**KANSAS DEPARTMENT OF TRANSPORTATION**

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## TRANSPORTATION PLANNING

**Rail Planning**

### 111 Rail Systems Planning

#### Scope

###### Projects include preparation and/or update of statewide or regional rail transportation plans. These studies may examine one or more categories of freight rail and passenger rail and may include short (five years) and long (twenty years) term planning horizons, intermodal and multimodal planning, financial capacity analysis, economic benefit analysis to industry and public, land use and environmental issues.

#### Qualifications

The consultant must be staffed with a PE licensed in Kansas or an AICP.

The consultant is required to have planners, engineers, transportation economists or personnel on staff with experience, knowledge and expertise in statewide or regional rail planning, intermodal and multimodal planning, Federal Railroad Administration (FRA) and Surface Transportation Board regulations, abandonments, land use planning and environmental analysis. The consultant shall demonstrate the necessary experience, knowledge and expertise in working with rail planning with a specific emphasis on shortline railroad development. The consultant will have necessary experience, knowledge and expertise in railroad operations and economics and in current state and federal regulations affecting railroads.

**TRANSPORTATION PLANNING**

**Aviation Planning**

**121 Aviation Systems/Airport Planning**

**Scope**

Projects include preparation of statewide or regional aviation system plans, and preparation of airport master plans.

Systems Planning: Study the impact of aviation to the community, region and/or state. Such studies may include short (five years) and long (twenty years) term planning horizons. Topics may include analysis and forecasting of aircraft basing demand, airport capacity, commercial aviation demand, as well as intermodal and multimodal connectivity. Studies may also include environmental impact analysis, appropriate state-level organization and resources for supporting aviation, assessment of airport capital improvement needs, and analysis of the adequacy of commercial air service and general aviation support facilities.

Airport Planning: Master plans may include air side and land side facilities planning and design, cargo facilities planning, airspace analysis, economic analysis, aviation forecasting, organization of public programming, ground transportation studies, parking and roadway analysis, financial planning, and land use planning. The consultant may also be required to assist in the federal grant process for the project.

**Qualifications**

The consultant must be staffed with a PE licensed in Kansas or an AICP.

The consultant is required to have demonstrated experience and capability in performing all aspects of the project, such as planning, economic and financial analysis, engineering, and environmental evaluations. The consultant must have knowledge of Federal Aviation Administration (FAA) programs, policies, regulations, and procedures.

**TRANSPORTATION PLANNING**

**Port and Waterway Planning**

1. **Port and Waterway Systems Planning**

**Scope**

Projects include preparation and/or update of port and waterway system plans as they affect Kansas and the region. These studies are to include short (five years) and long (twenty years) term planning horizons, intermodal and multimodal planning, financial capacity analysis, land use and environmental issues.

**Qualifications**

The consultant must be staffed with a PE licensed in Kansas or an AICP.

The consultant is required to have planners and engineers on staff with experience and knowledge in port and waterway systems planning, intermodal and multimodal planning, land use planning, and environmental analysis. The consultant shall demonstrate the necessary experience, knowledge and expertise in working with the U.S. Corps of Engineers, U.S. Coast Guard, and state, regional and federal planning agencies.

**TRANSPORTATION PLANNING**

**Bicycle and Pedestrian Planning**

1. **Bicycle and Pedestrian Facilities Planning**

**Scope**

This service will include a variety of functions associated with planning for pedestrian and bicycle transportation facilities. The service will include determining the feasibility/need for the facility, estimates of future usage of the facility, and estimates of cost. The service will also include development of a preliminary design concept for the facility, environmental impact evaluations and an assessment of whether the planned facility is consistent with the long range transportation and land use plans of the community. The services will also include conducting public input/involvement activities concerning the proposed facility.

**Qualifications**

The consultant must be staffed with a PE or a LA licensed in Kansas or an AICP.

The personnel employed by the consultant shall have training, experience, knowledge and expertise in the appropriate areas necessary to do the assignment, including AASHTO, FHWA and other appropriate design policies, procedures, practices and standards. Personnel shall also be aware of KDOT policies, procedures and practices. They must be able to anticipate/discover obstacles, problems and needs of the project, focus on citizen involvement and consensus building to provide innovative concepts followed by practical, detailed solutions.

The services in this category require that a consultant have an engineer or planner directly responsible for the project and normally require multiple personnel in the appropriate areas with qualifications as described above.

Equipment, office facilities, and other resources shall be adequate to support the project.

**TRANSPORTATION PLANNING**

**Public Transit Planning**

1. **Public Transit Facilities and Systems Planning**

**Scope**

This service will include a variety of functions associated with statewide or urban transit planning studies, including feasibility studies, operational analyses, alternatives analysis, program coordination, demand/needs studies and transit facility preliminary engineering. The service will also include conducting public input/involvement activities related to these studies.

**Qualifications**

The consultant must be staffed with a PE licensed in Kansas or an AICP.

Consultants shall have on staff personnel with demonstrated experience, knowledge and expertise in public transit planning, transit operational analysis, and public transit facility design. Staff shall have specific experience in public transit studies and operations, and be familiar with current federal transit programs and reporting requirements, statewide planning regulations, metro planning regulations, air quality regulations and major investment guidance. Personnel shall also be aware of KDOT policies, procedures and practices.

The services in this category require that a consultant has an engineer or planner directly responsible for the project and normally require multiple personnel in the appropriate areas with qualifications as described above.

## TRANSPORTATION PLANNING

**Transportation Facilities Planning**

1. **Corridor/Project Feasibility Studies**

#### Scope

This service will include a variety of functions associated with corridor/project feasibility studies. The assignments may include determining the feasibility/need for the proposed facility, possible alternatives including multimodal options, estimates of current and future use of the facility, and estimates of the cost. This service may also include development of a preliminary design concept for the facility, environmental evaluations, discovery of major corridor/project development impediments, and an assessment of whether the planned facility is consistent with the long-range transportation and land use plans of the community or state. Environmental evaluations may extend to preparation of National Environmental Policy Act (NEPA) documents. Projects will also include conducting public input/involvement activities concerning the proposed facility.

#### Qualifications

The consultant must be staffed with a professional engineer licensed in Kansas.

Personnel employed by the consultant shall have demonstrated experience, knowledge and expertise in transportation planning and corridor feasibility studies including innovative financing, preliminary design and environmental analysis, estimating future usage/demand, transit planning studies, and benefit/cost analysis. The consultant shall have the necessary expertise and physical resources to effectively estimate future travel demand/usage, and shall have knowledge of current federal planning and environmental regulations, requirements and guidance. Personnel shall also be aware of KDOT policies, procedures and practices.

