - in detail.
- Personnel involved in the performance of nondestructive testing shall be qualified in conformance with the American Society For Nondestructive Testing.

Administering Office: Office of Construction and Materials.

350 ENVIRONMENTAL--CULTURAL, NEPA, WETLANDS, REGULATED MATERIALS, AND ENVIRONMENTAL RESOURCE MANAGEMENT

351 Environmental Impact Studies

Description: Work is limited to gathering, evaluating, and reporting data intended to identify the likely impacts of transportation improvement projects upon the human environment as required by the National Environmental Policy Act (NEPA), where those projects are to be constructed using federal funding participation. The work includes identification and assessment of project impacts to various natural resources such as wetlands, agriculture, plant and animal life (especially protected species), and air and water quality, plus impacts to human resources such as cultural properties, environmental justice and economics. Completion of the studies culminates with preparation of the appropriate NEPA environmental document(s), such as a categorical exclusion, environmental assessment, finding of no significant impact, environmental impact statement, record of decision, Section 4(f) statement, etc.

The following disciplines are **specifically excluded** from this category, and are covered by other work categories:

- Cultural resource investigations to identify, evaluate, or recover data from archaeological or historic/architectural properties (*see Categories 352 and 363*).
- Determinations of traffic capacity or engineering feasibility.
- Location or design of the transportation improvement.
- Geotechnical investigations, groundwater hydrology or contamination issues, or other regulated substances studies or remediation planning (*see Categories 355 and 357*).
- Wetlands delineation, 404 permitting, mitigation design, or post-construction monitoring (*see Categories 354 and 358*).
- Hydrogeology, geomorphology or other geological disciplines (*see Category 356*).

A firm prequalifying in Category 351 will usually be in the role of “prime consultant” to direct overall environmental impact studies and, with approved key staff, to manage environmental studies and prepare NEPA environmental documents. A firm seeking prequalification shall document the experience and training of its NEPA project managers, Quality Control and Quality Assurance (QC/QA) NEPA reviewers, and document writers. Based on prequalification, only these individuals within the firm will be authorized to complete Iowa DOT work. The firm may use the services of other firms prequalified in separate disciplines as subconsultants to obtain specific environmental data for NEPA studies. (See Category 353, *Environmental Impact Specialty Studies*.)

MQS: Statement A. Also, the firm must be able to document familiarity with the Federal Highway Administration's (FHWA's) NEPA procedural requirements by having successfully completed the following within the last five years for projects where the FHWA was the lead federal agency: either two environmental impact statements **and** two records of decision; or three environmental assessments **and** three findings of no significant impact. Copies of these documents and a lead agency reference may be requested. In addition, individuals within a firm seeking prequalification as NEPA project managers, QC/QA reviewers, and document writers shall at a minimum have successfully completed NHI Course 142005, *NEPA and the Transportation Decision Making Process*, in the last five years. The firm must be trained and equipped to develop and provide information in GPS format suitable for use at public meetings and incorporation into the environmental impact documents.

The DOT reserves the right to restrict a firm to a particular level (categorical exclusion, environmental assessment or environmental impact statement) of NEPA documentation based on the firm's previous experience and competency level.

Administering Office: Office of Location and Environment.

352 Comprehensive Archaeological Services

Description: Work is defined as the identification and evaluation of the eligibility of archaeological sites, within the project's area of potential effect or within the corridor as defined by the Department, for listing on the National Register of Historic Places. The work is limited to the study of archaeological sites including the geomorphology of the project corridor, the background research necessary to develop a historical context for these studies, and the writing of reports which are suitable for review by the Iowa State Historic Preservation Officer.

MQS: Statement A. The Principal Investigator for each project shall meet the standards of the Secretary of the U.S. Department of the Interior (National Park Service) qualifications to perform prehistoric archaeological and historic archaeological investigation and documentation. These standards require Principal Investigators to have a graduate degree in their field of expertise plus: 1) one year of full-time professional experience or equivalent specialized training in research, administration, or management in their field; 2) at least four months of supervised field and analytical experience in work in their field; and 3) a demonstrated ability to carry research to completion.

A firm's Principal Investigator shall be able to demonstrate professional knowledge of prehistoric archaeology and historic archaeology of the upper mid-west. The Iowa DOT may request a writing sample from the firm's Principle Investigator to establish such knowledge which may include one of the following: a phased investigation report (Section 106 reviewed), a peer reviewed published article, or research manuscript (e.g. conference paper) which shall be pertinent to the upper mid-west.

