

**C-470 TOLLED EXPRESS LANES SEGMENT 1 DESIGN BUILD PROJECT**  
**PROJECT NO. NHPP 4701 - 124**  
**SUBACCOUNT NO. 18999**

**DESIGN- BUILD OWNER REPRESENTATION SERVICES**

**SCOPE OF WORK**

March 31, 2015

**Introduction**

The Colorado Department of Transportation (CDOT) Region 1 proposes to provide improvements on C-470 from I-25 to Wadsworth Boulevard including: adding one tolled express lane in each direction on C-470, with two tolled express lanes westbound from I 25 to Colorado Boulevard; safety and operational improvements between I-25 and Quebec via adding direct-connect ramps from I 25 to the C-470 tolled express lanes; full reconstruction of a portion of the existing pavement; adding auxiliary lanes at select locations; improving portions of on-ramps and off-ramps to current standards (including ramp metering where appropriate); realigning substandard curves; widening existing structures throughout the corridor; replacing the bridges over the South Platte River; installation of water-quality features; installing noise barriers where required; adding grade separations for the multi-use trail at Quebec and Colorado; and, installing tolling/ITS elements. The method of delivery for this project will be the CDOT Design-Build process.

CDOT desires to use a blended team to successfully deliver this major project. Depending on availability, CDOT staff could ultimately fulfill many of the services described herein. At a minimum, the Consultant shall provide a Project Engineer and an Assistant Contract Administrator to assist the CDOT Project Director in leading the design-build Owner Representation effort. The design-build procurement consultant currently under contract with CDOT will likely be included in the blended team to provide design-build environmental compliance and multidisciplinary design-review services. One contract is expected to delineate both the services required of the retained procurement consultant and the services required as stated in this Scope of Work. CDOT will utilize a separate contract for Independent Assurance Testing (IAT) services.

Both pre-award and post-award support services will be required. Pre-award support services shall include:

- Attendance in bi-weekly design-build procurement Project Management Team (PMT) meetings by the Consultant Project Engineer and Assistant Contract Administrator
- Participation of the Consultant Project Engineer and Assistant Contract Administrator in additional project meetings as determined by the CDOT Project Director
- Assisting development of the design-build procurement documents
- Providing technical support to assist non-consultant selection panel members in proposal evaluation, ultimately assisting with selection of the design-build team
- Additional services as determined by the CDOT Project Director

The post-award support services shall include:

- Review and comment on the design-build team's Quality Management Plan (QMP), required to be accepted before issuance of Notice to Proceed 2
- Assistance with post-award design-build Owner Verification and Testing (OVT) processes
- Coordination with the retained procurement consultant by providing design oversight, verification and participation in task force meetings

- Assistance with design submittal, oversight, and verification
- Coordination with the IAT team
- Schedule monitoring and review
- Assistance with review and tracking of the design-build contractor's invoices
- Document control
- Assessment database development, management, and maintenance
- Management support required for CDOT's design-build contract administration
- Preparation and revision as required of a Project Management Plan for execution of tasks required for CDOT's oversight of the design-build contract
- Additional services as determined by the CDOT Project Director

Legal assistance will not be part of this work. The duration of the services described herein is anticipated not to exceed 1460 calendar days. Night and weekend work can be expected.

## **Scope of Work**

### 1.0 Project Management and Administration

The Consultant shall perform and assist in required project management and administration activities as described in further detail herein, including, but not limited to standard contract administration – invoicing, progress, and subconsultant management.

### 2.0 General Support

**Project Meetings:** During design-build procurement, the Consultant shall attend biweekly Project Management Team meetings, and others as directed by the CDOT Project Director.

During design and construction the Consultant shall assist and provide support by attending regularly-scheduled meetings with CDOT and reporting on general project activity. CDOT will prepare agendas and the Consultant shall prepare meeting minutes. It is anticipated that these meetings will occur weekly for 18 months, and biweekly for the remainder of the project.