The services in this category require that the consultant have an engineer directly responsible for the project, and normally require multiple personnel in the appropriate areas with qualifications as described above.

**TRANSPORTATION PLANNING**

**Transportation Facilities Planning**

1. Long Range Planning

#### Scope

This service will include a variety of functions associated with preparation and/or update of required statewide, regional or metro long-range transportation plans. These studies must include a minimum twenty-year planning horizon and must include intermodal and multimodal planning, financial capacity analysis, land use and environmental issues, and travel demand modeling. Projects will also include conducting public input/involvement activities related to the assignments.

**Qualifications**

The consultant must be staffed with a PE licensed in Kansas or an AICP.

The consultant is required to have planners and engineers on staff with demonstrated knowledge, experience and expertise in long-range planning, including travel demand modeling, transit planning studies, land use planning, and environmental analysis. The consultant shall have the necessary expertise and physical resources to effectively estimate future travel demand/usage, and shall have knowledge of current federal planning and environmental regulations, requirements, and guidance. Personnel shall also be aware of KDOT policies, procedures and practices.

The services in this category require that the consultant has an engineer or planner directly responsible for the project and normally require multiple personnel in the appropriate areas with qualifications as described above.

## TRANSPORTATION PLANNING

## Transportation Facilities Planning

# Congestion Management/ITS

**Scope**

This service will include a variety of functions associated with development of metro areas and statewide congestion management plans and systems, feasibility studies for various intelligent transportation systems, and designs and deployment of intelligent transportation projects.

**Qualifications**

The consultant must be staffed with a professional engineer licensed in Kansas.

Personnel employed by the consultant shall have demonstrated knowledge, experience and expertise in transportation planning and traffic engineering to include specific experience in analysis of and implementation and deployment of intelligent transportation technologies. The consultant shall have the necessary expertise and physical resources to effectively participate in ITS feasibility studies, preliminary engineering, and project development and deployment. Personnel shall also be aware of KDOT policies, procedures and practices.

The services in this category requires that the consultant has an engineer or planner directly responsible for the project and normally require multiple personnel in the appropriate areas with qualifications as described above.

## TRANSPORTATION PLANNING

## Environmental Impact Studies

# Environmental Documentation

#### Scope

This service will include the coordination and preparation of environmental assessments and environmental impact statements as defined in 23 CFR 771.115.

#### Qualifications

The consultant must be staffed with a professional engineer licensed in Kansas.

The personnel employed by the consultant shall have training, experience, knowledge and expertise in the appropriate areas necessary to do the projects in accordance with AASHTO, FHWA and other appropriate policies, procedures, practices and standards. Personnel shall also be aware of KDOT policies, procedures and practices.

This service will require technical document writing. Personnel will consider the highway geometrics and environmental tradeoffs to provide optimal solutions.

## TRANSPORTATION PLANNING

## Environmental Impact Studies

# Site Assessments

#### Scope

This service will include a variety of environmental tasks associated with the investigation of underground storage tanks and other potential hazardous waste sites. The investigations shall be performed in accordance with EPA and Kansas Department of Health and Environment (KDHE) approved procedures and specifications and result in an accurate characterization and/or practical remediation of impacted sites.

Qualifications

The consultant must be staffed with a professional engineer licensed in Kansas.

The personnel employed by the consultant shall possess the educational requirements recommended by the EPA and KDHE for performing these assignments. In addition, they must have completed all certified training necessary to comply with EPA, KDHE and OSHA requirements.

The consultant shall possess the experience necessary to perform the various phases of on-site field investigations required by KDOT, and requires familiarity with all aspects of the required scope of services.

The consultant shall have engineering training, experience, knowledge and expertise in the appropriate areas necessary to do the project in accordance with AASHTO, FHWA and other appropriate design policies, procedures, practices and standards. Personnel shall also be aware of KDOT policies, procedures and practices. They must be able to seek/discover obstacles/problems, and needs of the project and provide feasible concepts followed by practical, detailed solutions.

## TRANSPORTATION PLANNING

## Environmental Impact Studies

# Noise Impact Analysis

#### Scope

This service will include the analysis of traffic noise impacts on “Type I Projects” as outlined in 23 CFR 772, and the completion of traffic noise reports, including an evaluation of possible abatement measures.

Projects of this category will normally require complex noise analysis, including the design of noise barriers, and/or require expert witness associated with litigation concerning highway traffic noise.

**Qualifications**

The consultant must be staffed with a professional engineer licensed in Kansas.

The personnel employed by the consultant shall have training, experience, knowledge and expertise in the appropriate areas necessary to do the project in accordance with AASHTO, FHWA and other appropriate policies, procedures, practices and standards. Personnel shall also be aware of KDOT policies, procedures and standards. They need to have the ability to provide innovative concepts followed by practical, detailed solutions to highway noise problems.

## TRANSPORTATION PLANNING

## Transportation Enhancement Planning

# Corridor Enhancement/Scenic Byways

#### Scope

Projects consist of corridor enhancement and scenic byway planning to include natural and cultural resource inventories, tourism and economic development plans, corridor management plans, and other related activities associated with the community and regional development.

**Qualifications**

The consultant must be staffed with a PE or a LA licensed in Kansas or an AICP.

The personnel employed by the consultant shall have training, experience, knowledge and expertise in the appropriate areas necessary to do the assignments in accordance with AASHTO, FHWA and other appropriate policies, procedures, practices and standards. Personnel must also be aware of KDOT policies, procedures and practices. They must be able to anticipate/discover obstacles, problems, and needs of the corridor, focus on citizen improvement and consensus building, and recommend innovative concepts followed by practical, detailed solutions.

The consultant shall also have multiple personnel in the appropriate planning areas with qualifications as described above.

Equipment, office facilities and other resources shall be adequate to perform all necessary planning, field investigations, research, correspondence, mapping, development of resources for public meetings, and providing assistance to local communities and ad hoc byway organizations.

## TRANSPORTATION PLANNING

## Transportation Enhancement Planning

# Parks and Recreational Planning

#### Scope

Projects consist of the development of comprehensive statewide studies in support of programs and master plans for rest areas, overlooks and historic marker turnouts. Preparation of reports may include such tools and resources as facility inventories, field investigations, feasibility studies, traffic studies, statistical sampling, interviews, funding sources and budget management, and research data.

**Qualifications**

The consultant must be staffed with a PE or a LA licensed in Kansas or an AICP.