Prior to commencing field work for any cultural survey contract with the Department, a joint meeting with Iowa State Historic Preservation Officer (SHPO) staff and DOT Cultural section staff shall be arranged by firms who have not worked in Iowa. The purpose of the meeting is to acquire a familiarity with the survey and reporting guidelines expected by the SHPO. The firm's Principal Investigator must have a working knowledge of all appropriate Iowa guidelines for archaeology.

The firm must be trained and equipped to develop and provide data to the Department in a GIS/GPS format suitable for use at public meetings and incorporation into cultural resource data bases, and survey and planning reports.

Administering Office: Office of Location and Environment.

353 Environmental Impact Specialty Studies

Description: This category is supplemental to Category 351, *Environmental Impact Studies*, and is limited to performance of studies (usually in a support role) in one or more specific disciplines. The task is to develop social, economic or environmental data in one or more specialty areas for inclusion in a project's environmental document, as required by the National Environmental Policy Act (NEPA), or for other decision making purposes. Work does not include preparation of the NEPA environmental document itself.

The firm may contract directly with the Department to provide data and reports, or it may serve as a subconsultant in its area(s) of expertise to another firm under contract with the Department to conduct project environmental studies on a broader scale and to prepare the appropriate environmental document.

The range of work in this category includes, but is not limited to, preliminary or detailed identification and assessment of highway project impacts to one or more of the following:

- Wetlands, woodlands, prairies and grasslands.
- Plant and animal life, including threatened or endangered species.
- Agricultural resources.
- Traffic and/or construction noise.
- Air and water quality.
- Aesthetics or other visual considerations.
- Human resources (environmental justice, economics or demographics).

Firms should be familiar with NEPA as it is applied to federal-aid highway improvement projects so that the delivered reports can be incorporated into NEPA documents by the Department's staff, or others, with minimum rewriting. The ability to develop and transfer data in GIS/GPS format is also desirable.

The following disciplines are specifically excluded from this category, and are covered by other work categories:

- Preparation of NEPA environmental impact documents (*see Category 351*).
- Cultural resource investigations to identify, evaluate, or recover data from archaeological or historic/architectural properties (*see Categories 352 and 363*).
- Determinations of traffic capacity or engineering feasibility.
- Location or design of the transportation improvement.
- Geotechnical investigations, groundwater hydrology or contamination issues, or other regulated substances studies or remediation planning (*see Categories 355 and 357*).
- Wetlands delineation, 404 permitting, mitigation design, or post-construction monitoring (*see Categories 354 and 358*).
- Hydrogeology, geomorphology or other geological disciplines (*see Category 356*).

MQS: Statement A.

Administering Office: Office of Location and Environment.

354 Comprehensive Wetland Services

Description: Work consists of determining the effects of transportation projects on jurisdictional waters of the United States, including wetlands and special aquatic sites, for compliance with Section 404 of the Clean Water Act. Additional work tasks may include obtaining authorization to discharge dredged or fill material into waters of the U.S. and to mitigate such discharges. Services to be provided may include some or all of the following: jurisdictional waters' (including wetland and special aquatic site) determinations and delineations in accordance with current guidance from the U.S. Army Corps of Engineers; preparing information for inclusion in National Environmental Policy Act documents; preparing Section 404 permit applications; developing stream and wetland mitigation project concepts; preparing final plans, specifications and other contract documents for mitigation project construction; inspection and construction management of mitigation projects; preparing mitigation project as-constructed plans; biological and post-construction monitoring of mitigation projects; preparing mitigation site management plans; and recommending and planning remedial activities necessary for the maintenance and management of mitigation sites.

This work may also include evaluating surface and groundwater hydrology, soils and near-surface geology, and plant and animal communities; interpreting aerial photography and remote sensing data; performing functional assessments; conducting topographic surveys; and the analysis and presentation of data using GIS and CADD applications. This work requires an in-depth knowledge of all federal regulations related to Section 404 of the Clean Water Act as well as relevant state regulations.

The Department will not prequalify firms in both this work category and Category 358.

MQS: Statement B.

Administering Office: Office of Location and Environment.

355 Regulated Material Investigation and Remediation Services

Description: Work provides services regarding environmental conditions on state property, on property proposed for state acquisition, at a highway construction site, or for other Departmental needs. Activities included within this category include, but are not limited to, the following:

- Investigate past and present site usage to determine the potential for the presence of regulated materials. This may include the performance of a limited or full Phase I Environmental Site Assessment in accordance with the latest ASTM E 1527 standard.
- Conduct site investigations to identify, locate and quantify the existence of regulated materials. This may include the performance of a Phase II Environmental Site Assessment in accordance with the latest ASTM E 1903 standard.

