

2011-2012 DISCIPLINE DESCRIPTION LIST

ARCHITECTURE:

Building Architecture:

Design and construction administration of new buildings, renovations of existing buildings and facilities. The discipline also includes feasibility studies, historic renovation, interior design, landscape and asbestos abatement.

Civil Engineering (Building Site):

Design and construction engineering involving site planning, drainage, geotechnical and landscaping of NDOT facilities; material and construction processes testing of building construction/renovation projects include concrete testing, soil compaction testing, building material testing, water testing, asbestos and lead paint testing. civil design work, project and or building inspection and materials and testing work.

Mechanical Engineering:

Design and construction administration for NDOT new and renovation projects and investigates and produces reports on mechanical systems.

Structural Engineering (Building):

Design and construction administration of NDOT facilities, surveys and investigates structural issues and produces reports/recommendations on NDOT facilities.

BRIDGE:

Bridge Inventory and Special Access Inspection:

Inventory and inspection of existing bridge in accordance with National Bridge Inspection Standards (NBIS). May include inspection of bridges over closed channels thus constituting inspections within confined spaces.

Structural Design (Bridge):

Structural analysis and design of highway related structures including: New or replacement interchange or grade separation structures; Rehabilitation, widening and seismic retrofit of existing structures; Special signal, lighting and hydraulic structures; Earth retaining structures and sound walls.

Structural Steel Fabrication Inspection*:

Shop and field inspection and Non-Destructive Testing of structural steel members, including welding, bolting and painting operations; preparation of inspection/test reports, as applicable.

Underwater Bridge Inspection:

Services may include, but are not limited to: underwater routine NBI and Element Level inspections of selected bridges located throughout Nevada, including diving inspection and engineering report preparation; in-depth, special and/or emergency underwater bridge inspections throughout Nevada which may arise during the performance period, including both diving inspection and engineering report preparation. All diving work is to be conducted in compliance with OSHA 29 CFR 1910 Subpart "T"-Commercial Diving Operations and Association of Diving Contractors International (ADCI) "CONSENSUS STANDARDS for Commercial Diving Operations".

CONSTRUCTION:

Constructability Evaluation:

Optimum use of construction knowledge and experience in the planning, design, procurement and field operations to evaluate both bid ability and build ability of NDOT construction contracts.

Construction Claims Support:

Claims evaluation, analysis, identification of potential claim issues, research, evaluation of fault and providing recommendations; evaluation and enhancements of existing NDOT claims procedures and processes; claims mitigation techniques and training.

Construction Engineering Services (Augmentation of NDOT Crews):

Construction inspection, field testing construction surveying, field office staffing and project documentation of work necessary to ensure NDOT contracts are constructed in conformance with the plans, specifications, special provisions and the NDOT policies and procedures for contracts administered by NDOT Resident Engineers. **(Solicited for 2009-2010 – DO NOT SUBMIT AT THIS TIME)**

Construction Engineering Services (Full Administration):

Full field administration and contract field management, including a Resident Engineer, construction surveying, field office staffing, project documentation, inspection and testing of work necessary to ensure NDOT contracts are constructed in conformance with the plans, specifications, special provisions and the NDOT policies and procedures. **(Solicited for 2009-2010 – DO NOT SUBMIT AT THIS TIME)**

Construction Scheduling:

Services may include, but are not limited to: (1) Perform the following evaluations on Contractor Critical Path Method (CPM) Schedules utilizing appropriate Primavera Scheduling Software: Formal review of baseline construction schedule to assure proper planning for project; Formal review of monthly schedule updates to measure progress and identify problem areas; Formal review of weekly schedules to monitor ongoing critical path to assist management team in monitoring review of submittals and contractor requests for information; Recording and documenting schedule notes including progress and delays; Maintenance of accurate as-built schedule to facilitate expeditious resolution of contract issues and (2) Develop conceptual CPM schedules for projects in development to assist the NDOT in construction scheduling and projections and (3) Project Scheduling Training: Education and training of client employees in the proper use of Primavera Scheduling Software (P3, Suretrack) for the development and review of construction CPM schedules.

DESIGN:

Landscape Architecture (Highway):

Perform design services to address landscape and aesthetic requirements on Nevada's highways.

Roadway Design (Freeway):

Perform design services for resurfacing, rehabilitation and restoration (3R) projects, reconstruction (4R) projects, capacity improvements or new construction projects on freeway facilities.