The consultant is required to have demonstrated experience, knowledge and expertise in the preparation of park and recreation planning studies involving transportation corridors, in accordance with AASHTO, FHWA and other appropriate policies, procedures, practices and standards. Personnel shall also be aware of KDOT policies, procedures and practices.

## TRANSPORTATION ENGINEERING AND DEVELOPMENT

## Pre-Construction Engineering and Project Management

# Location and Design Concept Studies/Corridor Studies

#### Scope

This service will include a variety of engineering and associated functions relating to location studies for transportation projects. The assignment shall result in a thorough and complete documentation of the basis for the selected alternate and information necessary to proceed to the preliminary design phase. The results shall fulfill the agency’s intended purpose, safely and efficiently serve the public, and meet current best practices, prevailing criteria and standards.

Corridor and location studies will normally involve one or more complex features, and may be either rural or urban in nature. The studies will be based on social, economic and environmental factors, and must discuss and evaluate the various inputs to the study process, describe and analyze the various alternatives developed and document the basis for the selected alternate.

**Qualifications**

The consultant must be staffed with a professional engineer licensed in Kansas.

The personnel employed by the consultant shall have training, experience, knowledge and expertise in the appropriate areas necessary to do the project in accordance with AASHTO, FHWA and other appropriate planning location and design policies, procedures and regulations. Personnel shall also be aware of KDOT policies, procedures and practices. They must be able to anticipate/discover obstacles, problems and needs of the project and provide innovative concepts followed by practical, detailed solutions.

Location studies require that the consultant have an engineer directly responsible for the project and normally require multiple personnel in the appropriate discipline with qualifications as described above. The project manager should be a senior person experienced and actively involved in the transportation design/study process.

Location studies include areas of expertise such as knowledge and use of environmental studies (includes consideration of avoidance, mitigation, and replacement options), environmental documentation, public involvement, interaction with regulatory agencies, hydrology and hydraulics, floodplain analysis and street crossing selection, road design and bridge design issues, right-of-way issues, existing and future land use, knowledge and use of traffic data, constructability, cost estimating, capacity analysis, urban planning, etc.

## TRANSPORTATION ENGINEERING AND DEVELOPMENT

## Pre-Construction Engineering and Project Management

# 203 Value Engineering

**Scope**

This service will be to lead or conduct a Value Engineering (VE) study for a transportation project and provide a formal presentation as well as a written report of the study for the Kansas Department of Transportation (KDOT). The analysis will consist of a study of the project during its design phase by a multi-disciplined team who will provide recommendations for evaluation by the KDOT. A variety of engineering and associated skills relating to location studies, major highway facility design, and bridge design, as well as construction knowledge, will be needed to evaluate the project. The results of the study shall fulfill the agency’s intended purposes of safely and efficiently serving the public, meeting prevailing criteria and standards, and providing a thorough, complete, and documented study of alternatives.

**Qualifications**

The VE consultant shall a PE registered in KS, and have a Certified VE Specialist who is also a PE (not necessarily in KS).

They shall provide the team leader who is a licensed professional engineer, is knowledgeable in transportation design, and is a certified Value Specialist. The team leader shall serve as the primary contact.

Multi-disciplined team members furnished by the VE consultant shall be trained and experienced in the principles of VE and shall be experienced with transportation planning, design, operations, and construction.

The VE consultant shall have sufficient expertise, experience and resources to conduct the VE study and provide a written report which details the findings.

## TRANSPORTATION ENGINEERING AND DEVELOPMENT

## Pre-Construction Engineering and Project Management

# 211 Highway Design – Major Facility

**Scope**

This service will include a variety of engineering functions associated with the design of a major highway facility. The design shall result in a complete and accurate set(s) of plans to construct a project which fulfills the agency’s intended purpose, safely and efficiently serves the public, and meets current best practices and prevailing criteria and standards.

Projects of this category will normally involve one or more complex features, may be either rural or urban in nature, and may be two-lane or multi-lane. They will generally be new construction or major reconstruction.

**Qualifications**

The consultant must be staffed with a minimum of two professional engineers, one of which shall be licensed in Kansas.

The personnel employed by the consultant shall have engineering training, experience, knowledge, and expertise in the appropriate areas necessary to do the project in accordance with AASHTO, FHWA and other appropriate design policies, procedures, practices and standards. Personnel shall also be aware of KDOT policies, procedures and standards. This shall include a staff of licensed professional engineers and technicians. They must be able to anticipate/discover obstacles, problems, and needs of the project and provide innovative concepts followed by practical, detailed solutions.

Designs of this category require that the consultant have a professional engineer licensed in Kansas directly responsible for the project and normally require multiple personnel in the appropriate design areas with qualifications as described herein.

Designs in this category include horizontal and vertical geometrics for roadways, interchanges and intersections, roadside safety, hydrology and hydraulics, traffic engineering, traffic accommodations/construction sequencing, right-of-way issues (such as access, avoidance, etc.), environmental documentation, public involvement, etc.

## TRANSPORTATION ENGINEERING AND DEVELOPMENT

## Pre-Construction Engineering and Project Management

# 212 Highway Design – Minor Facility

**Scope**

This service will include a variety of engineering functions associated with the design of a minor highway facility. The design shall result in a complete and accurate set(s) of plans to construct a project which fulfills the agency’s intended purpose, safely and efficiently serves the public, and meets current best practices, prevailing criteria and standards.

Projects of this category may involve some complex features but generally follow normal engineering practices and procedures, may be either rural or urban in nature and are usually two-lane facilities but may include four-lane, less complicated urban facilities. Examples of these types of projects could be a bridge replacement (including culvert and box bridges) a low-volume two-lane rural roadway reconstruction, an urban four-lane without raised medians, or an intersection improvement involving moderate to low traffic volumes.

**Qualifications**

The consultant must be staffed with a professional engineer licensed in Kansas who is directly responsible for the project and one or more persons with experience in the appropriate design areas.

The personnel employed by the consultant shall have engineering training, experience, knowledge and expertise in the appropriate areas necessary to do the project in accordance with AASHTO, FHWA and other appropriate design policies, procedures, practices and standards. Personnel shall also be aware of KDOT policies, procedures and practices. This shall include a staff of licensed professional engineers and technicians. They must be able to seek/discover obstacles, problems and needs of the project and provide feasible concepts followed by practical, detailed solutions.

Designs in this category include horizontal and vertical geometrics for roadways and intersections, roadside safety, hydrology and hydraulics, basic traffic engineering, traffic accommodation/construction sequencing (usually for moderate to low traffic volumes), right-of-way issues (such as access, avoidance, etc.), environmental documentation (usually limited to Environmental Assessments, Programmatic Section 4(f) Statement(s), occasional public informational meetings, etc.).

