

**FILLMORE DDI CONSTRUCTION ADMINISTRATION
SCOPE OF WORK**

Scope Date: September 13, 2013
Estimated Construction Start Date: May 2014
Region 2

PROJECT NUMBER: IM 0252-414
PROJECT CODE: 18367
CMS ID NUMBER:
PROJECT LOCATION: I-25 & Fillmore Street
CONTRACT TYPE: Project Specific, Specific Rate of Pay
CONTRACT SUBJECT: Construction Management, Inspection and Testing Services

The Contract Administrator for this Contract will be:

Mark Andrew, PE
Resident Engineer – Region 2
1480 Quail Lake Loop
Colorado Springs, CO 80906
Office: (719) 227-3205, Mobile: (719) 659-8203
Email: mark.andrew@state.co.us

Active Day to Day administration and monitoring of this contract will be delegated to the following CDOT employee:

Shane Ferguson, PE
Project Engineer – Region 2
1480 Quail Lake Loop
Colorado Springs, CO 80906
Office: (719) 227-3244, Mobile: (719) 661-4232
Email: shane.ferguson@state.co.us

General Requirements

This Scope of Work (SOW) has been carefully reviewed by the Department and reflects a plan of approach based on the known goals. The Consultant's analysis of the project goals, its evaluation of the work elements, and its formulation of the work plan, coupled with its understanding of and sensitivity to the key issues may produce new approaches or modifications to the project's work elements. Therefore, the Final Scope of Work for the project may change in some details to incorporate the Consultant's input. This work is located in Region 2 of the Colorado Department of Transportation.

The positions described herein are anticipated needs. The Department reserves the right to not utilize any of the positions listed if at the time of construction the Department has available resources to staff the project from within.

Definitions

Resident Engineer - The CDOT Resident Engineer is responsible to the Region Program Engineer for the quality and successful completion of a transportation project. The Resident Engineer authorizes interim and final payments and all changes to the contracts for all Consultants and Contractors.

Project Engineer / Engineer - The CDOT employee assigned by the Resident Engineer who is the Chief Engineer's duly authorized representative. The CDOT Project Engineer is in direct charge of the work and is responsible for the administration and satisfactory completion of the project under contract. The Project Engineer duties are further described in the CDOT Construction Manual.

Consultant - The individual, firm, or corporation under contract by this agreement to perform construction services as outlined below.

Consultant Professional Engineer - The Consultant's Professional Engineer in responsible charge of Consultant services performed as described in this Contract. The Consultant's Professional Engineer must be licensed in the State of Colorado.

Consultant Assistant Project Engineer - The Consultant's employee who administers the Consultant contract with CDOT. The Consultant Assistant Project Engineer works under responsible charge of the Consultant's Professional Engineer. The Consultant Assistant Project Engineer, if a Professional Engineer licensed in the State of Colorado, may be the same person as the *Consultant Professional Engineer*.

Contractor - The individual, firm, or corporation under contract with CDOT to construct the facility.

Project Description and Project Location

The existing I-25/Fillmore Street interchange is part of a key east-west transportation corridor in Colorado Springs, Colorado. The interchange currently experiences congestion at the I-25 ramp intersections which results in queuing on the approaches. To alleviate these deficiencies, the interchange will be converted to a Diverging Diamond interchange (DDI). As part of this improvement, the existing bridge carrying Fillmore Street over I-25 will be replaced by two new twin bridges. The new westbound bridge will accommodate three traffic lanes with the new eastbound bridge will carry two traffic lanes and a sidewalk. The City of Colorado Springs is currently or has recently completed the relocation of Chestnut Street to the west. The DDI interchange project will tie into the work.

Work Duration

The time for the work described in this scope of work covers the period from Notice to Proceed to December 31, 2015. For portions of the project, night work will be required. Work will also be required during the day, on weekends, and/or on a split-shift basis. Work weeks may be in excess of or less than the standard 40-hour week. The number and types of personnel may be adjusted up or down to meet project workload.

