



# Iowa Department of Transportation Policies and Procedures Manual

Title		Policy No.
<b>Prequalification of Architectural, Engineering and Related Professional and Technical Firms</b>		<b>300.04</b>
Responsible Office		Related Policies and Procedures
Engineering Bureau		300.12, 300.18
Effective/Revision Dates	Approval(s)	
8-6-76/ 11-19-02	Kevin Mahoney	

**Authority:** Director of the Highway Division in accordance with administrative rules 761 IAC 20.8(307).

**Contents:** This policy establishes the procedures for reviewing and evaluating the qualifications of professional and technical firms before a need develops to negotiate for their services.

**Affected Offices:** District Offices; Offices of Aviation, Bridges and Structures, Construction, Design, Facilities Support, Maintenance, Materials, Location and Environment, Public Transit, Rail Transportation, Right of Way, Systems Planning, Traffic and Safety, and Transportation Data; Research and Technology Bureau and Engineering Bureau.

**Who to Contact for Policy Questions:** Consultant contract coordinator in the Engineering Bureau; telephone 515-239-1142.

**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 **Appendix A** of this policy. **Appendix B** is a list of work categories by administering office.

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

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

Prequalification - A procedure to review and evaluate the qualifications of professional and technical firms before their services are needed by the Department.

Responsible office(s) - The organizational unit(s) responsible for prequalifying firms for a particular category of work. This is usually the "administering office" as shown in **Appendix A**. 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 Web site. Application Forms 102111 and 102113 are also on-line on the Web site. The home address is [www.dot.state.ia.us](http://www.dot.state.ia.us). Prequalification information is found following the link *Doing Business with the DOT* and then the link *Professional and Technical Consultant Utilization*.

## **II. Initial Prequalification**

### **A. Application**

A firm wishing to prequalify with the Department in one or more categories of work must submit one Form 102111, and a separate Form 102113 for each category applied for. Application shall be made on-line. In extenuating circumstances and with prior approval from the consultant contract coordinator, an applicant firm may submit hard copies of the application forms.

### **B. 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 Form 102113 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, stating whether prequalification is approved or denied. If prequalification is denied, the office shall state the reasons for denial in its reply; see Section IV.
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, for a specific category of work, the consultant contract coordinator receives both approvals and denials of prequalification, the matter shall be referred to the responsible offices for resolution. If the matter is still unresolved, it shall be referred first to the appropriate bureau director(s) and then, if necessary, to the appropriate division director(s) for resolution.

### **C. Processing Approval or Denial**

1. If prequalification for the work category is approved, the consultant contract coordinator will update the Web site to indicate the firm is prequalified for that category. A firm's prequalification status for all approved categories of work is effective during the calendar year of application and for one year thereafter, to expire on December 31.
2. If prequalification is denied, the consultant contract coordinator shall notify the firm; see Section IV.

### **III. Reapplication and Renewal**

At least two months but not more than three months prior to the expiration date, the consultant contract coordinator shall advise affected prequalified firms to reapply on-line. A firm that reapplies on-line need only revise its on-line forms. The Department shall process reapplications in the same manner as initial prequalification. A firm's renewal of prequalification is effective for two more years, to expire on December 31.

### **IV. Amendment or Expansion of Prequalification**

A prequalified firm may submit amended information or apply for prequalification for additional categories of work at any time.

Amendments shall be accompanied by a separate statement explaining the submission. The firm must first contact the consultant contract coordinator for instructions on how to proceed.

If the submission affects the minimum qualification standards or if it is an application for prequalification for an additional category of work, the Department shall process the submission in the same manner as initial prequalification. However, the prequalification expiration date assigned to the firm will remain the same.

### **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 that could affect the prequalification status of the firm.

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, if other offices were involved in initially prequalifying the firm for that category, 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 in writing of denial or cancellation, the reason(s) therefor and, if necessary, the person to contact in writing to protest the Department's action.

## Appendix A

### 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 described below. Following each description 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-19.