### 3.0 Post-Award Oversight and Verification

The Consultant shall provide the necessary personnel to perform assessments and project administration. The following labor needs are anticipated:

1. Assessor – is required throughout the project final design, construction and closeout. The assessor shall provide assessments and oversight of all work performed by the design-build contractor, the QA/QC plan, and shall assess whether all requirements of the Request For Proposals have been met by the design-build team. The Assessor will be required for approximately 30 months.
2. Lead Project Assessor - shall assist the Project Engineer in the post-award administration of the project, from the design phase through construction and project closeout. The Lead Project Assessor's responsibilities shall include, but are not limited to, reviewing submittals, invoices, payrolls, plan changes, coordination of contract activities and reviewing progress payments. The Lead Assessor will be required for approximately 30 months.

3. Document Control Manager - shall maintain project files, track distributions, project correspondence, submittals, database and general project documentation.

### 3.1. GENERAL REQUIRMENTS

The Consultant and CDOT project personnel shall meet regularly as necessary to coordinate and schedule the required work. The Consultant shall complete all work in accordance with the approved schedule or as directed by the CDOT Project Director.

Labor, Vehicles and Equipment: The Consultant shall furnish all personnel, vehicles, cell phones, computers (processor speeds of 2 GHZ or better, with CD/DVD drive, Windows 7 or newer), standard office software, tablet computers, printers and any miscellaneous equipment (calculator, office supplies, etc.) required to perform the work. CDOT will furnish office space. In addition to tablet computers required by the Consultants' personnel, the Consultant shall furnish an additional 4 tablet computers for use by CDOT personnel on the project.

Personnel qualifications, staffing level, required equipment, and number and types of vehicles to be furnished by the Consultant are subject to the approval of the Project Engineer.

Assessors shall be thoroughly familiar with all relevant CDOT forms and documentation and their requirements. The Assessors must have been trained in the use of project-specific forms and documentation requirements necessary for this project. Personnel provided by the Consultant who do not meet all of the specified requirements, or who fail to perform their work in an acceptable manner shall be removed from the project as determined and directed by the CDOT Project Director. Assessors shall have a thorough understanding of Site Manager software. Assessors shall have successfully completed all required American Traffic Safety Services Association classes. Assessors shall have successfully completed an ECS training program authorized by CDOT.

### 3.2 General Work Description

The Consultant shall support CDOT in the oversight of the Design-Build Contractor's design and construction of the project by verifying compliance with the contract requirements. Oversight will not include the directing of any aspect of the Contractor's construction of the project. Oversight shall include the following activities:

- A. Coordination of the construction process in accordance with the requirements for Quality Management in the RFP and the Contractor's Approved Quality Program Manual.
- B. Perform Construction Acceptance Reviews in accordance with the requirements for Quality Management in the RFP. Construction Acceptance Reviews shall be coordinated and supervised by the Lead Assessor and performed by Assessors. The Consultant shall provide personnel as necessary for CDOT to fulfill the Construction Acceptance Review requirements of the project.
- C. Coordinate CDOT Owner Verification tests to assure that the Contractor's materials meet the requirements of the Contract Documents, in accordance with Section 3, Quality Management, of the RFP.
- D. Verify CDOT Independent Assurance Assessments and Tests to ensure that the Contractor's equipment is in good working order and properly calibrated, and that personnel are properly trained in the use of the testing equipment.
- E. Oversight of the Contractor's third-party, and environmental and permitting processes, including:

- Contractor agreements required to perform work within Railroad right of way and on structures owned by the Railroad within their right of way
- Construction dewatering permits
- Construction NPDES permits
- Construction demolition permits
- Construction noise permits
- SWMP compliance inspections

Lead Project Assessor: The Lead Project Assessor shall be either a Colorado Registered Professional Engineer or a non-licensed individual with demonstrated construction administration experience as approved by the Project Director.

