

# **CDOT STATEWIDE NON-PROJECT SPECIFIC ENVIRONMENTAL & TRAFFIC MODELING ENGINEERING SERVICES – FY 2019 – FY 2021 SCOPE OF WORK**

## **Overview, Purpose and Need for Contract**

The Colorado Department of Transportation (CDOT) has developed the following Statewide Scope of Work to obtain proposals from qualified consultants able to provide engineering, environmental and planning support services on an as-needed basis to meet a wide range of engineering, technical and planning needs. It is expected that the consultant provide a project team that can address all the specialty areas as noted in the RFP. It is anticipated that the consultant may be part of a blended team responsible for developing an overall project perspective and strategy. This team may consist of CDOT staff, local agencies, contractors and project stakeholders and will occur at CDOT's discretion.

The consultant should provide a project team consisting of, but not limited to: Professional Licensed Engineers, Landscape Architects, and Environmental professionals with a demonstrated ability to review, prepare and develop engineering plans, National Environmental Policy Act (NEPA) documents, and transportation planning studies. Provide field support for studies, construction compliance monitoring, and inspections. Team should provide a contract manager with demonstrated contract management experience that includes the coordination of sub consultants/vendors, knowledge of CDOT procedures for processing task orders, work hour estimation, and experience with Professional Service contracts. Services will be directly related to the development, design or environmental clearance of a specific engineering project.

The selected team shall demonstrate experience and abilities in the preparation of clearly written and well organized documents and reports, preparation of successful grant applications, conducting environmental field surveys, preparing environmental permit applications, public involvement experience, design plan development and other related products that meet CDOT and FHWA standards, policies and guidelines. The services will include, but are not limited to, the following specialty areas:

## **SECTION ONE - GENERAL ADMINISTRATIVE REQUIREMENTS**

### **A. General Administrative Requirements:**

- 1) Attend and provide assistance at meetings both public and internal
- 2) Prepare materials including spreadsheets, design drawings and graphics, PowerPoint presentations, booklets, annual reports, meeting minutes
- 3) Interpret and discuss detailed engineering plans to a wide range of audiences
- 4) Provide public involvement, media relations, and coordination assistance

## **SECTION TWO - NECESSARY EXPERTISE AND REQUIREMENTS**

### **A. Project Management Expertise:**

- 1) Experience performing work hour estimation for technical efforts
- 2) Project scope of work development
- 3) Task order management
- 4) Schedule management as it relates to interfacing with engineering projects
- 5) Management strategy for large, cross-disciplinary team and sub consultants

### **B. Engineering/Hydraulics/Landscape Architect Expertise:**

- 1) Professional engineer with design expertise for preparation, evaluation and analysis of design alternatives
- 2) Professional engineer with expertise in preparing environmental documents
- 3) Professional hydraulic engineer with CDOT experience
- 4) Professional landscape architect with CDOT experience

## **SECTION THREE – “AS NEEDED” SERVICES**

### **A. Engineering/Hydraulics/Landscape Architect Services:**

- 1) Prepare engineering design drawings to analyze design alternatives
- 2) Prepare conceptual level engineering design drawings for public review
- 3) Prepare pre-bid level engineering design drawings
- 4) Provide technical expertise for feasibility studies, engineering analysis, 1601 studies and other engineering level studies and reports
- 5) Technical expertise necessary to evaluate and/or prepare Stormwater Management Plans (SWMPs) for CDOT projects
- 6) Technical expertise necessary to prepare and/or evaluate bid-ready design plans for landscaping and aesthetics, including urban, suburban and habitat restoration plans
- 7) Working knowledge of transportation-related standards regarding landscaping and aesthetics

- 8) Demonstrate knowledge of sediment and erosion control methods related to various soil conditions in Colorado
- 9) Ability to conduct weed control in wetlands and other sensitive areas
- 10) Provide engineering level design for hydraulic and floodplain analysis, including post fire and post flooding mitigation.
- 11) Provide technical expertise on hydrology and hydraulic design for the preparation of environmental documents, reports, design plans and studies
- 12) Provide technical expertise in stream restoration principles and practices
- 13) Expertise with various technical models related to stream assessment and other water quality software programs
- 14) Experience in developing, evaluating and implementing sustainability policies

**B. Transportation Planning Services:**

- 1) Familiarity with the requirements of the state Transportation Planning Regions (TPRs), MPO's and other external planning organizations
- 2) Familiarity with the requirements and implementation of the TIP, STIP and the Long-Range Planning process
- 3) Familiarity with CDOT and FHWA funding mechanisms for transportation projects
- 4) Development of population, employment and/or travel demand projections for transportation planning purposes
- 5) Knowledge of socio-economics and ability to prepare cost-benefit analysis
- 6) Provide technical expertise on a wide-range of transportation planning related concepts and practices and alternative modes of transportation (HOV, HOT, ITS, Rail, TDM, TSM, etc.)
- 7) Familiarity with 1601 and Interstate Access Request Studies
- 8) Ability to prepare grant applications and earmark application processes including but not limited to writing, review, editing, graphic production, and printing
- 9) Resiliency: Ability to conduct transportation project, corridor and system risk assessments and to perform benefit /cost analysis of alternative risk mitigation measures

**C. Environmental Services:**

Proposed team must show experience identifying avoidance, impacts, and mitigation measures for all of the resources listed below. Proposed team must show technical excellence and competency preparing

technical reports and evaluations for all of the resources listed below and be familiar with all regulations, and policies (CDOT, FHWA etc.) pertaining to each particular resource.