Anticipated Construction: May 2014 to September 2015

During construction, CDOT anticipates utilizing approximately:

- 1 Assistant Project Engineer
- 2 Consultant Inspectors
- 2 Consultant Materials Testing Technicians (Certifications Required - Asphalt, Concrete, and Soils)

Ideal team members will demonstrate the ability to work in teams, reference successful interchange projects (CDOT or similar).

Conditions Applicable to all Consultant Personnel: Overtime / Travel Pay / Commute Miles

Overtime hours are not allowable per State Fiscal Rules. Labor Hours will be billed to CDOT at the same rate as regular, non-overtime hours. Travel time will not be paid for travel to and from the project. Commuting mileage will not be paid for travel to and from the project. Mileage for travel while on the project will be paid for at the applicable State rate.

Authorization to Proceed

Work shall not commence until the written Notice to Proceed is received by the consultant, and shall be completed in the time specified.

Routine Billing & Reporting

The consultant shall provide the following on a regular basis:

- Monthly billing reports in formats suitable to the CDOT Project Engineer for all contract activities performed by Consultant personnel authorized to perform work on the project.
- Periodic reports and billings required by CDOT Procedural Directive 400.2.

The consultant shall bear all costs related to delay of construction when the Consultant fails to provide qualified personnel when required. The Consultant's monthly payments may be withheld for that portion of the work for which the consultant personnel fail to provide accurate and timely reporting.

Status of Contract

The consultant shall monitor the fiscal status of the contract, and advise the CDOT Project Engineer of any potential need to supplement their contract. Failure to monitor contract status and provide timely notification may result in discontinuation of the Consultant's services. The invoice shall include monthly status reports per the consultant guidelines and shall include budget information.

Consultant Professional Engineer Requirements:

The Consultant Professional Engineer shall be available during construction and will be utilized as needed to provide engineering guidance for the project. He or she shall be a Colorado Registered Professional Engineer.

Consultant Assistant Project Engineer Requirements:

Project Standards

The Consultant will provide support to the CDOT Project Engineer through assignment of personnel to construction management. He or she shall be either a Colorado Registered Professional Engineer or non-licensed individual with demonstrable construction administration experience.

General Work Description

If Consultant procurement precedes project advertisement, the Consultant Assistant Project Engineer shall provide pre-construction support to the CDOT design team, including the Design Consultant already under contract. Pre-construction support services include but are not limited to:

- Review and provide comments on design plans and specifications;
- Attend and participate in the design review meetings;
- Assist CDOT with other duties/tasks as requested;

The Consultant Assistant Project Engineer shall provide support to the CDOT project staff through assignment of personnel to assist with project management and inspection responsibilities. Responsibilities include but are not limited to:

- Assist the Project Engineer with coordination of all construction contract activities, assist in the supervision of other project staff and assignment of duties and responsibilities;
- Review, give comments, and acknowledge completeness of required submittals resulting from but not limited to:
 - CDOT 205 Permit to Sublet
 - Method of Handling Traffic
 - Progress Schedule
 - Method Statements
 - All EEO Requirements
 - Materials mix designs
 - Shop and Working Drawings
 - Permits
 - EEO, DBE, OJT and other miscellaneous similar documents
 - Project Safety Management Plan and implementation
 - All Erosion Control SWMP documentation, reporting, inspections, etc.
- Prepare inspection documentation for development of progress payments for the contractor in accordance with prescribed procedures;
- Maintaining of project files, project diaries and time counts;
- Prepare periodic reports and billings required by CDOT Procedural Directive 400.2;
- Monitor contractor payroll compliance;
- Participate in and ability to facilitate (as necessary) weekly progress meetings with contractor, subcontractors, utilities and other interested parties;
- Secure project documentation from the contractor;
- Anticipate project problems and propose solutions to CDOT Project Engineer
- Review drawings and data submitted by the construction contractor and suppliers for conformance with the intent of the specifications;
- Obtain concurrence as needed from the CDOT Project Engineer and keep relative documentation for project records;
- Communicate with adjacent landowners and other project stakeholders as required to resolve issues that arise due to construction;