The Lead Project Assessor may be required to assist the Project Engineer in performing the following verification activities:

- Coordination of all construction-contract activities
- Review, provide comments, or acknowledge completeness of required submittals resulting from, but not limited to: CDOT 205 Permit to Sublet, Methods of Handling Traffic, Progress Schedules, and Method Statements.
- EEO requirements
- Provide the following documentation, reports and billing on a routine basis: periodic reports and billings required by CDOT Procedural Directive 400.2 Preparation of Monthly Progress Invoices for Monthly and Final billings for Consultant Fees and Construction Contractor Payments.
- Maintenance of project files, project diaries and time counts
- Monitoring contractor payroll compliance
- Attending weekly progress meeting with CDOT, the contractor, subcontractors, utilities and others
- Monitoring the contractor for fulfillment of contract plans and specifications
- Securing all project documentation from the contractor
- Anticipating project problems, developing solutions, and reporting them to the Project Engineer
- Performing on-site, cursory review of drawings and data submitted by the construction contractor and suppliers to determine general conformance with the specifications
- Informing and obtaining concurrence as needed from the Project Engineer and filing related documentation for project records
- Communicating with adjacent landowners as required to resolve issues that arise due to construction activities
- Monitoring compliance and taking appropriate action to ensure safety on the project for all workers and the traveling public in accordance with Method of Handling Traffic (MHT), CDOT's standards and procedures, and the Contractor's Safety Management Plan
- Assisting in preparation of a punch list of uncompleted work, non-conformance reports, and deficiency notices
- Assisting in preparation of responses to contractors' and suppliers' requests for information, submittals, change notices, claims, and correspondence.

Documentation: Assessors shall maintain a daily diary for each day they perform work on the project. CDOT's Automated Form 103a Project Diary shall be used unless otherwise directed or approved by the Project Engineer. The contents of the diary shall be brief and accurate statements of progress and conditions encountered during the prosecution of the work. Editorial comments shall not be entered in diaries or any written documentation applicable to the project. A copy of the daily diary shall be submitted to the Project Engineer within one working day of its date. Assessors shall also use CDOT Form 1176, Erosion Control Inspection.

The Consultant shall support CDOT project staff through assignment of personnel for assessment activities. Assessors shall be trained and qualified in accordance with CDOT's Construction Inspection Qualification Plan. Responsibilities include the following:

- Participation in weekly progress meetings with CDOT, contractor, subcontractors, utility company representatives, and others
- Securing project documentation from the contractor
- Maintaining accurate notes reflecting construction details to be used in preparation of as-constructed plans
- Initial, follow up, and final assessments of work in progress, including interim and final percent complete
- Notifying contractors and the Project Engineer of non-compliance with the contract plans and specifications
- Performance of special tests, investigations, or monitoring required to fulfill the intent of CDOT's inspection program
- Preparation of documentation for review of invoices from the contractor in accordance with prescribed procedures
- Submittal of standard documentation reports (such as daily work reports) no later than the following working day
- Aiding in the preparation of routine correspondence to the contractor, CDOT staff, local agencies, etc.
- Acting as liaison between CDOT and contractor field crews

#### 4.0 Design Oversight / Verification

The retained Consultant will likely coordinate and review for acceptance submittals required from the contractor as further defined as deliverables in the Design-Build Contract. Expected schedules by discipline include:

- Drainage – 4 hours per month for 24 months
- Environmental – 16 hours per month for 30 months
- Structure – 8 hours per month for 24 months
- Traffic – 4 hours per month for 30 months
- Roadway – 12 hours per month for 30 months
- Utilities – 4 hour per month for 24 months
- Material – 4 hours per month for 24 months
- Public Involvement – 4 hours per month for 30 months

Attend weekly task force meetings as scheduled by the design-build contractor. These meeting are expected to occur for approximately 30 months. The location of these meetings is anticipated to be at the project office or at the office of the contactor's lead design firm. Principal design team meetings are anticipated for:

- Drainage - Weekly for 1 year, monthly for the remainder of the project
- Roadway - Weekly for 1 year, monthly for the remainder of the project
- Traffic - Weekly for 1 year, monthly for the remainder of the project
- Utilities - Weekly for 1 year, monthly for the remainder of the project
- Structures - Weekly for 1 year, monthly for the remainder of the project
- Materials - Weekly for 1 year, monthly for the remainder of the project