## TRANSPORTATION ENGINEERING AND DEVELOPMENT

## Pre-Construction Engineering and Project Management

# 221 Non-Standard Span Bridge Design and Special Structures

**Scope**

This service includes post-tensioned structures, curved or skewed open span structures, spans over 175 feet, or unique foundations (cofferdams, seals, etc.).

Any special design bridge will be included for this category. Examples of special design bridges will include:

1. post tensioned;
2. steel welded plate with over 175-foot spans;
3. cofferdams;
4. sloped leg steel structures; and
5. trusses, arches, etc.

**Qualifications**

The consultant must be staffed with a minimum of two professional engineers, one of which shall be registered in Kansas, with experience in continuous open span type structure design, open channel flow, hydraulic sizing of structures and scour analysis.

The personnel employed by the consultant shall have engineering training, experience, knowledge and expertise in the appropriate areas necessary to do the project in accordance with AASHTO, FHWA and other appropriate design policies. Personnel shall have the experience and training in Load Resistance Factor Design (LRFD). Personnel shall also be aware of KDOT policies, procedures and practices. This shall include a staff of registered professional engineers and technicians. They must be able to seek/discover obstacles, problems, and needs of the project and provide feasible concepts followed by practical, detailed solutions.

Designs of this category require that the consultant have a professional engineer licensed in Kansas directly responsible for the project and one or more persons in the appropriate design areas with qualifications as described above.

## TRANSPORTATION ENGINEERING AND DEVELOPMENT

## Pre-Construction Engineering and Project Management

# 222 Standard Span Bridge Design

**Scope**

This service includes typical open span type structures such as slab, prestress, steel beam, and uniform depth welded plate girders with webs less than or equal to 5 feet deep. Also includes special culvert/box bridge designs and retaining wall designs.

Examples of services to be included:

1. special culvert designs with foundation problems;
2. retaining wall designs;
3. slab spans, steel, and prestressed beam spans, uniform depth welded plate girder spans;
4. typical “land type” pier substructures (non-cofferdammed);
5. review of falsework and shop drawings;
6. rating of beam spans; and
7. geotechnical and foundation designs of substructural and retaining walls.

**Qualifications**

The consultant must be staffed with a minimum of a professional engineer licensed in Kansas and a graduate engineer both with experience in continuous open span type structure design, open channel flow and hydraulic sizing of structures.

The personnel employed by the consultant shall have engineering training, experience, knowledge and expertise in the appropriate areas necessary to do the project in accordance with AASHTO, FHWA and other appropriate design policies, procedures, practices and standards. Personnel shall have the experience and training in Load Resistance Factor Design (LRFD). Personnel shall also be aware of KDOT policies, procedures and standards.

Designs of this category require that the consultant have a professional engineer licensed in Kansas directly responsible for the project and one or more persons in the appropriate design areas with qualifications as described above.

## TRANSPORTATION ENGINEERING AND DEVELOPMENT

## Traffic Engineering

**231 Traffic Control Analysis and Design**

**Scope**

This service includes the analysis and design for traffic signals and associated geometrics, highway lighting, pavement markings, signing, access management, and work zone traffic control.

This service includes field and office investigations to determine the traffic control that would alleviate traffic problems at a specific location. Perform capacity analysis of a roadway and/or intersection. Develop a comprehensive design concept of geometric and traffic control measures.

**Qualifications**

The consultant must be staffed with a professional engineer licensed in Kansas.

The engineer must have demonstrated expertise in traffic engineering and have a thorough knowledge of the Manual on Uniform Traffic Control Devices, Standard Highway Signs Book, Highway Capacity Manual and software, AASHTO's “Roadway Lighting Design Guide”, “An informational Guide for Roadway Lighting”, and “A Policy on Geometric Design of Highways and Streets”, and the design guidelines contained in ITE's "Manual of Traffic Signal Design", “Traffic Engineering Handbook”, “Traffic Control Handbook”, and “Manual of Transportation Engineering Studies”. The engineer should also have a thorough knowledge of TRB’s “Access Management Handbook” and ITE’s documents entitled “Trip Generation” and “Transportation Impact Analysis for Site Development”. Personnel shall also be aware of KDOT policies, procedures and practices.

Designs of this category require that the consultant have a professional engineer licensed in Kansas directly responsible for the project and one or more persons in the appropriate design areas with qualifications as described above.

## TRANSPORTATION ENGINEERING AND DEVELOPMENT

## Construction Inspection and Testing

# 241 Construction Inspection and Testing

**Scope**

This service will include a variety of inspection and testing functions associated with construction of projects administered by KDOT. The inspection and testing of a project shall result in the completion of a quality product built to the specifications as outlined in the plans, specifications and contract documents.

**Qualifications**

The consultant must be staffed with a professional engineer licensed in Kansas, and at least one inspector certified under KDOT’s Certified Inspection and Testing Training (CIT2) Program in Basic Inspection (BI), Structures Inspection (STR), Asphalt Pavement Inspection (API) and Concrete Pavement Inspection (CPI).

An adequate level of staff shall be provided to perform the necessary construction duties. The staff shall conform to the “Policy and Procedures Manual for The Certified Inspection and Testing Training (CIT2) Program” (latest version). Any inspection or test is to be completed by personnel certified to perform that inspection or test. **The staff shall have the minimum qualifications to provide the necessary construction inspection and testing services, required for the type of work shown in the contract.**

## PROFESSIONAL-TECHNICAL SUPPORT SERVICES

## Topography

# 301 Land Surveying

**Scope**

The Kansas Department of Transportation recognizes the “Practice of Land Surveying” as defined in Kansas Statute 74-7003(k).

**Qualifications**

The consultant must be staffed with a land surveyor registered in Kansas.

Land surveying services shall be conducted under the direct supervision of a registered land surveyor, registered to practice in the State of Kansas. All land surveys shall adhere to the Minimum Standards for the Practice of Land Surveying adopted by the Kansas State Board of Technical Professions. The consultant shall be able to demonstrate experience and ability in working in a roadway environment, with emphasis on traffic control and recovery of existing monumentation beneath hard surface roads. The survey crew shall be equipped with traverse type survey equipment, including an electronic distance-measuring instrument for measurement of distances encountered on the survey and GPS equipment.

Personnel shall also be aware of KDOT policies, procedures and practices.

## PROFESSIONAL-TECHNICAL SUPPORT SERVICES

## Topography

# 302 Engineering Surveying

**Scope**

The Kansas Department of Transportation (KDOT) recognizes the definition of “Engineering Surveys” as defined in Kansas Statute 74-7003(i).