1) History/Section 106 Evaluation

- Ability to perform on-site field surveys to identify and evaluate the significance of resources that have historical or architectural importance
- Experience determining the applicability of the 2014 Section 106 Programmatic Agreement with ACHP, FHWA, SHPO, and CDOT and determination of appropriate Area of Potential Effect (APE), identification of historic resources within the APE, and evaluation of Section 106 effects
- Working knowledge of Section 106 of National Historic Preservation Act (NHPA) and the State Historic Places Act
- Demonstrated experience with available Programmatic Agreements
- Demonstrated experience working with the Colorado State Historic Preservation office (SHPO) on transportation projects
- Familiarity with the Secretary of Interior's Standards and Guidelines for Archaeology and Historic Preservation (48 CFR 44739)

2) NEPA & PEL Expertise:

- Familiarity with NEPA regulations including FAST Act (or most current legislation) and CDOT specific NEPA (CDOT NEPA Manual) tools and guidance
- Experience with NEPA Document preparation (i.e., Categorical Exclusions, Environmental Assessment (EA), Environmental Impact Statement (EIS) and Re- evaluations.
- PEL Document Preparation and transitioning of PEL into NEPA
- Experience with Public Involvement and techniques for building and gaining consensus on transportation projects
- Familiarity with incorporating Context Sensitive Solutions (CSS) into transportation planning and project development for decision-making purposes
- Provide Environmental document review
- Experience with preparation of defensible administrative records
- Mitigation tracking expertise from NEPA into plans and design documents

3) Wetland and Section 404 Permitting Services:

- Demonstrate expertise with conducting wetland delineations, FACWET analysis, preparing wetland findings, and designing/implementing wetland mitigation plans in accordance with CDOT, FHWA and U.S. Army Corps of Engineer (USACE) practices and policies
- Familiarity with current practices and methodologies concerning the development of wetland banking
- Demonstrate ability to prepare USACE Nationwide and Individual Section 404 Permits for highway projects
- Coordinate wetland and Section 404 issues throughout design and construction

- Develop and review annual monitoring reports for Section 404 permits and make recommendations for remediation and/or implementation requirements, if needed
- Evaluate projects for consistency with Section 404(b) (1) Guidelines with regard to alternative selection
- Understanding of FHWA/CDOT/USACE Section 404 merger agreement

#### 4) Wildlife and Threatened and Endangered Species (TES) Services:

- Knowledge of wildlife biology and applicable federal and state regulations (e.g. Migratory Bird Treaty Act)
- Knowledge of the Endangered Species Act (ESA) and State of Colorado Sensitive Species
- Experience with conducting wildlife field surveys and preparing of Section 7 Evaluations for submittal to the U.S. Fish and Wildlife Service (USFWS)
- Expertise with preparing technically sound Biological Assessments and Biological Opinions
- Provide prairie dog management services in accordance with most recent *CDOT's Impacted Black-Tailed Prairie Dog Policy* guidelines for extermination and relocation
- Familiarity with the specific requirements and policies of the federal land management agencies concerning TES and Sensitive Species
- Familiarity implementing Senate Bill 40 (SB 40) requirements
- Experience and familiarity with current practices and methodologies for development of conservation banks
- Knowledge with wildlife crossing structures for roads

#### 5) Traffic Noise Analysis and Modeling

- Familiarity with FHWA noise regulations contained in 23 CFR 772
- Familiarity with traffic Noise Abatement Criteria (NAC)
- Demonstrated familiarity with CDOT and FHWA noise program
- Expertise with noise modeling techniques and methodologies used in the State of Colorado (TNM 2.5/3.0 versions) and completion of Noise Analysis Training.
- Expertise with conducting noise studies and analyses for highway projects following CDOT Noise Analysis and Abatement Guidelines
- Expertise with gathering, evaluating and assessing highway traffic data for noise analysis
- Knowledge of AutoCAD/Microstation/GIS for engineering level design and for planning purposes, design of noise mitigation and alternative analysis
- Expertise with noise model mitigation analysis to optimize cost and benefit with impacts

#### 6) Air Quality and Conformity Evaluations

- Experience with modeling, documentation, and technical report preparation

- Experience with conducting Carbon Monoxide & Particulate Matter, hot spot analysis and modeling for transportation projects (using CAL3QHC, Move5 or later model); in accordance with EPA guidance
- Familiarity with the federal Transportation Conformity Regulations,
- Ability to qualitatively assess air quality impacts for transportation related studies, reports and documents
- Familiarity with CDOT policies pertaining to air quality and experience with obtaining background emissions factors, idle and running emission factors
- Familiarity with the FHWA Carbon Monoxide Categorical Hotspot Finding model for NEPA Hotspot Analysis