- Monitor compliance with and take appropriate action to preserve safety on the project for all workers and traveling public in accordance with Method of Handling Traffic (MHT);
- Notify contractors and CDOT Project Engineer of non-compliance with the contract plans and specifications;
- Prepare punch lists of uncompleted work, non-conformance reports, and deficiency notices;
- Prepare responses to contractors' and suppliers' requests for information submittals, change notices, claims, and correspondence;
- Prepare and transmit updates of construction activities to the CDOT Public Information Office;
- Change Orders/MCR – discussions with: Contractor, Area Engineer, RE, Specialties as necessary. Also write CMO and justification letter, prepare package with attachments, price justification/negotiation, form 90, etc.;
- Ability to prepare responses to contractors' and suppliers' requests for information, submittals, change notices, claims, and correspondence;
- Monitor Contract Time Count
- Assist and/or prepare entirely partial monthly payment Estimates;
- Review/Monitor Schedule (baseline, updates and narrative reviews)
- Budget: track all project financial information, notify RE of any/all budgetary concerns, financial tracking forms 65's monthly and with each CMO/MCR
- Weekly meetings (agendas, minutes, preparation, facilitation, etc...)
- Pre-con meetings (agendas, minutes, distribution, preparation, facilitation, etc...)
- Review inspectors work (diaries, 266's, DWR's calculations, spreadsheets, etc...)
- Respond to citizen complaints and CDOT PR office;
- Participate in Traffic Control Reviews
- Prepare complete and accurate DWR's / 266's
- SiteManager (all pay items, CMO's/MCRs, time count, diaries, stockpiled materials tracking and payment, monthly pay estimates, overs/unders)
- Erosion control management and oversight, bi-weekly reviews, post-storm event reviews, RECAT/ECAT
- Submittal review and approve and forward to specialties as appropriate for review/approval
- Assist the CDOT Project Engineer with preparation of final "As Constructed" plans.
- Assist in preparing punch lists of uncompleted work, non-conformance reports, and deficiency notices.
- Assist in close-out documentation
- Perform miscellaneous project-related duties as requested by the CDOT Project Engineer.

Personnel Qualifications

Personnel qualifications, staffing level, and number and types of vehicles shall be subject to the approval of the Engineer. The Consultant shall assign personnel for the duration of the Contract unless otherwise approved by the Engineer. Employees required to operate vehicles must possess and maintain a valid State Colorado driver's license. The Consultant Assistant Project Engineer(s) permanently assigned to a project shall be competent in road and bridge construction and be thoroughly familiar with CDOT specifications, manuals, forms, and documentation requirements including SiteManager. The level of qualification provided shall be as requested and approved by the CDOT Resident Engineer and CDOT Project Engineer. The qualifications for the level(s) shall be commensurate to experience, and are as follows:

1. Assistant Project Engineer – Ten (10) or more years of experience in highway construction project management and supervision of consultant inspectors and testers.

A copy of work experience and proof of Certification and /or License shall be provided to the CDOT Project Engineer before work begins. 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 when determined and directed by the CDOT Project Engineer.

Documentation

Maintain a daily diary for each day they perform work on the project. He/she shall use CDOT's automated Form 103a – Project Diary unless otherwise directed by the Engineer. He/she shall use CDOT form 1176, erosion control inspection. The contents of the diary shall be brief and accurate statements of progress and conditions encountered during the prosecution of the work, and sketches as needed for clarification and documentation. Editorial comments are not to be incorporated in the diaries or on any written correspondence applicable to the project. A copy of the daily diary shall be available to the CDOT Project Engineer at the end of each workday and a copy shall be filed in the project records within one working day of its date.