**Qualifications**

The consultant must be staffed with a land surveyor registered in Kansas. The Land Surveyor must exercise direct supervision of the engineering surveying activities.

The survey activities included in this definition are those required to support the sound conception, planning, and design of engineered projects. Consultants seeking qualification in this area shall demonstrate ability and past experiences of key staff in charge of these types of surveys. A minimum of five years of route design survey experience is required of the Party Chief position. The consultant shall be able to demonstrate experience and ability in working in a roadway environment, with emphasis on traffic control and recovery of existing monumentation beneath hard surface roads. The survey crew shall be equipped with traverse-type survey equipment, including an electronic distance-measuring instrument for distances encountered on the survey and GPS equipment.

Personnel shall also be aware of KDOT policies, procedures and practices.

## PROFESSIONAL-TECHNICAL SUPPORT SERVICES

## Geotechnical and Materials Testing

# 311 Geotechnical Engineering Services

**Scope**

This service consists of performing geotechnical investigation on an as-needed basis, according to guidelines provided by the Kansas Department of Transportation’s (KDOT’s) Bureau of Materials and Research, Geotechnical Unit.

Investigations will identify and locate, both horizontally and vertically, significant soil and rock types and ground water conditions present, and establish the characteristics of the subsurface materials visually, by sampling, and by laboratory and in-situ testing.

**Qualifications**

The consultant must be staffed with a professional engineer and a professional geologist licensed in Kansas.

Services under this category require that consultant personnel have training, experience, knowledge and expertise in the field of geotechnical engineering. Personnel shall also have knowledge of KDOT policies, procedures and practices. The individuals directly responsible for the projects should be graduate civil engineers and/or geologists, but may be others, if judged to possess necessary skills. If the consultant is not staffed with this type of personnel, the consultant shall not be permitted to perform geotechnical engineering services in areas where the geological conditions are considered complex by the Geotechnical Unit of the KDOT Bureau of Materials and Research.

Drilling operations under this category shall be supervised by an individual (a geologist or an engineer) experienced in obtaining rock cores, standard penetration tests, thin-walled tube samples, soil profile samples, pavement coring and installing cased observation wells.

The consultant must provide evidence of recent experience in geotechnical engineering and drilling services for highway projects (roadway and bridge).

***You are required to submit a listing of equipment for qualification in the Geotechnical Engineering Services***

## PROFESSIONAL-TECHNICAL SUPPORT SERVICES

## Geotechnical and Materials Testing

# 312 Materials Laboratory Testing Services

**Scope**

This service consists of testing a variety of materials according to KDOT, AASHTO and ASTM standards. These materials may include the following: aggregates, bituminous materials, cement, concrete, concrete admixtures, curing materials, geosynthetics, fly ash, lime, metals, paints, reflective materials, soils, sealants, wood, water and any other materials required to construct and maintain the Kansas roadway system.

**Qualifications**

The consultant must be staffed with a professional engineer licensed in Kansas.

Geotechnical consultants must also be staffed with an individual skilled in the field of geotechnical laboratory testing. This individual is expected to possess a civil engineering degree. However, the individual may substitute another degree if the individual is judged to possess the necessary skills. Personnel shall also be aware of KDOT policies, procedures and practices.

The consultant shall be accredited to perform materials testing by the AASHTO Accreditation Program, as outlined in AASHTO R-18, Establishing and Implementing a Quality System for Construction Materials Testing Laboratories, or by a comparable laboratory accreditation program approved by the FHWA.

KDOT's Materials Quality Assurance Engineer and staff must be allowed the opportunity to verify the laboratory technician experience and equipment calibration and view the proficiency sampling and on-site inspection reports as required in AASHTO R-18 before the consultant is granted qualification status.

***You are required to submit a listing of equipment and accreditation for qualification in the Materials Laboratory Testing Services***

## PROFESSIONAL-TECHNICAL SUPPORT SERVICES

## Bridge Evaluation Services

# 321 Bridge Structural Analysis

**Scope**

Structures will include any span and/or box bridge type(s) included in Category 221, Non-Standard Span Bridge Design and Category 222, Standard Span Bridge Design. A special report of the analysis and/or the load rating may be required, which must be written and sealed by a Kansas licensed professional engineer. The consultant will be recruited based on prequalification in Category 221 or 222 and the complexity of the structure being analyzed.

**Qualifications**

The consultant must be staffed with professional engineers licensed in Kansas (as required in category 221 or 222) and experienced with the task complexity level of the structure(s).

The personnel employed by the consultant shall have engineering training, experience, knowledge and expertise in the appropriate areas necessary to do the project in accordance with AASHTO, FHWA, KDOT policies, procedures and practices, and any other appropriate design policies.

Analysis done in this category require that the consultant have a professional engineer licensed in Kansas directly responsible for the project and one or more persons in the appropriate design areas with qualifications as described above.

## PROFESSIONAL-TECHNICAL SUPPORT SERVICES

## Bridge Evaluation Services

# 322 Bridge and Structure Inspection

**Scope**

This service will include the preparation and sealing of reports including the National Bridge Inventory (NBI) data, the Element Level inspection data, and special structures (signs structures, light towers, signal mast arms, etc.).

**Qualifications**

The consultant must be staffed with a professional engineer licensed in Kansas and the consultant must be experienced in and qualified to perform NBI inspections. Qualification must also include successful completion of the FHWA-NHI-#130055 course (Safety Inspection of In-Service Bridges) for bridge inspection.

The personnel employed by the consultant shall have engineering training, experience, knowledge and expertise in the appropriate areas necessary to do the project in accordance with AASHTO, FHWA and other appropriate design policies, procedures, practices and standards. Personnel shall also be aware of KDOT policies, procedures and practices. This shall include a staff of licensed professional engineers and technicians. They must be able to seek/discover obstacles, problems and needs of the project and provide feasible concepts followed by practical, detailed solutions.

Bridge inspections in this category require that the consultant employ a professional engineer licensed in Kansas directly responsible for the project and one or more persons in the appropriate design areas with qualifications as described above.

## PROFESSIONAL-TECHNICAL SUPPORT SERVICES

## Bridge Evaluation Services

# 323 Underwater Bridge Inspection

**Scope**

This service will include preparation and sealing of reports including the National Bridge Inventory (NBI) data and the Element Level inspection data.

This service requires qualified commercial divers and engineers or technicians to evaluate conditions.

**Qualifications**

The consultant must be staffed with a professional engineer licensed in Kansas with experience in structure condition evaluation at the site.