#### 7) Aesthetics/Restoration Techniques

- Demonstrate knowledge of :
  - Implementation of FHWA 2015 Visual Guidelines
  - Aesthetic design for various structures e.g., medians, sidewalks, slope and treatments, piers, etc.
- Retaining wall design and aesthetic values
- Community aesthetic values
- Provide computer aided drafting, graphics and photo simulations for a wide variety of applications

#### 8) Geographic Information Services (GIS)

- CDOT uses ESRI's ArcGIS software as their primary GIS platform. Competency in basic uses of GIS including:
  - Data sharing
  - Map production
  - Evaluation of environmental impacts
  - Simulating environmental impacts
  - Measurements of area, distances, etc.
  - Static and interactive displays to enhance public meetings, work groups, etc.
- Data management or layers of environmental and design information
  - Demonstrate ability to communicate environmental analysis through use of GIS
  - Familiarity with CDOT's online GIS applications: Online Transportation Information System (OTIS), C-Plan, Project Locator application (ProLo)

#### 9) Water Resources

- Point/Nonpoint Source Pollution Control

- Demonstrated ability to develop and provide technical review of CDOT Stormwater Management Plans (SWMPs)
- Knowledge of Section 402 of the Clean Water Act
- Familiarity with CDOT's Stormwater program
- Provide engineering level design for stormwater features to be implemented on CDOT projects
- Knowledge of the CDOT MS4 Requirements
- Watershed Management/Coordination
  - Provide coordination with state and local officials and watershed association representatives concerning highway related water quality matters
  - Attend meetings as needed to provide technical expertise on a wide range of water quality matters
  - Provide technical expertise on various water quality matters related to TMDLs, sediment loading, interpretation of water quality data
- Water Quality Monitoring
  - Provide technical expertise to implement and review stream monitoring programs
  - Interpret, review, summarize and make recommendations with regard to water quality data
  - Perform storm water site inspections per CDOT RECAT and monthly audit criteria
  - Install, repair, remove, and/or replace temporary construction site storm water BMPs including purchasing materials
- Highway Maintenance Activities
  - Familiarity with the CDOT maintenance program, including the use of deicers, data tracking and BMP maintenance
  - Perform maintenance on permanent BMPs such as water quality ponds, storm water vaults, and other erosion control and sediment capturing devices to include sediment removal, repairs, and documentation

#### 10) Environmental Justice (EJ)

- Experience performing analysis of impacts and mitigation Environmental Justice using EJ Executive Order and policies at both the state and federal levels and FHWA's Environmental Justice Reference Guide (2015)
- Competencies in quantitative evaluation of economic resources (employment and tax base, businesses, housing, property values) as they relate to transportation projects

#### 11) Cumulative Effects

- Demonstrate understanding of cumulative effect analysis on transportation projects
- Familiarity with CEQ regulations for addressing cumulative effects

- Ability to determine direct and indirect impacts
- Understanding of CDOT's approach to addressing cumulative effects

12) Noxious Weed Management Specialty

- Provide weed control expertise including development of weed surveys
- Experience with weed control policies and current methodologies
- Understanding of applicable laws and regulations concerning noxious weeds
- Experience determining appropriate herbicide application

13) Environmental Oversight for Design/Build & CM/GC Contracts

- Familiarity with current practices and policies concerning design/build & CM/GC Projects
- Demonstrate ability to track mitigation implementation
- Demonstrate ability to provide adequate personnel (engineering and environmental specialists) on design/build & CM/GC projects from start to finish and an understanding of how NEPA functions during these type of contracts.

14) Hazardous Materials

- Ability to conduct CDOT's Initial Site Assessments (ISAs)
- Ability to conduct Limited and Full Phase 1 Environmental Site Assessment
- Excludes the handling, removal, treatment, movement, installation or disposal of hazardous materials
- Experience preparing Voluntary Clean Up Plans for CDPHE
- Knowledge of ASTM standards
- Knowledge of Underground Storage Tank (UST) closure regulations
- Knowledge of historic mining, heavy metals remediation and Superfund
- Ability to develop Environmental Health and Safety and Material Management Plans

15) Section 4(f) Evaluation

- Expertise in the preparation of Section 4(f) Evaluations
- Familiarity and knowledge for preparing administrative records for Section 4(f) Evaluations and documentation of the process

16) Section 6(f) Evaluation

- Ability to identify Section 6(f) resources and prepare appropriate documentation
- Experience engaging Officials with Jurisdiction and Section 6(f) consultation
- 17 ) Geologic Resources
- Ability to evaluate geologic/soil resources and prepare technical documentation to support NEPA documents



#### 18) Land Use

- Capability to review existing and future land uses and zoning, state and local land use planning policies and determining how to document during NEPA analysis

#### 19) Multi-modal Planning

- Ability to provide multimodal (pedestrian, bicycle, transit etc.) analysis and interpretation of data

#### Additional Services:

- Innovative technology implementation - use of drone and other new technological advances that can streamline NEPA and resource analysis