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#### 100 TRANSPORTATION PLANNING

##### 110 MULTIMODAL

##### 111 Statewide/Regional Systems Planning

*Description:* This category of work includes the evaluation of transportation systems needed to serve specific corridors or the entire 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. Although recommendations as to the type, number and approximate location of facilities are to be made, this category of work does not include determination of the precise location or the design of facilities or systems.

*MQS:* Statement A. Also, prequalification for this category of work will generally require 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:* This category of work 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, nor does it include 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:* This category of work includes the analysis of transportation systems within local or regional boundaries. Local governments often have a need for data collection and evaluation concerning the demand for transportation services and facilities. 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:* This category of work is defined as all those professional and technical efforts required to provide engineering location studies of alternative corridors. This may include a feasibility study, corridor alternates analysis, preparation of design assumptions, participation in corridor public hearings, description of recommended alternates and preparation of location study reports. The gathering of data and preparation of reports to be presented at the corridor public hearing 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.

## **130 AIRPORT PLANNING**

### **132 Airport Master Planning**

*Description:* This category of work consists of determining the extent and nature of airport development needed at a specific existing or proposed publicly owned airport. The planning is to be based on short, intermediate and long range (approximately 5-, 10- and 20-year) aeronautical service demands of the area which the airport development is intended to serve. The planning may be concerned with the expansion and modernization of existing airports or with the establishment of new airports and may include analysis of airport funding or financing. The planning involves the location and nature of existing and proposed airport facilities and their proposed modifications and extensions as well as the location of existing and proposed non-aviation areas. This work category does not include the detailed design of airport facilities; however, FAA standards must be considered.

*MQS:* Statement A.

*Administering Office:* Office of Aviation.

## **140 PUBLIC TRANSIT PLANNING**

### **141 Public and Rapid Transportation Planning**

*Description:* This category of 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 determined to be technologically adequate. This category of work may include the comparison and selection of the best system among several alternatives as well as improvement or expansion of existing systems. This category may also include management, system planning, system operations and bus facility design.

*MQS:* Statement A.

*Administering Office:* Office of Systems Planning.

## **150 RAIL PLANNING**

### **151 Rail Transportation Planning**

*Description:* This category of work consists of evaluating the rail transportation system in the state to determine the development 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.

## **160 BICYCLE AND PEDESTRIAN PLANNING**

### **161 Bicycle and Pedestrian Transportation Planning**

*Description:* This category of work consists of evaluating bicycle and pedestrian systems in the state to determine the development needs of existing or proposed facilities. The work may include the improvement or expansion of existing systems, comparison of systems 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**

### **210 POST PLANNING--PRECONSTRUCTION ENGINEERING**

#### **211 Airport Design**

*Description:* This category of 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 FAA 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:* This category of work is defined as the production of competently engineered highway plans and related design studies that conform to design standards used by the Department and meet other specific requirements of the Department or the FHWA. A minor facility is a secondary, primary or interstate highway that is generally located in a rural area and presents no unique or complex design problems. The work may include widening, resurfacing, reconstruction, and accommodation of utilities. The category may include minor urban work including curb and gutter and storm sewer design.

*MQS:* Statement B.

*Administering Office:* Office of Design.

### **213 Highway Design--Major Facility**

*Description:* This category of work is defined as the production of competently engineered highway plans and related design studies that conform to design standards used by the Department and meet other specified requirements of the Department or the FHWA. A major facility is a complex, nonroutine, 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 and accommodation of utilities.

*MQS:* Statement B.

*Administering Office:* Office of Design.

### **214 Highway Design--Major Facility--Urban**

*Description:* This category of work is defined as the production of competently engineered highway plans and related design studies that conform to design standards used by the Department and meet other specified requirements of the Department or the FHWA. A major urban facility is a complex, nonroutine, urban multi-lane roadway requiring detail design and intricate staging and traffic control. The work may include curb and gutter and storm sewer design and accommodation of utilities.

*MQS:* Statement B.

*Administering Office:* Office of Design.

