

# Construction Services Scope of Work

Date: January 2022

**Project Number:** NHPP 0703-472

**Project Code:** 23567

**Project Location:** I-70 Wadsworth to Pecos Resurfacing

**Contract Type:** Project Specific, Cost Plus Fixed Fee

**Contract Subject:** Construction Management, Inspection, and Materials Testing Services

The Contract Administrator for this Contract will be:

Steve Sherman  
Region 1 Central Engineering  
2829 West Howard Place  
Denver CO 80204  
720 341-1895  
steve.shermant@state.co.us

Active Day-to-Day administration and monitoring of this contract will be delegated to the assigned Project Manager as follows:

Jacob Southard  
Region 1 Central Engineering  
2829 West Howard Place  
Denver CO 80204  
720 854-9037  
jacob.southard@state.co.us

## 1.0 General Scope of Work

This scope of work is for providing construction administration support services for the referenced project. The scope of work will be for:

- 1 full-time Consultant Project Engineer (PE)
- 1 full-time Consultant Assistant Project Engineer
- 2 full-time Consultant Construction Inspectors / Material Testers
- 1 full-time Consultant Construction Material Tester

## 1.1 Project Description and Location

The primary objective of this project is to provide mainline resurfacing of I-70 from Wadsworth Boulevard to Pecos Street, milepost 269.0 to 273.5.

## 1.2 Work Duration

The time period for the work described in this scope of work is approximately 80 working days for construction activities, and 40 days for administrative tasks (2 weeks before and 6 weeks after). It is anticipated that there will be a floating start date between May 16, 2022 and June 13, 2022.

## 1.3 Definitions

**CDOT 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 contracts for all consultants and contractors.

**CDOT Region Materials Engineer** – The CDOT Region Materials Engineer (RME) assists the Resident Engineer on this project with materials related issues including concrete, asphalt, soils and steel.

**Consultant** – The individual, firm, or corporation contracting with CDOT to perform services as described in this Contract.

**Consultant Project Engineer** – The Consultant Project Engineer is the Chief Engineer’s duly-authorized representative administering the contract. The Consultant Project Engineer must be a licensed engineer in the state of Colorado and is the Engineer in Responsible Charge (EIRC) for the project.

**Consultant Assistant Project Engineer** – The Consultant employee who performs project-related services under the responsible charge of a Consultant Professional Engineer, and at the direction of the CDOT Resident Engineer or his designee.

**Consultant Inspector** – The Consultant Project Engineer’s authorized representative assigned to make detailed inspection of contract performance.

**Consultant Material Tester** – The Consultant Project Engineer’s authorized representative assigned to testing the material properties of certain elements incorporated into the work.

**Contractor** – The individual, firm or corporation contracting with CDOT to construct a transportation project.

## 2.0 General Requirements

### 2.1 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.

### 2.2 Routine Billing & Reporting

The Consultant shall provide the following on a regular basis:

- Monthly billing formats suitable to the Resident Engineer for all contract activities performed by the Consultant.
- Monthly billings shall include the contract status.

- Weekly time cards for consultant personnel. Prior to billing the Consultant Project Engineer must sign these time cards.
- Supporting documentation for all direct costs.
- Weekly approval of mileage for vehicles.

### **2.3 Status of Contract**

The Consultant shall monitor the fiscal status of the contract and advise the Resident Engineer of any potential need for supplementing their contract or negotiating an additional task order. Failure to monitor status and provide timely notification may result in the discontinuation of the Consultant's services on the project until a supplemental agreement can be implemented and executed.

### **2.4 Labor, Materials, Vehicles and Equipment**

The Consultant shall furnish all personnel, materials, equipment, and transportation required to perform the work. Consultant personnel shall have appropriate vehicles (equipped with flashing amber beacon), cellular phones, computers, and miscellaneous equipment and supplies (printers, calculators, manuals, office supplies, safety equipment, DMI, etc.) required to perform the work.

The Field Office will be provided by construction contract pay items. Personnel qualifications, staffing level, and number and types of vehicles shall be subject to the approval of the Resident Engineer. Each consultant staff member shall be supplied with a state-of-the-art computer with wireless capability and the most current version of MS Office including Microsoft Project, Primavera, SiteManager, and/or a QA/QC program if applicable. The Consultant shall have a digital camera available to staff at all times and document the project accordingly, submitting flash drives with relevant photos to the Resident Engineer on a regular basis. At least one Consultant vehicle shall be equipped with a DMI (distance-measuring instrument) to facilitate inspection and measurement of materials placed on the project.

The Consultant shall assign qualified personnel for the duration of the construction contract.

### **2.5 Engineer's Certification**

The CDOT Resident Engineer is the final authority regarding acceptance of work not conforming to the plans and specifications.

### **2.6 Project Meetings**

The Consultant and CDOT project personnel shall meet to coordinate and schedule the required work prior to active construction. The Consultant shall complete all work in accordance with the approved schedule or as approved by the Project Manager.