- Provide and/or coordinate environmental response activities including removal and/or disposal of contamination and contamination sources. This may include developing site-specific documents such as a workplan, action plan, sampling plan, or contingency plan.
- Develop remedial designs or feasibility studies leading to engineering drawings, specifications, and bid documents for environmental responses.
- Investigate, remediate, and/or monitor leaking underground storage tank sites in accordance with the state of Iowa's Risk Based Corrective Action (RBCA) rules.
- Furnish, install, test, and/or operate equipment necessary for environmental responses.
- Document findings, tests, and project costs for the Department and regulatory agencies.
- Provide environmental expertise in areas of compliance, training, emergency response, and expert testimony in situations which develop into litigation.
- Prepare initial and renewal National Pollution Discharge Elimination System (NPDES) permit application packets for Department facilities.

This work requires a thorough knowledge of state and federal environmental regulations.

MQS: Statement A. A firm must be able to document its ability to successfully conduct environmental services, such as those listed, with examples of work undertaken in the past three years. At least one staff person must be an Iowa Certified Groundwater Professional as outlined in 567 IAC Chapter 134.

Administering Office: Office of Location and Environment.

356 Hydrogeology, Geomorphology and Other Geological Disciplines

Description: Work involves the planning, organization and coordination of field activities and professional analysis of natural wetlands and related complex geological situations. Many aspects of the geological sciences--including but not limited to sedimentology, hydrogeology and geomorphology--are needed to complete the intended analysis.

MQS: Statement A. A firm must have the following qualifications:

1. At least one staff person, responsible for deliverables to the Department, must be trained as a hydrogeologist and have at least one year of independent decision-making experience. Other members of the firm providing input to these projects and trained in specific geological disciplines should be clearly identified. The hydrogeologist must have received at least a degree in hydrogeology from a recognized institution of higher education. A single course in hydrogeology is not considered sufficient training.
2. The firm must demonstrate the successful development of site investigation plans, coordination and management experience during site investigations, scientific and technical data evaluations and reporting. Programmatic areas of importance are: wetland, stream and river surface and subsurface hydrology; subsurface cultural investigations based on geological conditions; and contaminate fate and transport.

3. The firm must demonstrate an advanced knowledge of groundwater monitoring well installation. In-house drilling and support equipment should be identified, as well as support personnel.
4. The firm and key staff members must demonstrate knowledge of current federal and Iowa wetland regulations.
5. The firm must be capable of producing presentation quality maps, images, cross sections, and other pertinent data using GPS, GIS, and CADD as may be needed to evaluate the geological factors at a site.

Administering Office: Office of Location and Environment.

357 Regulated Material Handling and Disposal Services

Description: Work includes services related to the identification, handling, transportation, and disposal of regulated materials. This work requires a thorough knowledge of applicable state and federal regulations related to regulated materials handling and disposal. Activities included in this category include, but are not limited to, the following:

- Identification of potential regulated materials through sampling or waste stream review, the proper packaging, labeling and manifesting of waste materials, and the coordination and oversight of the transportation and disposal of regulated materials.
- Handling of spills and leaks of regulated materials into the environment at Department facilities and acquired property.
- Cleaning of service pits at vehicle maintenance facilities, including the removal and disposal of free liquids and sludge.
- Collection, documentation and transportation of materials intended for recycling, including oil filters, scrap tires, fluorescent light bulbs, scrap metal, spent solvents, etc.

MQS: Statement A. A firm must be able to document a project history showing its ability to successfully conduct regulated materials handling and disposal services, including the handling of both hazardous and non-hazardous wastes within the past three years.

Administering Office: Office of Location and Environment.

358 Specialized Wetland Services

Description: Work consists of special or limited services that support the Department's compliance with Section 404 of the Clean Water Act or related federal or state regulations. Such services may include determining the effects of transportation projects on jurisdictional waters of the United States, including wetlands and special aquatic sites; obtaining authorization to discharge dredged or fill material into waters of the U.S., or mitigating such discharges. Services to be provided may include some or all of the following: jurisdictional waters' (including wetland and special aquatic site) determinations and delineations in accordance with current guidance from the U.S. Army Corps of Engineers; preparing information for inclusion in National Environmental Policy Act documents; preparing Section 404 permit applications; developing stream and wetland mitigation project concepts; inspection and construction management of mitigation projects; biological and post-

construction monitoring of mitigation projects; preparing mitigation site management plans; or recommending and planning remedial activities necessary for the maintenance and management of mitigation sites.