### **215 Culvert and Standard Bridge Design**

*Description:* This category of work is defined as the production of competently engineered bridge plans that conform to the Department's design standards, including the Bridges and Structures Design Manual, and those of the FHWA. 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:* This category of work is defined as the production of competently engineered bridge plans that conform to the Department's design standards, including the Bridges and Structures Design Manual, and those of the FHWA. 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. Also, 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:* This category of work is defined as the production of competently engineered bridge plans that conform to the Department's design standards, including the Bridges and Structures Design Manual, and those of the FHWA. It includes preparation of construction plans for multi-span steel girder bridges.

*MQS:* Statement B. Also, 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. 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:* This category of 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 Design; Office of Traffic and Safety.

## **219 Rail Design**

*Description:* This category of 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**

*Description:* Firms may be listed as prequalified to manage and inspect a construction project of a type listed in categories 221-227 below and to act as the contracting authority's authorized representative. In performing the work, a firm may be required to determine questions relating to materials, work, progress, disputes and mutual rights between contractors and fulfillment of the construction contract in accordance with applicable specifications.

*MQS:* Statement A is applicable to categories 221-227 below.

*Administering Office:* Refer to categories 221-227 below.

## **221 Highway Roadway Construction**

*Administering Office:* Office of Construction.

## **222 Bridge Construction**

*Administering Office:* Office of Construction.

## **223 Runway and Related Airport Construction**

*Administering Office:* Office of Aviation.



## **224 Railway Construction**

*Administering Office:* Office of Rail Transportation.

## **226 Traffic Operations Improvements Involving Construction**

*Description:* This category of 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.

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

## **227 Building Construction**

*Administering Office:* Office of Facilities Support.

## **230 OPERATIONS RESEARCH, ANALYSIS AND ENGINEERING**

### **231 Public Transit Program (Systems) Management**

*Description:* This category of work is defined as the overall management of a 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 involved. 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 and hardware, supervise and inspect construction and installations, test and check out components and the integrated system, issue reports, prepare operation and maintenance manuals, and provide an overall evaluation of system performance.

*MQS:* Statement A.

*Administering Office:* Office of Public Transit.

### **232 Public Transit Vehicle and Propulsion Systems**

*Description:* This category of work is defined as the development of state of art (or beyond) land and water vehicles or devices, associated propulsion or drive systems, and related vehicle sub-systems. The basic elements of this category of work require a capability 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 mass and rapid transit concepts. 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 Systems**

*Description:* This category of work is defined as the modification of existing or the design, installation and checkout of new automatic or manual operation controls and signals, communications, operational equipment information, and public information displays. 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 includes the design of

vehicle and public traffic control systems; 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; and automated ticketing, fare collection, or billing systems.

*MQS:* Statement A.

*Administering Office:* Office of Public Transit.

### **234 Public Transit Operations Management and Support Services**

*Description:* This category of work is defined as service to a public transit public authority as a management and technical consultant for the day-to-day operation of the system. The firm will advise or provide direct services as required in the areas of public affairs, marketing, financial operations, maintenance, scheduling, equipment and system modifications, regional interfaces, and other operational aspects in order to maintain an economically sound and dependable transit system and/or to provide recommendations for expanded services.

*MQS:* Statement A.

*Administering Office:* Office of Public Transit.

### **235 Traffic Control Systems Analysis, Design and Implementation**

*Description:* This category of 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 "debugging", system documentation, and the training of operating personnel.

*MQS:* Statement B.

*Administering Office:* Office of Traffic and Safety.

### **236 Traffic Operations Studies**

**Description:** This category of 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 night 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 nor 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:* This category of work concerns investigation and analysis of a maintenance program in total or in specific problem areas and may require the performance of 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*: This category of 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*: Research and Technology Bureau.

## **300 PROFESSIONAL--TECHNICAL SUPPORT SERVICES**

### **310 TOPOGRAPHY**

#### **311 Land Surveying**

*Description*: This category of 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 the tract and the writing of descriptions of land areas for conveyancing purposes.

*MQS*: Statement C.