Consultants must have qualification status in Category 322, Bridge Inspection, and in Category 325, Hydraulic and Hydrologic Studies, to be eligible for this category.

The consultant must have a professional engineer licensed in Kansas with experience in structurally complex structures, stream stability and scour at highway bridges, and complex drainage models where state-of-the-art software is used. This engineer must directly supervise and coordinate the work of subordinate engineers, hydrologists and certified technicians. Qualification includes successful completion of the FHWA-NHI-#130055 course (Safety Inspection of In-Service Bridges) two-week course.

Divers are qualified by certification as commercial divers, in accordance with ANSI//ACDE-01-1993, commercial diver training-minimum standard. Divers should be commercial divers only and not certified as recreational divers (SCUBA). Diving operations shall conform to the requirements of Subpart T, Commercial Operations, Occupational Safety and Health Administration Standards.

## PROFESSIONAL-TECHNICAL SUPPORT SERVICES

## Bridge Evaluation Services

# 324 Bridge Deck Evaluation

**Scope**

This service requires engineers and technicians to field evaluate, make recommendations, and prepare a summary report. The Bridge Deck Condition Report must contain a visual inspection summary and sketches of top and underside of the deck, a delamination map, a corrosion potentials contour map indicating areas of 0.35 volts or greater; chloride samples indicating concentration and percentage in excess of 0.0375 lb/ft3 at three levels, deck cores indicating quality of deck, and pachometer reading to access the top rebar clearance.

**Qualifications**

The consultant must be staffed with a professional engineer licensed in Kansas experienced in deck condition evaluation and capable of presenting recommendations in a sealed bridge Deck Condition Report and experienced in concrete evaluation and structure evaluation to perform field survey inspections.

The personnel employed by the consultant shall have engineering training, experience, knowledge and expertise in the appropriate areas necessary to do the project in accordance with AASHTO, FHWA, and other appropriate design policies, procedures, practices and standards. Personnel shall also be aware of KDOT policies, procedures and practices. This shall include a staff of licensed professional engineers and technicians. They must be able to seek/discover obstacles, problems, and needs of the project and provide feasible concepts followed by practical, detailed solutions.

Services in this category require that the consultant has a professional engineer licensed in Kansas directly responsible for the project and one or more persons in the appropriate design areas with qualifications as described above.

## PROFESSIONAL-TECHNICAL SUPPORT SERVICES

## Bridge Evaluation Services

# 325 Hydraulic and Hydrologic Studies

**Scope**

This service requires some knowledge beyond the usual Hydraulic Assessment Checklist required for projects. A Designer’s Report must be prepared and sealed.

**Qualifications**

The consultant must be staffed with a professional engineer licensed in Kansas with experience in stream stability and scour at highway bridges, and experienced with complex drainage models where state-of-the-art software is used. The consultant shall have authored at least three Designer’s Reports or Hydraulic Study Reports.

The consultant shall have experience with WSPRO, HEC-1, HEC-2, HEC-RAS, HEC-18, HEC-20 (and/or equivalents) and FEMA regulations and requirements.

The personnel employed by the consultant shall have engineering training, experience, knowledge and expertise in the appropriate areas necessary to do the project in accordance with AASHTO, FHWA and other appropriate design policies, procedures, practices and standards. Personnel shall also be aware of KDOT policies, procedures and practices. This shall include a staff of licensed professional engineers and technicians. They must be able to seek/discover obstacles, problems and needs of the project and provide feasible concepts followed by practical, detailed solutions.

Designs of this category require that the consultant has a professional engineer licensed in Kansas directly responsible for the project and one or more persons in the appropriate design areas with qualifications as described above.

## PROFESSIONAL-TECHNICAL SUPPORT SERVICES

## Specialty Services

# 331 Aerial Photogrammetry

**Scope**

This category is to provide services for Aerial Photogrammetry. Photogrammetric services shall be conducted under the direct supervision of a Certified Photogrammetrist. The consultant shall be equipped with an analytical/digital stereo plotter. All services shall be accomplished to meet the standards necessary for the specific project, with all services being accomplished to meet the National Mapping Accuracy Standards.

This service includes imaging, which covers aerial photography, photogrammetry and remote sensing.

**Qualifications**

The consultant must be staffed with a Certified Photogrammetrist and a land surveyor.

**Equipment**

Special equipment and operators are necessary for some of the tasks under this area. Assurance of the availability of this equipment and operators is required. Assurance of adequate staffing is also required.

## PROFESSIONAL-TECHNICAL SUPPORT SERVICES

## Specialty Services

# 332 Travel Studies

**Scope**

This service will provide for the collection, analysis and reporting of various types of data. The services may include performing origin-destination studies, travel pattern studies, demographic data collection and/or collecting mapping inventory data.

**Qualifications**

The consultant must be staffed with a PE or a AICP licensed in Kansas.

No specific educational requirements exist; however, desirable education of responsible party may include an engineer with transportation experience, planner, technical writer, survey designer, analyst and/or engineering technician.

**Equipment**

Special equipment and operators may be necessary for some tasks under this area. Assurance of the availability of this equipment and operators is required. Assurance of adequate staffing in general is also required.

## PROFESSIONAL-TECHNICAL SUPPORT SERVICES

## Specialty Services

# 333 Geotechnical Specialty Services

**Scope**

This service consists of conducting specialty surveys and services concerning geophysical or nondestructive testing and pavement condition inventory. The service requirements will include geophysical surveys (seismic, resistivity, sonic, magnetic), ground penetrating radar surveys, thermography surveys and automated pavement condition surveys and providing analysis and comprehensive report on results of surveys.

**Qualifications**

The consultant must be staffed with a professional engineer licensed in Kansas.

The responsible party for the service provided should have transportation experience and be an electrical, mechanical, or civil engineer; a geologist; or a geophysicist.

**Equipment**

Special equipment and operators are necessary for some tasks under this area. Assurance of the availability of this equipment and operators is required. Assurance of adequate staffing is required.

***You are required to submit a listing of equipment for qualification in the Geotechnical Specialty Services.***

## PROFESSIONAL-TECHNICAL SUPPORT SERVICES

## Specialty Services

# 334 Sub-Surface Utility Engineering

**Scope**

This service consists of conducting specialty surveys and location services concerning sub-surface utility engineering (SUE) investigations in highly congested urban utility areas using geophysical or nondestructive investigative methods. The service may require using several techniques to achieve the level of accuracy necessary for the plan and profile location of utilities or other underground features. Investigative survey techniques to locate subsurface utilities may include using soil vacuuming, probing, magnetic, electro-magnetic, radio, seismic, electro-resistivity, fiber optic video, ground penetrating radar surveys, thermography surveys, ordinary engineering surveying, and global positioning surveys and providing a comprehensive report and details on results of surveys.