This work may also include evaluating surface and groundwater hydrology, soils and near-surface geology, and plant and animal communities; interpreting aerial photography and remote sensing data; performing functional assessments; conducting topographic surveys; or the analysis and presentation of data using GIS and CADD applications. This work requires an in-depth knowledge of all federal regulations related to Section 404 of the Clean Water Act as well as relevant state regulations.

Many projects can be in compliance with Section 404 of the Clean Water Act without compensatory mitigation projects. This category is for use by firms that have scientific or regulatory expertise in Section 404 of the Clean Water Act, but do not have a professional engineer on staff. Prequalification in this category does not preclude a firm from serving as the prime contractor to address issues related to Section 404 of the Clean Water Act for transportation-related projects.

Services specifically excluded from this work category include preparing final plans, specifications and other contract documents for mitigation project construction, preparing mitigation project as-constructed plans, and other services requiring the review or concurrence of a professional engineer.

The Department will not prequalify firms in both this work category and Category 354.

MQS: Statement A.

Administering Office: Office of Location and Environment.

359 Specialized Geophysical Studies – Vibration

Description: Work provides services related to historic structures, specific-use structures, and environmentally sensitive areas that could potentially sustain damage or disruption of services from vibration created during construction (pile driving, pavement rubblizing, rock blasting, etc.), demolition operations, or other situations that develop in the future. Activities in this category include, but are not limited to, the following:

- Inspect the structure and general condition of potential vibration receptors prior to and after construction.
- Provide written and pictorial documentation with professional opinion regarding structural condition and susceptibility to damage caused by vibration during construction.
- Correlate structural analysis to vibration data.
- Develop a monitoring plan in accordance with accepted vibration standards appropriate to the particular project (for example: DIN 4150-3:1999-02 AASHTO R 8-96), which may include determining and evaluating subsurface conditions.
- Deploy, maintain, and acquire data with field vibration collection equipment during a construction project.
- Provide expert testimony relative to this category of work for legal actions, if required.

MQS: Statement B, with expertise and experience in providing structural evaluations and seismic data collection and interpretation. Project team members shall have experience in vibration consulting and working experience with vibration monitoring equipment on construction projects.

Administering Office: Office of Bridges and Structures; Office of Design; Office of Location and Environment.

360 Asbestos Services

Description: Work provides asbestos inspection and abatement services. The primary function of the work in this category is the removal of asbestos-containing materials from the Department's facilities and acquired properties prior to renovation or demolition. This work requires a thorough knowledge of NESHAP (National Emissions Standards for Hazardous Air Pollutants), OSHA (Occupational Safety and Health Administration), and AHERA (Asbestos Hazard Emergency Response Act) regulations.

MQS: Statement A. A firm must maintain a valid license issued by the State of Iowa to remove/encapsulate asbestos, and must maintain employees who have licenses or certifications issued by the state for the work they are providing.

Administering Office: Office of Location and Environment.

361 Structural Coating Services

Description: Work provides contract administration services, environmental monitoring and compliance support services, and technical expertise on structural painting and rehabilitation-type projects. Work could also include predesign activities such as coating condition surveys, material evaluation and selection, specification preparation, and furnishing technical expertise in the areas of corrosion prevention and coating failure analysis. The work requires a thorough knowledge of structures and structural design, the principles of corrosion, paint technology, and state and federal environmental regulations pertaining to painting and paint abatement.

MQS: Statement A.

Administering Office: Office of Bridges and Structures; Office of Construction and Materials.

362 Threatened and Endangered Species Services

Description: Work consists of specialized services that support Department compliance with Section 7 of the Endangered Species Act and Iowa State Code by providing an assessment of the effects of transportation projects on threatened or endangered species and their habitats. Services to be provided may include some or all of the following: conduct presence/absence surveys for threatened or endangered species and their habitats; perform field work, including delineation and documentation of species and habitats; assess impacts by evaluating habitats, soil morphology, soil characteristics, landscape features, wildlife, and any other characteristics contributing to the presence/absence of threatened or endangered species; prepare memos and/or reports detailing field reviews, life history, habitats, or other technical requirements for threatened or endangered species; prepare Iowa DOT Determinations of Effect, documenting the potential effects of transportation projects on threatened or endangered species; prepare Biological Assessments or other documents as

required under Section 7 of the Endangered Species Act; use Geographic Information Systems (GIS), Global Positioning Systems (GPS), or other remote sensing tools to locate and investigate potential threatened or endangered species and their habitats; locate potential mitigation sites and/or prepare site specific mitigation plans appropriate to the species of interest; perform biological monitoring as required by regulatory agencies; and attend project meetings.