*Administering Office*: Office of Design.

**312 Engineering Surveying**

*Description:* This category of 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:* This category of 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:* This category of work includes taking precision quality photographs from air camera stations in conformance with the Department's specifications for aerial photography. The photography must be suitable for subsequent photogrammetric mapping.

*MQS:* Statement A. Also, prequalification requires ownership of the necessary equipment that meets Department specifications.

*Administering Office:* Office of Design.

**315 Photogrammetry**

*Description:* This category of 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:* This category of 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 Materials.

### **317 Cartography**

*Description:* This category of 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 and man's varied activities. These variations may be in black and white or in multicolor. Cartography invariably includes assembly, evaluation, selection, rejection and presentation of data.

*MQS:* Statement A.

*Administering Office:* Office of Transportation Data.

## **320 SOILS, FOUNDATIONS, MATERIALS AND STRUCTURES**

### **321 Geological and Geophysical Studies**

*Description:* This category of 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, determination of constructability and cost effectiveness, subgrade and drainage design, stability and foundation design, preparation of plan documents, and coordination with other design disciplines or parties.

*MQS:* Statement B.

*Administering Office:* Office of Design.

### **322 Bridge Foundation Studies**

*Description:* This category of work includes determination of one or more specific sites or alternate sites for a structure, usually a bridge, where soil characteristics must be known for the design of footings or where settlement must be predicted to determine construction methods, surcharge requirements or the necessity of scheduling construction over extended time periods.

*MQS:* Statement B.

*Administering Office:* Office of Bridges and Structures.

### **323 Hydraulic and Hydrologic Studies**

*Description:* This category of work includes large-scale studies of drainage basins, stream diversions 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 A.

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

### **324 Materials Testing**

*Description:* This category of work involves conducting tests in accordance with Department approved specifications on aggregates, concrete (pipe, beam, or post products: cement or concrete additives including water or epoxies), bituminous materials including testing of field mixes, timber, metals, paints, rubber, soils, clay and masonry products. Iowa DOT certified inspectors are required for certain types of testing. An approved laboratory may also be required with qualifications outlined in Materials IM 208.

*MQS:* Statement A.

*Administering Office:* Office of Materials.

**325 Bridge Inspection and Analysis**

*Description:* This category of work involves the performance of bridge inspections and load ratings. The work must be done in accordance with the National Bridge Inspection Standards, the AASHTO Manual for Maintenance Inspection of Bridges, and Department policy.

*MQS:* Statement B.

*Administering Office:* Office of Bridges and Structures.

**329 Underwater Bridge Inspection**

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

*MQS:* Statement B.

*Administering Office:* Office of Bridges and Structures.

**330 Structures Fabrication Inspection**

*Description:* This category of work involves inspection of metal structures during their fabrication. The structures being fabricated may include lighting, signing or bridge structures.

*MQS:* Statement A.

*Administering Office:* Office of Materials.

**350 ENVIRONMENTAL--CULTURAL, NEPA, WETLANDS, REGULATED MATERIALS, AND ENVIRONMENTAL RESOURCE MANAGEMENT****351 Environmental Impact Studies**

*Description:* This category of 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.

Some disciplines are **specifically excluded** from this category, and are covered by other, separate work categories. These include:

- Cultural resource investigations to identify, evaluate, or recover data from archaeological or historic/architectural properties (*see Category 352*).
- 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 the overall environmental impact studies and NEPA document preparation. The firm may use the services of other firms prequalified in separate disciplines as subconsultants to obtain specific environmental data for the NEPA studies and documents if it does not have the required capability in-house. (See Category 353, *Environmental Impact Specialty Studies*.)

*MQS*: Statement A. Also, the firm must be able to document familiarity with the FHWA’s NEPA procedural requirements by having successfully completed the following within the last three years for projects where the FHWA was the lead federal agency: either two environmental impact statements or three environmental assessments, **and** three findings of no significant impact. 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.

*Administering Office*: Office of Location and Environment.