Roadway Design (Non-Freeway):

Perform design services for resurfacing, rehabilitation and restoration (3R) projects, reconstruction (4R) projects, capacity improvements or new construction projects on non-freeway facilities.

ENVIRONMENTAL:

Air Quality Studies:

Air Quality studies, analysis and reports to include in the NEPA process. Includes coordination and development of Regulatory approval and mitigation measures as warranted.

Architectural History:

Architectural History studies, analysis and reports to include in the NEPA process. Includes coordination and development of Regulatory approval and mitigation measures as warranted.

Asbestos Study:

Asbestos studies, analysis and reports to include in the NEPA process. Includes coordination and development of Regulatory approval and mitigation measures as warranted.

Hazardous Materials/Wastes:

Studies, analysis and reports to include in the NEPA process. Includes coordination and development of Regulatory approval and mitigation measures as warranted.

National Environmental Policy Act (NEPA) Processing:

Includes coordination and development of NEPA document from initial Scoping through Regulatory approval to receipt of an action document (ROD or FONSI) from the Federal Highway Administration (FHWA).

Noise Studies:

Analysis and reports to include in the NEPA process. Includes coordination and development of Regulatory approval and mitigation measures as warranted. Studies, analysis and reports to include in the NEPA process. Includes coordination and development of Regulatory approval and mitigation measures as warranted.

Prehistoric/Historic Archeology:

Studies, analysis and reports to include in the NEPA process. Includes coordination and development of Regulatory approval and mitigation measures as warranted.

Social/Economic Studies:

Studies, analysis and reports to include in the NEPA process. Includes coordination and development of Regulatory approval and mitigation measures as warranted. Studies, analysis and reports to include in the NEPA process. Includes coordination and development of Regulatory approval and mitigation measures as warranted.

Threatened and Endangered Species:

Studies, analysis and reports to include the NEPA process. Includes coordination and development of Regulatory approval and mitigation measures as warranted.

Water Quality Studies:

Studies, analysis and reports to include in the NEPA process. Includes coordination and development of Regulatory approval and mitigation measures as warranted. and monitoring studies.

Wetland Studies:

Studies, analysis and reports to include in the NEPA process. Includes coordination and development of Regulatory approval and mitigation measures as warranted.

HUMAN RESOURCES:

Safety and Loss Control*:

Conduct inspections or field surveys and/or research and develop policies, procedures or reports necessary to support NDOT's safety program pursuant to applicable State and federal safety regulations and requirements. Develop comprehensive, technically accurate and professionally written documents that are logical in their presentation and easily understood by persons not associated with the particular functional area addressed. Develop and/or present various safety training and educational programs to NDOT and contractor staff in conformance with NDOT policy and State and federal regulations and requirements.

HYDRAULICS:

Bridge Hydraulics and River Mechanics:

Perform geomorphic studies, sediment transport studies, one or two dimensional analysis of bridge openings, bridge scour analysis, design of scour countermeasures, design of river training systems and design of temporary and permanent erosion control/water quality facilities.

Erosion Control/Water Quality:

Perform design services for roadway drainage facilities and temporary/permanent erosion control/water quality facilities.

Roadway Drainage Facilities:

Perform design services for roadway drainage facilities including but not limited to culverts, storm drains, bridges, detention ponds, regional flood control facilities, and temporary and permanent erosion control/water quality facilities.

MAINTENANCE and OPERATIONS:

Emergency Management*:

Develop and Maintain the Department's Emergency Operations Plans, Evacuation Plans, and Continuity of Operations Plans. Update and maintain Emergency Contact Lists. Design and conduct Emergency Exercises to test the effectiveness of the plans. Design and conduct training in State Emergency Operations Center functions, NDOT Emergency Operations Center functions, and the Incident Command System. Ensure all plans, exercises, training, and NDOT as a whole is in compliance with the Department of Homeland Security's National Incident Management System (NIMS).

Homeland Security*:

Develop and Maintain the Department's Infrastructure and Mobile Fleet Security Plans and Access Management Plans. Ensure the plans are in compliance with the Department of Homeland Security's National Incident Management System (NIMS). Design and conduct Security Exercises to test the effectiveness of the plans. Perform physical security inspections for NDOT facilities. Provide evaluations of current physical security effectiveness, and make recommendations for improvements based on up-to-date security systems, methods and technologies. Install and test physical security systems when necessary. Provide training to NDOT employees statewide regarding infrastructure security, what signs to look for to recognize terrorist and terrorist activities, and how to properly secure NDOT facilities and equipment. Design, install and maintain NDOT's C-Cure© system (cardlock access) at NDOT facilities statewide following NDOT's Access Management Plan.