This work may also include reviewing engineering design plans, US Geological Survey topographical maps, DNR GIS data, aerial and satellite photography, US Department of Agriculture Soil Survey data, National Wetland Inventory data, and other resources and use of GPS, GIS, and/or CADD to document field findings. This work requires expertise in the principles, practices, and techniques of biology, botany, ecology, forestry, hydrology, soil science, taxonomy, and computer technology.

This category is for use by firms that have extensive knowledge of state, federal, and local environmental laws, regulations and policies and their application to transportation programs related to threatened and endangered species and Section 7 of the Endangered Species Act for transportation-related projects.

MQS: Statement A.

Administering Office: Office of Location and Environment.

363 Comprehensive Historical and Architectural Services

Description: Work is defined as the identification and evaluation of the eligibility of above ground historic properties, within the project's area of potential effect or within the corridor as defined by the Department, for listing on the National Register of Historic Places. The work is limited to the historic evaluation of structures, groups of structures or other properties which may qualify as being historic, the background research necessary to develop a historical context for these studies, and the writing of reports which are suitable for review by the Iowa State Historic Preservation Officer.

MQS: Statement A. Firms shall, at a minimum, have a Principal Investigator for each project who meets the standards of the Secretary of the U.S. Department of the Interior (National Park Service) for qualification to perform historical and historic architectural research and documentation. These standards require Principal Investigators to have a graduate degree in their field of expertise plus: 1) one year of full-time professional experience or equivalent specialized training in research, administration, or management in their field; 2) at least four months of supervised field and analytical experience in work in their field; and 3) a demonstrated ability to carry research to completion.

A firm's Principal Investigator shall be able to demonstrate professional knowledge of history, or historic architecture of the upper mid-west. The Iowa DOT may request a writing sample from the firm's Principle Investigator to establish such knowledge which may include one of the following: an investigation report (Section 106 reviewed), peer reviewed published article, or research manuscript (e.g. conference paper) which shall be pertinent to the upper mid-west.

Prior to commencing field work for any cultural survey contract with the Department, a joint meeting with Iowa State Historic Preservation Officer (SHPO) staff and DOT Cultural staff shall be arranged by firms who have not worked in Iowa. The purpose of the meeting is to acquire

familiarity with the survey and reporting guidelines expected by the SHPO. The firm's Principal Investigator must have a working knowledge of all appropriate Iowa guidelines for historic property evaluations.

The firm must be trained and equipped to develop and provide data to the Department in GIS/GPS format suitable for use at public meetings and incorporation into cultural resource databases and survey and planning reports.

Administering Office: Office of Location and Environment.

370 Environmental Impact Studies - Airports

Description: Work is limited to gathering, evaluating, and reporting data intended to identify the likely impacts of airport improvement projects upon the human environment as required by the National Environmental Policy Act (NEPA), where those projects are to be constructed using federal FAA funding. The work includes identification and assessment of project impacts to various natural resources such as wetlands, agriculture, plant and animal life (especially protected species), air and water quality, plus impacts to human resources such as cultural properties, environmental justice and economics. Completion of the studies culminates with preparation of the appropriate NEPA environmental document(s), such as a categorical exclusion, environmental assessment, finding of no significant impact, environmental impact statement, record of decision, Section 4(f) statement, etc.

A firm prequalifying in Category 370 will usually be in the role of "prime consultant" to direct overall environmental impact studies and, with approved key staff, to manage environmental studies and prepare NEPA environmental documents. The firm may use the services of other firms prequalified in separate disciplines as subconsultants to obtain specific environmental data for NEPA studies.

MQS: Statement A. A firm must be able to document familiarity with the Federal Aviation Administration's (FAA's) NEPA procedural requirements by having successfully completed a minimum of one environmental impact statement or one environmental assessment within the last ten years where the FAA was the lead federal agency. Copies of these documents and an FAA reference may be requested. The DOT reserves the right to restrict a firm to a particular level (categorical exclusion, environmental assessment or environmental impact statement) of NEPA documentation based on the firm's previous experience and competency level.

Administering Office: Office of Aviation.

380 OTHER TECHNICAL SUPPORT SERVICES

381 Geographic Information System (GIS) Services

Description: Work is defined as the utilization of geographical information systems (GIS) to provide data that can be quickly searched, analyzed and edited in a spatial format.