Consultant Project Inspector Requirements:

All construction inspection shall be in accordance with the Colorado Department of Transportation's Construction manual, Field Materials Manual, Standard Specifications for Road & Bridge Construction, Project Standard Provisions, Project Special Provisions, and the plans and specifications in use when the project is advertised. All Consultant construction inspection activities shall be as authorized by the Engineer. For the purposes of this document, construction inspection shall be known as "the work" and references to "the specifications" shall include all applicable CDOT Standard Specifications for Road and Bridge Construction as amended by Project Standard Provisions, Project Special Provisions, and project plans and specifications.

The Consultant Project Inspector shall provide support to the CDOT project staff through assignment of personnel to inspection activities if requested by the CDOT Project Engineer. The Inspector shall be trained and qualified in accordance with CDOT's Construction Inspection Qualification Plan. Inspection responsibilities include but are not limited to:

Assist the CDOT Project Engineer, Assistant Project Engineer and Senior Inspector in the following Construction activities:

- Prepare inspection documentation for development of progress payments for the contractor in accordance with prescribed procedures;
- Submit daily diary at the end of the working day;
- Submit payment-documentation reports (Form 266's) at the end of the working day;
- Participate in weekly progress meetings with contractor, subcontractors, utilities and other interested parties;
- Secure project documentation from the contractor;
- Anticipate project problems and propose solutions to CDOT Project Engineer;
- Maintain accurate notes reflecting actual construction details to be used in preparation of as-constructed plans;
- Perform initial, follow-up, and final inspections of work in progress including interim and final measurements;
- Notify contractors and CDOT Project Engineer of non-compliance with the contract plans and specifications;
- Perform special tests, investigations, or monitoring to fulfill the intent of the CDOT inspection program;
- Aid in the preparation of correspondence to the contractor, CDOT Staff, local agencies, etc.;
- Provide liaison and communication to contractor field crews;
- Prepare final "As-Constructed" plans upon project completion;
- Deliver material samples to designated laboratories or locations;
- Perform miscellaneous project-related duties as requested by the CDOT Project Engineer.

Personnel Qualifications

The Consultant Project Inspector permanently assigned to the project shall be competent in road and bridge construction and be thoroughly familiar with CDOT specifications, manuals, forms, and documentation requirements including SiteManager. The level of qualification provided shall be as requested and approved by the CDOT Project Engineer. The qualifications for the level(s) shall be commensurate to experience, and are as follows:

Project Inspector – five (5) or more years of experience in highway and bridge construction and some previous experience supervision of consultant inspectors and testers.

A copy of work experience and proof of Certification and/or License shall be provided to the CDOT Project Engineer before work begins. 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 when determined and directed by the CDOT Project Engineer.

Documentation

Maintain a daily diary for each day they perform work on the project. He/she shall use CDOT's automated Form 103a – Project Diary unless otherwise directed by the Engineer. He/she shall use CDOT form 1176, erosion control inspection. The contents of the diary shall be brief and accurate statements of progress and conditions encountered during the prosecution of the work, and sketches as needed for clarification and documentation. Editorial comments are not to be incorporated in the diaries or on any written correspondence applicable to the project. A copy of the daily diary shall be available to the CDOT Project Engineer at the end of each workday and a copy shall be filed in the project records within one working day of its date.

Consultant Materials Testing Technician (MTT):

All sampling, testing, inspection, and documentation shall be in accordance with the Colorado Department of Transportation (CDOT) Construction Manual, Field Materials Manual, CDOT M&S Standards, and applicable Project and Standard Special Provisions in the construction project contract and the applicable CDOT Standard Specifications for Road and Bridge Construction. The applicable CDOT Manual shall be the one currently in use when the construction project is advertised

If the required method is not described in the CDOT Field Materials Manual, the required work shall be completed in accordance with AASHTO Standard Specifications for Transportation Materials and Methods of Sampling and Testing (as revised and supplemented),

Proposed work procedures shall be coordinated with the CDOT Project Engineer prior to the start of work.