The Consultant personnel shall be present at all project meetings as required and as directed by the Project Manager.

### **2.7 Post-Construction Activities**

The Consultant shall assist in preparing and submitting redline drawings that have been revised to reflect actual as-constructed details as recorded throughout the construction of the project, wage and payroll certification, and other closeout activities. Work shall include finals preparation.

## **2.8 Project Standards**

Inspection and documentation shall be in accordance with the latest versions of the CDOT Construction Manual, Field Materials Manual, CDOT Laboratory Manual of Test Procedures, CDOT Inspector's Checklist, Standard Specifications for Road and Bridge Construction, the Supplemental Specifications, M&S Standards, and the plans and specifications currently in use when the construction project is advertised or revised under advertisement.

References to the specifications shall include all applicable CDOT Standard Specifications for Road and Bridge Construction including Supplemental Specifications, Project Standard Revisions and Project Plans and Specifications.

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

## **2.9 Documentation**

The Consultant shall provide all correspondence and applicable CDOT forms to the CDOT Resident Engineer or designee for review and signature.

The Consultant personnel shall be capable of preparing CMOs, justifications for CMOs and MCRs; price justification (force account analysis); review of MHTs, construction-quantity calculations; inspection reports; daily diaries; SiteManager; review of 205s; and, other construction administration documentation required per CDOT Construction Manual.

Each of the Consultant personnel shall maintain a daily diary for each day they perform work on the project. They shall use CDOT's Automated 103a – Project Diary unless otherwise approved by the Resident 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 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 given to the Consultant Project Engineer within one working day of its date.

The Consultant's personnel shall be thoroughly familiar with CDOT forms and documentation requirements.

## **3.0 Personnel Requirements**

Personnel qualifications and staffing levels for the project shall be subject to the approval of the Resident Engineer. CDOT reserves the right to review the resume of and interview any new proposed staff to the project. CDOT may reject personnel to be added to the project as determined from either the resume or interview.

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 Resident Engineer or his designee.

The Consultant shall provide any other services requested by the Resident Engineer within this scope of work.

Back-up Consultant resources shall be available in case of loss of staff, sickness, or vacations or as required for the project.

### **3.1 Consultant Project Engineer and Assistant Project Engineer**

The Consultant PE is required to be a PE experienced with road and bridge construction, and have documented experience with CDOT procedures including construction schedule review, contract modifications preparation, force account analysis, and be proficient with SiteManager. The Consultant PE shall have extensive documented experience with CDOT procedures including structures, water quality, phasing, utilities, roadway paving and documentation.

The Consultant Project Engineer is responsible for day-to-day activities and duties associated with CDOT contract administration in coordination with the CDOT Resident Engineer and supported by the Consultant Assistant Project Engineer. These responsibilities and duties include supervision of project staff, verbal and written correspondence with the prime and subcontractors, inspection of materials and methods of construction to verify compliance with CDOT and contract specifications, preparing monthly pay estimates, reviewing and approving Methods of Handling Traffic, preparing project change orders and minor contract revisions (including justification letters), monitoring the project schedule and financial status, reviewing certified payrolls in B2G and LCPtracker, resolving material and traffic-control issues, and coordination with local entities and businesses with respect to construction activities. The Consultant PE and APE responsibilities may include documentation and inspection of construction activities, preparing payments for items of work, preparing pay estimates in SiteManager, supervision and documentation of time and material of work, preparation of daily diaries documenting contractor activities and relevant observations, and Davis-Bacon wage review and certification.

Responsibilities may include, but are not limited, to the following:

1. Preparing and transmitting updates of construction activities to CDOT's Public Information Officer.
2. Monitoring and documenting contractor payroll compliance.
3. Participation in weekly progress meetings with contractor, subs, utilities and other interested parties.
4. Securing project documentation from the contractor.
5. Anticipating project problems and directing solutions to the CDOT Resident Engineer or his designee.
6. Reviewing drawings and data submitted by the construction contractor and suppliers for conformance with the specifications. Informing and obtaining concurrence as needed from the Resident Engineer, and maintaining relevant documentation for project records.
7. Maintaining accurate notes reflecting actual construction details to be used in preparation of as-constructed plans.
8. Communicating with adjacent landowners as required to resolve issues that arise during construction.
9. Reviewing and approving the Contractor's Method of Handling Traffic (MHT).