ITS Design and Planning*:

ITS Design will consist of, but not be limited to, use of transportation engineering, electronics engineering and computer science to analyze, design and implement transportation control systems. Associated activities include system performance and cost analysis, system hardware design, communication system design, development of management plans, supervisor of system installation and operation, system testing and debugging, preparation of system documentation and the training of operations personnel; ITS Planning will consist of, but not be limited to, the study of transportation systems, identification of ITS applications to mitigate transportation problems, development of short and long term ITS implementation plans and assessment of the impact of ITS projects on the transportation system.

Intelligent Transportation Systems (ITS) – Installation, Maintenance and Repair*:

Consultants must be able to demonstrate competency in installation, maintenance and repair for at least one of the following ITS-related disciplines (predominantly used products are shown in parenthesis, other products may currently be used or added in the future): Digital Message Signs (DMS) - (Datronics, Skyline, Dambach), Highway Advisory Radio (HAR) - (Vaisala – formerly Quixote Highway Information Systems), Road Weather Information Systems (RWIS) - (Vaisala), Closed Circuit Television (CCTV) - (Cohu), Flow Detectors - (Wavetronics, EIS), Fiber Optic Cable Systems - (Various single mode cable, network electronics and structures), Flashing Beacons - (Various), Solar Power Systems - (Various), Ramp Metering - (Various), Controllers – Type 170E, Support Structures. All work is to be completed consistent with industry

standards and NDOT's Standard Specification for Road and Bridge Construction (<http://www.nevadadot.com/business/contractor/Standards/>). Specific industry standards will be included with each request for proposal.

Intelligent Transportation System (ITS) – Quality Control*:

Consultants must be able to demonstrate competency in inspection of installation, maintenance and repair work completed by others. Knowledge of industry standards and practices for at least one of the following ITS-related disciplines is required: Digital Message Signs (DMS), Highway Advisory Radio (HAR), Road Weather Information Systems (RWIS), Closed Circuit Television (CCTV), Fiber Optic Cable Systems, Flashing Beacons, Solar Power Systems, Ramp Metering, Controllers, Support Structures. All work is to be completed consistent with industry standards and NDOT's Standard Specification for Road and Bridge Construction (<http://www.nevadadot.com/business/contractor/Standards/>). Specific industry standards will be included with each request for proposal.

Traffic Operational Analysis Investigation and Studies:

Work consists of providing professional services utilizing traffic techniques in accordance with the standards set forth by the Federal Highway Administration in the Manual on Uniform Traffic Control Devices (MUTCD 2003 or current edition) and the Nevada Department of Transportation's Access Management System and Standards (July 1999 or current edition). Traffic Engineering Studies may include but are not limited to, traffic impact studies, signal warrant analysis; operational analysis using approved micro simulation software and techniques for evaluating sight distance, speed zoning and traffic calming. All work has to be approved by a Nevada Professional Engineer (PE).

MATERIALS:

Geotechnical Engineering:

Services may include, but are not limited to conducting geotechnical explorations, laboratory tests, analysis and design; analysis and design may include topics such as slope stability, deep and shallow foundations, cantilever walls, soil nail walls, tie back walls and MSE walls; providing geotechnical reports; providing notes and drawing details to be incorporated in the contract documents and reviewing contract documents.

Material Sampling and Testing:

Services may include, but are not limited to performing bituminous mixture designs; testing bituminous mixtures; testing asphalt binders; sampling and testing concrete aggregates; testing concrete cylinders; chemical analysis and strength testing of cement samples; chemical analysis of flyash, lime and other construction materials; testing reinforcing bars; conduct ASR testing of concrete aggregate samples; and testing material site aggregates.

PERFORMANCE ANALYSIS:

Value Analysis:

Value Analysis is defined as the systematic application of recognized techniques by multi-disciplined team(s) to identify the function of a product or service; establish a worth for that function; generate alternatives through the use of creative thinking; and provide the needed functions, reliably, at the lowest overall cost. Value Analysis may be defined in other ways, as long as the definition contains the following three (3) basic precepts: (1) An organized review to improve value by using multi-disciplined teams of specialists knowing various aspects of the problem being studied; (2) A function oriented approach to identify the essential functions of the system, product, or service being studied and the costs associated with those functions and (3) Creative thinking which uses recognized techniques to explore alternate ways of performing the functions at a lower cost or to otherwise improve the design, service, or product. All consultants conducting

Value Analysis Studies for the NDOT must have on staff a Nevada Registered P.E. and a Certified Value Specialist, as defined by SAVE International. The Certified Value Specialist must lead the Value Analysis Study.