- Public Involvement - Twice a month for the duration of the project
- Environmental - Weekly for 1 year, monthly for the remainder of the project

### 5.0 Schedule Management

The Consultant shall coordinate and review for acceptance activities for schedule-related submittals required from the contractor and as further defined as deliverables in the Design-Build Contract. The Consultant's scheduling personnel are responsible for review and analysis of all schedules submitted by the design-build contractor for the duration of the project. The schedules required for review include: preliminary initial schedule, original initial schedule, current initial schedule, revised initial schedule, recovery schedule, and monthly progress schedule. Review shall include, but is not limited to, reviewing level of detail, knowledge of project, key milestones, long-lead procurement, schedule logic (in sufficient detail to plan, monitor and control the individual trades or activities), concurrence that activity durations are reasonable and meet contract requirements, critical path, float, and cost loading. These reviews will require frequent backups of the Primavera P6 schedule file (.xer format).

The contractor will provide a data file of the current project schedule on a monthly basis. The scheduling Consultant shall perform a comparison of the current schedule with schedules from the previous two months to identify trends of slippage, improvements, or any logic or time revisions to the schedule. A monthly narrative shall be generated to include: schedule analysis and recommendations for corrective action if required, tracking date comparison, summary of delays, and critical-path schedule review.

Monthly billing-review meetings shall be conducted for approval of the contractor's billings. The Consultant shall perform on a quarterly basis site visits to review progress with the team to insure that the schedule accurately represents actual construction activities.

### 6.0 Review of Contractor Invoices

The Consultant Assistant Contract Administrator shall coordinate and review for acceptance invoice submittals from the contractor and as further defined as deliverables in the Design-Build Contract. This work shall include:

- Tracking of contractor invoices received by CDOT
- Tracking of payments made to the contractor (information to be provided by CDOT)
- Maintaining documentation of the project budget, actual to date and remaining balances for the total budget, preliminary engineering, stipends, and total construction budget

### 7.0 Document Control

The Consultant shall work with CDOT to develop and implement document-control procedures to assist project staff in:

- Logging receipt and transmittal of project correspondence
- Filing all electronic and hardcopy elements associated with project correspondence
- Distribution of documents

### 8.0 Assessment Database Management / Maintenance

The Consultant shall provide general support and periodic updates of the assessment database developed by the Consultant for the project. Activities will include:

- Updates for additional requirements added by project change orders executed by the contractor and CDOT
- Assisting assessors with coordination and implementation of general assessment activities
- Further refinement of the general database elements and processes as directed by CDOT

#### 9.0 Management Support for CDOT's Design-Build Contract

The Consultant shall assist CDOT in general design-build contract services required for:

- Assessment and clarification of contract requirements
- Preparation and coordination of procedures for dispute resolution
- Preparation and coordination of contract modifications
- General contract support for estimating, scheduling, and assessments
- Attendance of management meetings as required. It is anticipated that weekly meetings will be required for the duration of the project.

#### 10.0 Prepare Project Management Plan and Update as Required

The Consultant shall assist CDOT with development of a Project Management Plan specific to this project as follows:

- Prepare an initial outline for CDOT's review and concurrence of all major aspects required to manage the contractor's work and aspects related to CDOT's and FHWA's organizational functions and requirements.
- Upon concurrence of the outline, and working with the associated discipline managers tasked with overseeing their aspects of the work, the Consultant shall draft detailed procedures aligned with those various disciplines. A draft document shall be submitted to CDOT for review and comment.
- The Consultant shall prepare a final version of the plan incorporating CDOT's comments and submit the document prior to final award of the design-build contract. This document will become the basis for CDOT execution of the project.
- Revisions and updates shall be issued as required during the duration of the project in order to reflect further refinements of procedures or changes in the design-build contract initiated after final award.

#### 11.0 Unforeseen Services as Requested by CDOT

Additional services will be required by CDOT that are not specifically defined within this Scope of Work. A specific line-item will be included in the workhour estimate to provide for additional services to be performed only upon written direction and approval from the CDOT Project Director.