**Qualifications**

The responsible party for the service provided should have transportation design experience, equipment and ability to perform FHWA level A investigations, and be a professional engineer licensed in Kansas.

**Equipment**

Special equipment, operators, and surveyors are necessary for some tasks under this area. Assurance of the availability of this equipment and operators is required. Assurance of adequate staffing is required.

***You are required to submit a listing of equipment for qualification in the Sub-Surface Utility Engineering category.***

## PROFESSIONAL-TECHNICAL SUPPORT SERVICES

## Specialty Services

### 335 Railroad Infrastructure Design

#### Scope

###### Projects include preparation of railroad design plans for structures, track and roadbeds alignments, industrial park spurs, public crossing facilities, and appurtenances.

#### Qualifications

The consultant must be staffed with a professional engineer registered in Kansas. The engineer must be knowledgeable of railroad operations, experienced with designing railroad track alignments, railroad structures and appropriate drainage criteria used by the railroad industry (i.e. open channel flow, hydraulic sizing of structures, scour analysis, etc.).

The personnel employed by the consultant shall have engineering training, experience, knowledge and expertise in the appropriate areas necessary to do the project in accordance with Federal Railroad Administration (FRA), AASHTO, FHWA and other appropriate design policies. Personnel shall also be aware of railroad industry policies, procedures and practices and be knowledgeable of American Railway Engineering and Maintenance of Way Association (AREMA) specifications. They must be able to seek/discover obstacles, problems, and needs of the project and provide feasible concepts to Class I and short-line railroads in Kansas, followed by practical and detailed solutions.

Designs of this category require that the consultant have a professional engineer licensed in Kansas directly responsible for the project and one or more persons in the appropriate design areas with qualifications as described above.

Designs in this category include horizontal and vertical geometrics for rail lines, railroad safety improvements, hydrology and hydraulics, traffic accommodation/construction sequencing, right of way issues, environmental documentation (usually limited to Environmental Assessments), Programmatic Section 4(f) Statement(s), occasional public informational meetings, etc., and the design of railroad structures.

## PROFESSIONAL-TECHNICAL SUPPORT SERVICES

**Specialty Services**

**336 Right of Way Services**

**Scope**

Development of the Existing Highway Right of Way Features and Preparation the Propose Highway Right of Way. The Bureau of Right of Way will assist in the activities between the Consultant and the Bureau of Design to expedite the Consultant’s development of the existing highway right features and preparation of the legal description for the proposed highway right of way. The Consultant shall use the electronic data processing techniques in design and plan preparation, and said data files shall be organized as described in KDOT’s “Graphic Standards Manuals”; delivered Intergraph’s CADD files in the most current version of Microstation; and conform with the standard practices as described in the “Bureau of Right of Way – Engineering Section Manual”.

The Bureau of Right of Way will provide the Consultant (if not turnkey) with the following items as they become available in the course of the project development: Field Survey notes; project plans; strip map with tracts enumerated; certificates of title; available graphic files in the form of an Intergraph CADD design file in the current version of Microstation; and at the proper time, coordination with the Bureau of Design for establishing final right of way.

**Qualifications**

The consultant must be staffed with a licensed land surveyor from the State of Kansas who is directly responsible for the services.

## ARCHITECTURAL AND OTHER PROFESSIONAL SERVICES

# 401 Landscape, Seeding and Erosion Control

**Scope**

This service will include a variety of landscape architectural, horticultural and agronomic functions associated with the design of highway roadsides, rest areas and overlooks. The design shall result in a complete and accurate set(s) of plans and specifications to construct a project which fulfills the agency’s intended purpose, safely and efficiently serves the public, and meets current best practices and prevailing criteria and standards.

Projects of this category will normally involve one or more features and may be either rural or urban in nature.

**Qualifications**

The consultant must be staffed with a professional engineer or a landscape architect, registered in Kansas,

The consultant personnel shall have training, experience, knowledge and expertise in the appropriate areas necessary to do the project in accordance with AASHTO, FHWA and other appropriate design policies, procedures, practices and standards. Personnel shall also be aware of KDOT policies, procedures and practices. They must be able to anticipate/discover obstacles, problems and needs of the project and provide innovative concepts followed by practical, detailed solutions.

Consultant personnel shall have demonstrated experience, knowledge and expertise of plant materials, planting design, horticulture and agronomy, with a familiarity of requirements necessary to address conditions in the highway environment related to erosion control, revegetation of disturbed areas, safety and maintenance.

Areas of service in this category are roadside safety and landscape development.

Equipment, office facilities and other resources shall be adequate to support the project.

## ARCHITECTURAL AND OTHER PROFESSIONAL SERVICES

# 402 Landscape Architectural Design

**Scope**

This service will include a variety of landscape architectural functions associated with the design of safety rest areas, overlooks, and urban pedestrian and parking areas. The design shall result in a complete and accurate set(s) of plans to construct a project which fulfills the agency’s intended purpose, safely and efficiently serves the public, and meets current best practices and prevailing criteria and standards.

Projects of this category will normally involve one or more features and may be either rural or urban in nature.

**Qualifications**

The consultant must be staffed with a landscape architect, registered in Kansas, one of which shall be directly responsible for the project.

Consultant personnel shall have training, experience, knowledge and expertise in the appropriate areas necessary to do the project in accordance with AASHTO, FHWA and other appropriate design policies, procedures, practices and standards. Personnel shall also be aware of KDOT policies, procedures and practices. They must be able to anticipate/discover obstacles, problems and needs of the project and provide innovative concepts followed by practical, detailed solutions.

Areas of design in this category include horizontal and vertical geometrics for rest area ramps, roadways and parking areas, roadside safety, small structures (see Category 421, Architectural Design), pedestrian/bike paths, pedestrian bridges (see Category 222, Standard Span Bridge Design), park amenities, water supply and sanitary systems (see Category 431, Water and Wastewater Engineering), irrigation, electrical service, lighting, landscape development (see Category 401, Landscape Seeding and Erosion Control), right-of-way issues, environmental documentation, and occasional public informational meetings, etc. Equipment, office facilities and other resources shall be adequate to support the services.