This work typically includes the ability to:

- Determine the usefulness of existing data and the need for new types of data
- Rectify, georeference and manipulate images

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- Convert other sources of digital data, including GIS and CAD, to a common format
- Join spatial and non-spatial data
- Manually create data through digitization, coordinate geometry, geocoding, or scanning
- Update existing spatial and tabular data
- Design, coordinate, and provide a GIS database compatible with Iowa DOT systems; the database may include original, modified or new data complete with Federal Geographic Data Committee (FGDC) compliant metadata
- Spatially analyze raster, vector, Light Detection and Ranging (LiDAR), spectral multi-band or other remotely sensed data and summarize results
- Automate repetitious spatial analyses or data updates
- Create 3-D and terrain models
- Integrate linear referencing systems
- Create cartographically correct maps

The consultant must have experience with state projections and coordinate systems, and data collection and mission planning with global positioning system (GPS) techniques.

MQS: Statement A.

Administering Office: Office of Location & Environment.

**400 ARCHITECTURE, LANDSCAPE ARCHITECTURE
AND OTHER PROFESSIONAL SERVICES**

410 ARCHITECTURE

Description: Work is defined as the design and preparation of plans for office facilities and transportation associated structures such as highway maintenance garages, rest area buildings, truck weigh station buildings, welcome centers and terminal, shelter, maintenance, storage and operational facilities for public transit systems.

MQS: Statement D.

Administering Office: Office of Support Services.

420 LANDSCAPE ARCHITECTURE

Description: Work is defined as the preparation of plans, specifications, reports, and/or studies for transportation corridors and general landscape to enhance compatibility with existing surroundings. Work includes investigation, reconnaissance, research, site planning and design ultimately leading to the construction and development of aesthetically pleasing and functional settings and approaches for structures, roadways, walkways, trails, wayside parks, rest areas, and other appurtenant features. It includes such detailed plans as planting, irrigation, lighting, grading and drainage as they relate to aesthetics and the landscape. It does not entail judgment of engineering factors or preparation of engineering plans.

MQS: Statement E.

Administering Office: Office of Design.

430 SANITARY ENGINEERING

Description: Work is defined as the design and preparation of plans and specifications for waste water treatment facilities.

MQS: Statement B.

Administering Office: Office of Support Services.

460 MECHANICAL ENGINEERING

Description: Work is defined as the design and preparation of plans and specifications for mechanical systems such as heating and cooling systems.

MQS: Statement B. At least one staff person shall hold a certificate of registration as a professional mechanical engineer.

Administering Office: Office of Support Services.

461 Energy Analysis, Audits and Conservation Use -

Description: Work involves performing energy audits of buildings and performing Life Cycle Cost Analysis, building systems commissioning as required by the current codes adopted or referenced in the State Building Code.

MQS: Statement B.

Administering Office: Office of Support Services.

462 Lighting Design

Description: Work is defined as the design of new or the modification of existing lighting systems for intersections, interchanges, expressways, and freeways. The design must conform to design standards used by the Department. Activities include but are not limited to site investigation during the design process, coordination of utilities, structural and geotechnical analysis when tower lighting is involved, submittal of completed project plans within established time frames, and responding to questions concerning the lighting design during the design and construction phases of the project.

MQS: Statement B. At least one staff person shall hold a certificate of registration as a professional electrical engineer.

Administering Office: Office of Traffic and Safety.

463 Electrical Engineering

Description: Work is defined as the design and preparation of plans and specifications for electrical systems and associated structures such as office buildings, highway maintenance garages, rest area buildings, truck weigh station buildings, welcome centers and terminal, shelter, maintenance, storage and operational facilities for public transit systems.

MQS: Statement B. At least one staff person shall hold a certificate of registration as a professional electrical engineer.

Administering Office: Office of Support Services.

464 Structural Engineering

Description: Work is defined as the design and preparation of plans and specifications for structural systems and associated structures such as office buildings, highway maintenance garages, rest area buildings, truck weigh station buildings, welcome centers and terminal, shelter, maintenance, storage and operational facilities for public transit systems.

MQS: Statement B.

Administering Office: Office of Support Services.

470 PROFESSIONAL RIGHT-OF-WAY SERVICES

471 Appraisal --Agricultural Real Estate

Description: Work is defined as the preparation of appraisals of agricultural real estate. Property types included in this category are dairies, concentrated animal operations, (including poultry, cattle and swine operations), general farms, and vacant farmland. The work may include preparation of appraisals for residential properties. All work must conform to the requirements of the Uniform Relocation Assistance and Real Property Acquisition Policies Acts of 1970, as amended, Uniform Standards of Professional Appraisal Practice, and the Department's appraisal manual.