The Consultant MTT (Materials Testing Technician) shall sample, test, and document all materials incorporated into the project. This includes materials delivered to the project that are listed in the Summary of Approximate Quantities or referred to in the Plans and Specifications. The number of tests required shall be in accordance with the Schedule in the Field Materials Manual. Additional quantities may be added by Contract Modification Order, or plan approximate quantities may be increased or decreased. The MTT, the Consultant Assistant Project Engineer, and CDOT Project Engineer will review project quantities on a weekly basis to ensure that sufficient tests have been performed for all material placed to date. The MTT will set-up and maintain all materials books. The consultant shall also provide any other project-related services requested by the CDOT Project Engineer.

The MTT shall document and transport samples of any and all materials to the CDOT Region or Central Laboratory that are required to be tested by CDOT, regardless of pre-inspection or pre-testing responsibilities. The items and test frequencies of CDOT tested materials shall be in accordance with the column titled "Central Laboratory" in the Schedule in the Field Materials Manual.

The Consultant shall follow the requirements of CP-16 to meet, coordinate and schedule the required work with the Project Engineer. The consultant shall complete all work in accordance with their approved schedule. The consultant materials testing evaluation form shall be completed by the CDOT Project Engineer and head tester, and distributed as described in CP-16. The CDOT Quality Manager shall forward a copy of the completed Pre-Testing Meeting Agenda for Consultant Materials Testing to the Region Materials Engineer.

In addition to the tasks identified in **Consultant Materials Testing Technician Requirements**, the MTT shall assist the CDOT Project Engineer in performance of construction inspection activities and other project-related activities, as directed by the Project Engineer, when they are not required to perform the MTT related activities. Inspection responsibilities may include but are not limited to those identified in the **Consultant Project Inspector Requirements** above.

Personnel Qualifications

Personnel qualifications, staffing level, and number and types of vehicles shall be subject to the approval of the Project Engineer. The MTT shall be thoroughly familiar with CDOT specifications, manuals, forms, and documentation requirements. The MTT shall be permanently assigned to a project for the duration of the project and shall have the following qualifications:

1. A degree in Engineering or related Science(s) from a four year curriculum school or a *National Institute for Certification in Engineering Technology (NICET)* Level II Certification in Construction Materials Testing and Inspection for the types of work being performed, e.g. aggregates, asphalt, concrete, and soils or five (5) years of field testing experience with CDOT construction projects.
2. The MTT performing concrete tests shall be certified by *The American Concrete Institute (ACI)*.
3. The MTT performing hot bituminous pavement tests shall be Level II, A&B certified by *The Colorado Asphalt Technician Certification Program (LabCAT)*.
4. WAQTC, Soils Certification
5. In addition, the Consultant MTT must be certified in the appropriate classes of CDOT's Inspector Qualification Program.
6. Traffic Control Supervisory class within the last 3 years.

A copy of work experience and proof of Certification and/or License shall be provided to the CDOT Project Engineer before work begins. 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 when determined and directed by the CDOT Project Engineer.

Documentation

Maintain a daily diary for each day they perform work on the project. He/she shall use CDOT's automated Form 103a – Project Diary unless otherwise directed by the Engineer. He/she shall use CDOT form 1176, erosion control inspection. The contents of the diary shall be brief and accurate statements of progress and conditions encountered during the prosecution of the work, and sketches as needed for clarification and documentation. Editorial comments are not to be incorporated in the diaries or on any written correspondence applicable to the project. A copy of the daily diary shall be available to the CDOT Project Engineer at the end of each workday and a copy shall be filed in the project records within one working day of its date.

Test results and sample submittals transmitted to CDOT's Region or Central Laboratory shall be recorded on appropriate CDOT Forms. The MTT may use CDOT worksheets or worksheets approved by the CDOT Project Engineer. CDOT Forms and worksheets are available through the CDOT Project Engineer.

The MTT shall furnish the CDOT Project Engineer with original copies of all worksheets and test results on a daily basis. The MTT shall also keep the CDOT Form 626 up to date at all times and provide copies of this form to the CDOT Project Engineer within 12 hours.