## ARCHITECTURAL AND OTHER PROFESSIONAL SERVICES

# 411 Pedestrian and Bicycle Facility Design

**Scope**

This service will include a variety of engineering functions associated with the design of linear pedestrian and bicycle trails/paths and on-street bicycle lanes. The design shall result in a complete and accurate set(s) of plans and specifications to construct a project which fulfills the agency’s intended purpose, safely and efficiently serves the public, and meets current best practices and prevailing criteria and standards. Projects of this category will normally involve one or more features, may be either rural or urban in nature, and are usually two-directional facilities, which may or may not interface with roadways and bridge structures.

**Qualifications**

The consultant must be staffed with a professional engineer or a landscape architect, licensed in Kansas.

Consultant personnel shall have training, experience, knowledge and expertise in the appropriate areas necessary to do the project in accordance with AASHTO, FHWA and other appropriate design policies, procedures, practices and standards. Personnel shall also be aware of KDOT policies, procedures and practices. They must be able to anticipate/discover obstacles, problems and needs of the project and provide innovative concepts followed by practical, detailed solutions.

Areas of design in this category include horizontal and vertical geometrics for trails/paths, intersections and parking areas, grading, roadside safety, small structures (see Category 421, Architectural Design), pedestrian and bikeway bridges (see Category 222, Standard Span Bridge Design), hydrology and hydraulics, basic traffic engineering, park amenities, electrical service, lighting, landscape development (see Category 401, Landscape Seeding and Erosion Control, and Category 402, Landscape Architectural Design), right-of-way issues, environmental documentation, occasional public informational meetings, etc.

Equipment, office facilities and other resources shall be adequate to support the services.

## ARCHITECTURAL AND OTHER PROFESSIONAL SERVICES

# 412 Parks and Recreational Design

**Scope**

This service will include a variety of landscape architectural functions associated with the design of highway safety rest areas, overlooks, urban parks and recreation areas. The design shall result in a complete and accurate set(s) of plans to construct a project which fulfills the agency’s intended purpose, safely and efficiently serves the public, and meets current best practices and prevailing criteria and standards.

Projects of this category will normally involve one or more features and may be either rural or urban in nature.

**Qualifications**

The consultant must be staffed with a professional engineer or a landscape architect, registered in Kansas, one of which shall be directly responsible for the project.

Consultant personnel shall have training, experience, knowledge and expertise in the appropriate areas necessary to do the project in accordance with AASHTO, FHWA and other appropriate design policies, procedures, practices and standards. Personnel shall also be aware of KDOT policies, procedures and practices. They must be able to anticipate/discover obstacles, problems and needs of the project and provide innovative concepts followed by practical, detailed solutions.

Areas of design in this category include horizontal and vertical geometrics for roadways and parking areas, roadside safety, small structures (see Category 421, Architectural Design), pedestrian/bike paths, pedestrian bridges (see Category 222, Standard Span Bridge Design), park amenities, water supply and sanitary systems (see Category 431, Water and Wastewater Engineering), irrigation, electrical service, lighting, landscape development (see Category 412, Parks and Recreational Design), right-of-way issues, environmental documentation, and public involvement, etc.

Equipment, office facilities and other resources shall be adequate to support the services.

## ARCHITECTURAL AND OTHER PROFESSIONAL SERVICES

# 421 Architectural Design

**Scope**

This service will include a variety of architectural functions associated with small public-use and agency office facilities. A small project is defined as one for which the total estimated design fee is less than $50,000. The design shall result in a complete and accurate set(s) of plans and specifications to construct a project which fulfills the agency’s intended purpose, safely and efficiently serves the public, and meets current best practices and prevailing criteria and standards.

Projects of this category will normally involve one or more features, may be either rural or urban in nature.

**Qualifications**

The consultant must be staffed with an architect registered in Kansas, who shall be directly responsible for the project.

Consultant personnel shall have training, experience, knowledge and expertise in the appropriate areas necessary to do the project in accordance with AASHTO, FHWA, Unified Building Code (UBC) and other appropriate design policies, procedures, practices and standards. Personnel shall also be aware of KDOT policies, procedures and practices. They must be able to anticipate/discover obstacles, problems and needs of the project and provide innovative concepts followed by practical, detailed solutions.

Consultant personnel shall have architectural, structural, mechanical and electrical expertise for State buildings through previous experience, specialized training, education or a combination thereof.

Areas of design in this category include public buildings, alterations or additions thereto, water supply and sanitary systems (see Category 431, Water and Wastewater Engineering), irrigation, electrical service, lighting, occasional public informational meetings, etc.

Equipment, office facilities and other resources shall be adequate to support the assignment.

## ARCHITECTURAL AND OTHER PROFESSIONAL SERVICES

# 431 Water and Wastewater Engineering

**Scope**

This service will include a variety of architectural functions associated with the design of potable water systems and sanitary systems in support of rest area comfort stations and small agency office facilities. The design shall result in a complete set(s) of plans to construct a project which fulfills the agency’s intended purpose, safely and efficiently serves the public, and meets current best practices and prevailing criteria and standards.

**Qualifications**

The consultant must be staffed with a professional engineer licensed in Kansas.

Consultant personnel shall have training, experience, knowledge and expertise in the appropriate areas necessary to do the project in accordance with current state and federal health and environmental regulations, AASHTO, FHWA and other appropriate design policies, procedures, practices and standards. Personnel shall also be aware of KDOT policies, procedures and practices. They must be able to anticipate/discover obstacles, problems and needs of the project and provide innovative concepts followed by practical, detailed solutions.

Areas of design in this category include water wells, pressure treatment water systems, waste stabilization ponds, evapo-transpiration, septic or other waste systems, pipelines, manholes, lift stations and pumps.

Equipment, office facilities and other resources shall be adequate to support the assignment.

## ARCHITECTURAL AND OTHER PROFESSIONAL SERVICES

# 441 Maintenance Equipment, Materials and Methods

**Scope**

This service will include a variety of architectural functions associated with the Maintenance Equipment, Materials, and Methods projects. Functions include, but are not limited to: systems analysis and design, mechanical and/or electrical engineering, data gathering, material and equipment testing, etc. The project shall result in the necessary completion of services as outlined in the contract.

**Qualifications**

The consultant must be staffed with a professional engineer licensed in Kansas.

An adequate level of staff shall be provided to perform necessary duties. The staff shall have the minimum qualifications as stated below:

PROJECT ENGINEER

1. Kansas Licensed Professional Engineer
2. Bachelor of Science in a supporting field
3. Applicable experience demonstrated

TECHNICIAN(S)

1. Applicable testing and/or research experience
2. Five years experience

EQUIPMENT TESTING LABORATORY

1. Certified Laboratory
2. Applicable testing and/or research experience