MQS: Statement F. At least two samples of appraisals for each of the various types of real estate covered by this category shall be provided to the Department for review.

Administering Office: Office of Right of Way.

472 Appraisal --Commercial Real Estate

Description: This category of work is defined as the preparation of appraisals of commercial real estate. Commercial properties can have varying degrees of complexity. Property types include but are not limited to: office buildings, apartment complexes, lodging properties, campgrounds, retail centers, medical facilities, restaurants, nursing homes, and gas stations. This work must conform to the requirements of the Uniform Relocation Assistance and Real property Acquisition Policies Acts of 1970, as amended, Uniform Standards of Professional Appraisal Practice, and the Department's appraisal manual.

MQS: Statement F. Also, at least two samples of appraisals for each of the various types of real estate covered by this category shall be provided to the Department for review.

Administering Office: Office of Right of Way

473 Appraisal --Industrial Real Estate

Description: This category of work is defined as the preparation of appraisals of industrial real estate. Industrial real estate is a broad based type of property. Property types include but are not limited to: warehouses, truck terminals, quarries, light manufacturing facilities, fabrication plants, grain elevators, cement plants, power plants, modular housing plants, and food manufacturing facilities. This work must conform to the requirements of the Uniform Relocation Assistance and Real property Acquisition Policies Acts of 1970, as amended, Uniform Standards of Professional Appraisal Practice, and the Department's appraisal manual.

MQS: Statement F. Also, at least two samples of appraisals for each of the various types of real estate covered by this category shall be provided to the Department for review.

Administering Office: Office of Right of Way

475 Acquisition of Property Rights

Description: Work includes updating all property titles and providing necessary documents to show ownership of property to be acquired, obtaining adequate interest in property, clearing of all encumbrances, preparation of deeds, easements, exhibits and recording of required documents; preparation of timely and adequately written records, providing recommendations for settlements, direct negotiations with property owners and/or their attorneys, relocation of personal property and preparation of condemnation documents, including providing the Department with the necessary witnesses for expert testimony at the request of the Department's Legal Services. The consultant will be responsible for obtaining advice from their attorney on all legal matters.

The work must conform to the requirements of the Uniform Relocation Assistance and Real Property Acquisition Policies Acts of 1970, as amended, Administrative Rule – 761 IAC Chapter 111, and the Department's acquisition manual.

MQS: Statement G.

Administering Office: Office of Right of Way

**Minimum Qualification Standards
For
Architectural, Landscape Architectural, Engineering
and Related Professional And Technical Services**

Statement A. Professional status in the category of work shall be demonstrated on Form 102113 by reference to resumes and personal experience histories of the firm's principal key personnel or completed projects. When specialized equipment is necessary for satisfactory performance of the work, firms shall list on Form 102113 the type, make and model of subject equipment owned by the firm.

Statement B. Professional status in the category of work shall be demonstrated on Form 102113 by reference to at least one person licensed by the Iowa Engineering and Land Surveying Examining Board as a professional engineer, other supporting prequalification or completed projects. Resumes shall indicate the extent and nature of experience in the category of work.

Firms may designate one or more individuals, holding a certificate of registration granted by the Iowa Engineering and Land Surveying Examining Board as a professional engineer, as responsible for the practice of engineering in Iowa by the firm. The designated individual or individuals shall have full authority to make all final engineering decisions on behalf of the firm with respect to the work performed by the firm. This designation shall not relieve the firm of any responsibility or liability imposed upon it by law or by contract.

Statement C. All requirements expressed in Statement "B" above shall apply except that in place of registration as a professional engineer, registration as a land surveyor is required.

Statement D. All requirements expressed in Statement "B" above shall apply except that in place of registration as a professional engineer, registration as an architect with the Iowa Architectural Examining Board is required.

Statement E. All requirements expressed in Statement "B" above shall apply except that in place of registration as a professional engineer, registration as a landscape architect by the Iowa Landscape Architectural Examining Board is required.

Statement F. Professional status in the category of work shall be demonstrated on Form 102113 by reference to at least one person certified by the Iowa Real Estate Appraiser Examining Board as a certified general real property appraiser. Resumes of personnel completing and those assisting in the completion of appraisals shall be reflected on Form 102113 showing the extent and nature of appraisal experience in the various types of real estate covered by the category.