### **352 Cultural, Historic and Native American Services**

*Description*: This category of work is defined as the identification and evaluation of the eligibility for listing on the National Register of Historic Places of archaeological sites, historic structures, and other historic properties or sites within the project’s area of potential effect or within the corridor as defined by the Department. The work is limited to the study of archaeological sites including the geomorphology of the project corridor, the historical 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. Also, firms shall, at a minimum, have available as Principal Investigator for each project an individual who meets the standards of the Secretary of the U.S. Department of Interior (National Park Service) for qualification to perform prehistoric archaeological, historic archaeological, or 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.

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

The firm shall submit resumes for its Principal Investigators to the Iowa State Historic Preservation Officer (SHPO), with a request to be placed on the SHPO’s list of qualified consultants.

A meeting with Iowa SHPO staff shall be arranged by firms who haven’t worked in Iowa. The purpose of the meeting is to acquire a familiarity with the survey and reporting standards expected by the SHPO.

*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. It does not include preparation of the NEPA environmental document itself.

The firm may be contracting directly with the Department to provide the data and reports, or it may be serving 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).

It is highly desirable, but not a strict requirement, that firms performing work in this category for the Department 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 a minimum of rewriting. The ability to develop and transfer data in GPS format is also desirable.

Some disciplines are specifically excluded from this category, and are covered by other, separate work categories. These include:

- 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 Category 352*).
- 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*: This category of 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 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 Environmental Services**

*Description:* This category of work provides services relative to 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.
- Conduct site investigations to identify, locate and quantify the existence of regulated materials.
- 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.
- 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. Also, the 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. The firm must have a Certified Groundwater Professional certified by the State of Iowa and other individuals with licenses or certifications as required by the State.

*Administering Office:* Office of Location and Environment.

### **356 Hydrogeology, Geomorphology and Other Geological Disciplines**

*Description:* This category of 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. Also, the firm must have the following qualifications:

1. At least one staff person, who will be 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 masters 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 writing for four complex projects within the past three years. 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 Investigation, Remediation, and Disposal Services**

*Description:* This category of work includes varied services related to the identification, handling, transportation and disposal of regulated materials, and the investigation and remediation of sites which may have been or are known to be impacted by regulated material contamination. This work requires a thorough knowledge of applicable state and federal regulations related to regulated material investigation, 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.
- Site remediation 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 scrap tires, fluorescent light bulbs, scrap metal, spent solvents, etc.

*MQS:* Statement A.

*Administering Office:* Office of Location and Environment.

### **358 Specialized Wetland Services**

*Description:* This category of 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 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.

### **360 Asbestos Services**

*Description*: This category of work provides asbestos inspection, rehabilitation and abatement services. 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. Also, the firm must maintain a valid license issued by the Iowa Division of Labor 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*: Primarily, this category of work provides contract administration services, environmental monitoring and compliance support services, and technical expertise on structural painting and rehabilitation-type projects. The 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.

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

**410 ARCHITECTURE**

*Description:* This category of 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 Facilities Support.

**420 LANDSCAPE ARCHITECTURE**

*Description:* This category of work is defined as the preparation of plans, specifications, reports, and/or studies directed toward achieving maximum harmony between the transportation corridor and the general landscape through techniques such as preservation of aesthetically pleasing existing land features, improvements oriented toward enhancing compatibility with existing surroundings, and creative utilization of the corridor to provide a satisfactory mesh with adjacent lands. It includes work such as 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:* This category of work is defined as the design and preparation of plans and specifications for waste water treatment facilities.

*MQS:* Statement B.

*Administering Office:* Office of Facilities Support.

**460 MECHANICAL ENGINEERING**

*Description:* This category of work is defined as the design and preparation of plans and specifications for mechanical systems such as heating and cooling systems.

*MQS:* Statement B.

*Administering Office:* Office of Facilities Support.

**461 Energy Analysis, Audits and Conservation Use**

*Description:* This category of work involves performing energy audits of buildings.

*MQS:* Statement B.

*Administering Office:* Office of Facilities Support.