PROJECT MANAGEMENT:

Program and Project Management Support*:

Assist with program/project management duties including: Portfolio Management; Project integration, scope, time, cost, quality, human resource, communications, risk and procurement management; Assist with development of project management plan & project finance plans; Provide technical support in change management, process improvement, team building, partnering, facilitation, conflict resolution, and public outreach; Provide technical support in innovative contracting, value analysis, project delivery methods (design-bid-build, design-bid, public-private-partnerships) and cost estimate validation process; and other duties in support of program/project management activities.

PUBLIC INFORMATION:

Public Outreach/Public Participation Assistance:

NDOT is soliciting qualified proposers to assist the Department in promoting public outreach and public participation to improve communication and customer satisfaction. This can include assistance to promote public outreach through all communication outlets and avenues for projects, planning activities, transportation safety, or any other activity determined by the Department. Generally, assistance will promote the vision, mission, and goals of NDOT to be the nation's leader in delivering transportation solutions and improving Nevada's quality of life.

RIGHT-OF-WAY:

Subsurface Utility Engineering (SUE) Services:

Consultant to perform complete designating and locating of all subsurface utilities, which are located within the project limits. The SUE Consultant shall provide all equipment, personnel and supplies need to perform the before mentioned service in 2 phases. The first phase or Designation Phase will consist of identifying and surveying the exact horizontal location of all surface and subsurface utilities within the project limits. The second phase or Locating Phase will consist of obtaining precise horizontal and vertical location of all subsurface utilities by excavating a test hole using vacuum extraction or comparable nondestructive equipment so as to cause no damage to the utility facility.

TRAFFIC and SAFETY:

Safety Studies/Road Safety Audits:

Will consist of providing professional services in conducting Road Safety Audits (RSA). The road safety Audit is a formal safety evaluation of planned or existing roadways by an independent, multidisciplinary audit team. The team looks for potential safety hazards that may affect any type of road user and suggests measures to mitigate those safety issues. The audit team is composed of transportation professionals and individuals with special safety skills from federal, state and local transportation personnel. Associated activities include selecting the RSA team leader and team members, conducting field reviews (both day and night) and preparing the audit report with cost estimate and cost effectiveness analysis.

Signal and Lighting Design/Signal, Striping and Traffic Control Design:

Providing professional services for both traffic signal and roadway lighting design. Work related to traffic signals will consist of, but not be limited to, traffic signal systems analysis, traffic signal systems design and implementation/Work consists of providing professional services utilizing traffic techniques in accordance with the standards set forth by the Federal Highway Administration in the Manual on Uniform Traffic Control Devices (MUTCD) (2003 or current edition), Standard Highway Signs (2002 or current edition), the Nevada Department of Transportation's Standard Plans for Road and Bridge Construction (2003 or current edition) and Nevada Supplement to the Standard Highway Signs (1997 or current edition). Signing may include, but is not limited to, temporary signs, permanent signs, sign structures and post selection and bracing. Striping may include, but is not limited to, temporary striping, permanent striping, pavement marking symbols, traffic delineators and crosswalks. Traffic Control Design shall address all traffic control during construction of the project including, but not limited to, work zone traffic control, temporary detours, temporary signing, temporary pavement markings, public awareness and coordination with local agencies. All work has to be approved by a Nevada Professional Engineer (PE) except Traffic Control plans, which have to be approved by a certified Professional Traffic Operations Engineer (PTOE) or have certification as Traffic Control Supervisor by the American Traffic Safety Services Association (ATSSA).

TRANSPORTATION/MULTIMODAL PLANNING:

Statewide Multimodal Planning*:

The planning division is responsible for the development of the federally required long-range 20 year transportation plan in accordance with Title 23 Highways Code of Federal Regulations (CFR) 450.100 through 450.214- inclusive, and, Title 23 Highways United States Code (USC) section 135. Public involvement and outreach is a requirement in this process as defined in the referenced CFR and USC. Other responsibilities include multimodal regional planning, small urban planning and assisting communities with master plan development.

* Denotes a Non-Engineering Discipline and requires a Statement of Qualifications.
Engineering Discipline requires a Standard Form 330