Statement G. Professional status in the category of work shall be demonstrated on Form 102113 by reference to at least one person licensed by the Iowa Real Estate Commission as a Real Estate Broker. On Form 102113, resumes of all personnel connected to the acquisition of property rights shall include an acknowledgement that the individuals are licensed as a real estate broker or salesperson by the Iowa Real Estate Commission. The information provided shall indicate the extent and nature of experience in the acquisition of land, improvements, and property rights involving the eminent domain process.

**Administering Offices and Categories of Work
For
Architectural, Landscape Architectural, Engineering
and Related Professional And Technical Services**

Administering Office	Categories of Work
Aviation	131 Airport Planning Miscellaneous
	132 Airport Master Planning
	211 Airport Design
	223 Runway and Related Airport Construction
Bridges and Structures	201 Project Management/ General Engineering Consultant
	215 Culvert and Standard Bridge Design
	216 Non-Standard, Non-Steel Bridge Design
	217 Steel Bridge Design
	323 Hydraulic and Hydrologic Studies
	325 Bridge Inspection and Analysis
	329 Underwater Bridge Inspection
	359 Specialized Geophysical Studies – Vibration
361 Structural Coating Services	
Construction and Materials	221 Highway Roadway Construction
	222 Bridge Construction
	226 Traffic Operations Improvements Involving Construction
	316 Remote Sensing
	324 Materials Testing
	330 Structures Fabrication Inspection
	361 Structural Coating Services
Design	125 Interchange Justification Report (IJR)
	201 Project Management/ General Engineering Consultant
	212 Highway Design--Minor Facility
	213 Highway Design--Major Facility
	214 Highway Design--Major Facility--Urban
	218 Traffic Operations Design
	226 Traffic Operations Improvements Involving Construction
	311 Land Surveying
	312 Engineering Surveying
	313 Geodetic Surveying
	314 Aerial Photography
	315 Photogrammetry
	316 Remote Sensing
	318 Pavement Condition Data Collection
	319 Subsurface Utility Engineering (SUE)
	321 Geological and Geophysical Studies
323 Hydraulic and Hydrologic Studies	
359 Specialized Geophysical Studies – Vibration	

	420	Landscape Architecture
Local Systems	319	Subsurface Utility Engineering (SUE)
Location and Environment	123	Location Studies
	125	Interchange Justification Report (IJR)
	201	Project Management/ General Engineering Consultant
	351	Environmental Impact Studies
	352	Cultural, Historic and Native American Comprehensive Archaeological Services
	353	Environmental Impact Specialty Studies
	354	Comprehensive Wetland Services
	355	Regulated Material Investigation and Remediation Services
	356	Hydrogeology, Geomorphology and Other Geological Disciplines
	357	Regulated Material Handling and Disposal Services
	358	Specialized Wetland Services
	359	Specialized Geophysical Studies – Vibration
	360	Asbestos Services
	362	Threatened and Endangered Species Services
	363	Comprehensive Historical and Architectural Services
	381	Geographic Information System (GIS) Services
Maintenance	237	Highway Maintenance Equipment, Materials and Methods Research and Analysis
Public Transit	141	Public and Rapid Transit Planning
	231	Public Transit Program (Systems) Management
	232	Public Transit Vehicle and Propulsion Systems
	233	Public Transit Controls, Communications and Information Systems
	234	Public Transit Operations Management and Support Services
Rail Transportation	151	Rail Transportation Planning
	219	Rail Design
	224	Railway Construction
Right of Way	471	Appraisal—Nonresidential Agricultural Real Estate
	472	Appraisal--Commercial Real Estate
	473	Appraisal--Industrial Real Estate
	475	Acquisition of Property Rights
Support Services	227	Building Construction
	410	Architecture
	430	Sanitary Engineering
	460	Mechanical Engineering
	461	Energy Analysis, Audits and Conservation Use
	463	Electrical Engineering
	464	Structural Engineering

Systems Planning	111	Statewide/Regional Systems Planning
	112	Urban Area Transportation Planning
	113	Local/Regional Systems Planning
	125	Interchange Justification Report (IJR)
	141	Public and Rapid Transportation Planning
	151	Rail Transportation Planning
	161	Bicycle and Pedestrian Transportation Planning
Traffic and Safety	218	Traffic Operations Design
	226	Traffic Operations Improvements Involving Construction
	235	Traffic Control Systems Analysis, Design and Implementation
	236	Traffic Operations Studies
	239	Traffic Safety Engineering Studies
	462	Lighting Design
Traffic Operations	238	Intelligent Transportation Systems
Transportation Data	317	Cartography