## **462 Lighting Design**

*Description:* This category of 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 with 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 person shall hold a certificate of registration as a professional electrical engineer.

*Administering Office:* Office of Traffic and Safety.

## **470 OTHER PROFESSIONAL SERVICES**

### **471 Appraisal--Nonresidential Real Estate**

*Description:* This category of work is defined as the preparation of appraisals of nonresidential real estate. Nonresidential real estate is real estate other than one to four residential units. The work includes the preparation of appraisals of agricultural land and improvements and commercial and industrial property. The work must conform to the requirements of the Uniform Relocation Assistance and Real Property Acquisition Policies Acts of 1970, as amended, and the Department's appraisal manual.

*MQS:* Statement F.

*Administering Office:* Office of Right of Way.

## MINIMUM QUALIFICATION STANDARDS

**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 principals or key personnel. Other professional and technical personnel supporting prequalification in the category shall also be referenced on Form 102113. Satisfactory experience in the category shall be demonstrated on Form 102113 by reference to 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 registered by the Iowa Engineering and Land Surveying Examining Board as a professional engineer. Resumes of personnel so referenced shall indicate the extent and nature of experience in the category of work. Other personnel supporting prequalification in the category shall be referenced on Form 102113. Satisfactory experience in the category shall be demonstrated on Form 102113 by reference to completed projects.

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 with the exception that in lieu of registration as a professional engineer, registration as a land surveyor is required.

**Statement D.** All requirements expressed in Statement "B" above shall apply with the exception that in lieu of registration as a professional engineer, the applicant may be registered as an architect with the Iowa Architectural Examining Board.

**Statement E.** All requirements expressed in Statement "B" above shall apply with the exception that in lieu 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. At least two samples of appraisals shall be provided for each category of real estate including, but not limited to, agricultural, commercial and industrial. On Form 102113, resumes of all personnel completing these appraisals or assisting in the completion of these appraisals shall indicate the extent and nature of experience in appraising various types of real estate.

**Appendix B**

<u>Administering Office</u>		<u>Categories of Work</u>
Aviation	132	Airport Master Planning
	211	Airport Design
	223	Runway and Related Airport Construction
Bridges and Structures	215	Culvert and Standard Bridge Design
	216	Non-Standard, Non-Steel Bridge Design
	217	Steel Bridge Design
	322	Bridge Foundation Studies
	323	Hydraulic and Hydrologic Studies
	325	Bridge Inspection and Analysis
	329	Underwater Bridge Inspection
	361	Structural Coating Services
Construction	221	Highway Roadway Construction
	222	Bridge Construction
	226	Traffic Operations Improvements Involving Construction
	361	Structural Coating Services
Design	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
	321	Geological and Geophysical Studies
	323	Hydraulic and Hydrologic Studies
420	Landscape Architecture	
Facilities Support	227	Building Construction
	410	Architecture
	430	Sanitary Engineering
	460	Mechanical Engineering
	461	Energy Analysis, Audits and Conservation Use
Maintenance	237	Highway Maintenance Equipment, Materials and Methods Research and Analysis
Materials	316	Remote Sensing
	324	Materials Testing
	330	Structures Fabrication Inspection

Location and Environment	123	Location Studies
	351	Environmental Impact Studies
	352	Cultural, Historic and Native American Services
	353	Environmental Impact Specialty Studies
	354	Comprehensive Wetland Services
	355	Environmental Services
	356	Hydrogeology, Geomorphology and Other Geological Disciplines
	357	Regulated Material Investigation, Remediation, and Disposal Services
	358	Specialized Wetland Services
	360	Asbestos Services
Public Transit	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	219	Rail Design
	224	Railway Construction
Research and Technology Bureau	238	Intelligent Transportation Systems
Right of Way	471	Appraisal--Nonresidential Real Estate
Systems Planning	111	Statewide/Regional Systems Planning
	113	Local/Regional Systems Planning
	112	Urban Area Transportation Planning
	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
	462	Lighting Design
Transportation Data	317	Cartography