The CDOT Project Engineer shall be informed immediately of any non-specification material. At the discretion of the CDOT Project Engineer, the MTT may also be required to provide the CDOT Form 626 to the contractor within 12 hours for any non-specification material.

The MTT shall provide all correspondence and applicable CDOT forms to the CDOT Project Engineer or his authorized representative for review and signature.

Labor, Materials, Vehicles & Equipment

The Consultant shall provide the Consultant Assistant Project Engineer, Consultant Inspector and the Consultant Materials Testing Technician (MTT) with the following:

- A suitable vehicle equipped with appropriate LED light bars.
- A cellular phone.
- Each consultant staff shall be supplied with a state of the art computer w/modem (phone, ISDN or cable as required), a writeable CD, a color printer (that can be networked for all staff or black/white for other staff) and loaded with the most current version of MS Office software (Site Manager or QA/QC program if applicable). Computers shall be capable of running current CDOT software, including Asphalt '03, Voids '03, Site Manager, etc.
- Miscellaneous equipment (calculator, office supplies, safety equipment, etc.) required to perform the work (ASTM Certified Work Boots, ANSI Certified Hardhat (Z89.1 stamp and be High Visibility), Safety Glasses (Z87 stamp on the glasses/goggles) and Approved Safety Vest. (Meeting or exceeding ISEA for Class 3), including all applicable manuals.
- The Consultant shall have digital cameras available to staff at all times and shall document the project accordingly, submitting relevant photos to the CDOT Project Engineer on a regular basis.
- CDOT will provide a field-office space.
- CDOT will provide a field laboratory.
- All consultant personnel shall be subject to the requirements of CDOT Procedural Directive 80.1 Personal Protective Equipment Use as though they were CDOT employees.

The following equipment shall be furnished along with the MTT for each project in sufficient quantity and in good working order (with current calibration) to ensure accurate performance of all work required in a timely manner. Such equipment and supplies shall remain the property of the consultant.

- Nuclear Asphalt Content Gauge
- Nuclear Moisture-Density Gauge
- Concrete air meter, slump cone, and other concrete testing equipment.
- Sieves for aggregates and soil gradations
- Electronic scales
- Asphalt & A/C sample containers and small tools
- Proctor equipment for soil curves and one point tests
- Atterburg, Rice value, and Sand Equivalent equipment
- Sample drying equipment
- Concrete cylinder molds which meet AASHTO requirements except that paper molds shall not be used, and plastic molds shall not be reused
- Miscellaneous equipment for performing the required soils, asphalt and concrete tests.

Assurance Sampling and Testing

The MTT shall coordinate the schedule of the Independent Assurance Tests (IAT) for the project with the Region Materials Section in accordance with the CDOT Form 379. Advance notice of 48 hours is required for proper coordination.

Submittal of Final Documentation

Final documentation shall be submitted to the CDOT Project Engineer within 30 working days after completion of all work. A completed CDOT Form 250 shall be submitted to the CDOT Project Engineer 10 days after the consultant has been notified of final quantities. Failure to submit final documentation as required will result in withholding of consultant payments.

Additional Construction Inspection and Materials Testing Requirements:

In addition to the qualifications, requirements set forth above, the following certifications will also be required:

Class/Certification	Consultant Assistant Project Engineer	Consultant Project Inspector	MTT
Basic Highway Math	X*	X*	X
Basic Construction Surveying	X*	X*	X
Basic Highway Plan Reading	X*	X*	X
Storm water Management and Erosion Control	X	X	
CCA Traffic Control Supervisor	X	X	
LabCAT Level A & B			X
Asphalt Paving Inspection LabCAT Level I		X	X
Excavation & Embankment			X
WAQTC			X
ACI Field Testing Tech I			X

* Not required if the Consultant is a licensed Professional Engineer or has an Engineering Degree from an accredited institution.