10. Monitoring compliance with and taking appropriate action to maintain safety on the project for all workers and traveling public in accordance with MHT and the Manual of Uniform Traffic Control Devices (MUTCD).
11. Initial follow up, and final inspections of work in progress including interim and final measurements.
12. Promptly notifying contractors and the CDOT Resident Engineer or his designee of non-compliance with the contract plans and specifications.
13. Performance of special tests, investigations, or monitoring required to fulfill the intent of the CDOT inspection program.
14. Preparation of inspection documentation for development of progress payments for the contractor in accordance with prescribed procedures.
15. Submittal of standard documentation reports no later than the following working day.
16. Preparation of routine correspondence to the contractor, CDOT staff, local agencies, etc.
17. Providing liaison and communication to contractor field crews.
18. Preparation of final as-constructed plans.
19. Preparation of punch lists of uncompleted work, non-conformance reports, and deficiency notices.
20. Preparation of responses to contractors' and suppliers' requests for information, submittals, change notices, claims, and correspondence.
21. Preparation of the project's finals package and submittal to CDOT's finals engineer within 45 days of the project's acceptance letter (including materials finals). Working with the finals engineer to adjust or revise finals documentation until it is determined to be acceptable.
22. Ensure all materials testing documentation is entered into LIMS software system.

### **3.2 Consultant Construction Inspector**

Consultant Inspectors shall have all required CDOT inspector certifications. The Consultant Construction Inspectors shall be able to inspect and document all work performed and produced by the CDOT construction contractor on the project. Work shall include inspection and documentation of requirements set forth in the Standard Specifications for Road and Bridge Construction, the M&S Standards, and references. This work is to be accomplished in accordance with the CDOT Construction Manual. The individuals shall meet all the requirements as outlined in CDOT Policy Memo 25, Construction Inspector Qualification Program including traffic control supervisor training. The Consultant shall be familiar with SiteManager Construction Management System in order to enter CMOs, time counts, daily work reports, and other areas if needed.

Inspection work shall conform to the CDOT Construction Manual and the Inspector Checklist. Each of the Consultant's field inspectors shall maintain a daily diary for each day the Consultant performs work on the project. They shall use CDOT's Form 103, automated 103a – Project Diary, or other form approved by the Resident 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 are not to be incorporated in the diaries or on any written correspondence applicable to the project. A copy of the diary shall become a part of the permanent project record.

### **3.3 Consultant Materials Testing Technician**

The Consultant materials-testing technician shall sample, test, inspect, and document all materials generated on the project unless otherwise directed by the Consultant Project Engineer. This includes but is not limited to: materials delivered to the project that are listed in the Summary of Approximate Quantities in accordance with the schedule in the Field Materials Manual; materials that may be added to the project through contract modification orders; and, altered material quantities whether increased or decreased. The testing technician and Consultant Project Engineer shall review project quantities on a weekly basis to ensure that sufficient tests have been performed for the material placed to date. The Consultant shall provide any other related testing services requested by the CDOT Resident Engineer or designee.

Testing of materials that are specifically designated to be pre-inspected or pre-tested shall remain the responsibility of CDOT. The Consultant shall document and obtain samples of any and all materials to be transported to CDOT central laboratory that are required to be tested by CDOT regardless of pre-inspection or pre-testing responsibilities. The items and test frequencies of Department-tested materials shall be in accordance with the Materials Manual under Schedule (Owner Acceptance), Central Laboratory.

The materials testing technician shall be under the direction of, and shall be reviewed by the Consultant Project Engineer and CDOT testing personnel. A Consultant supervisor shall be available to review work, resolve problems, and make decisions in a timely manner as requested by the CDOT Resident Engineer or his designee, and must be experienced and competent in road and bridge construction, materials testing, and inspections.

The materials testing technician shall be assigned to the project on a full-time basis and have a minimum of two years experience in each specialty field (soils, aggregates, asphalt paving, and concrete) that is being tested, and shall have the following qualifications: WAQTC certification, nuclear safety certified as issued by the Colorado Department of Public Health and Environment, ACI certified as a concrete Field Testing Technician Grade 1, ACI certified as concrete Strength Testing Technician Grade 1, CAPA certification LabCAT Levels A and B, and Traffic Control Supervisor training. The individual shall meet all the requirements as outlined in CDOT Policy Memo 25, Construction Inspector Qualification Program. Nuclear Gauges must be calibrated using the Department's standard blocks. The materials testing technician shall be thoroughly familiar with CDOT forms and documentation requirements, and have had LIMS training in site-manager with the ability to enter all materials documentation into the site-manager LIMS program.

Equipment shall be furnished by the Consultant tester for each segment of the project in sufficient quantity and in good working order to ensure accurate performance of all work required in a timely manner. Equipment for this project may include, but not limited to following:

1. Nuclear Moisture/Density Gauge.
2. Sieves for aggregates and soils gradation.
3. Electronic scales, if not furnished by the Contractor.
4. AC gauge, Rice equipment, and hand tools for HMA Testing.
5. Sample containers including, but not limited to: quart-sized asphalt cement cans with lids, three-gallon metal containers and lids for HMA samples, sample bags, five-gallon buckets with rubber seal lids for moisture samples, and buckets for sampling concrete.

6. Proctor equipment for soil curves and one-point tests.
7. Atterberg equipment.
8. Sample-drying equipment.
9. Miscellaneous pans, tools, and equipment for performing required soils, concrete, and asphalt field tests.
10. Concrete cylinder molds which conform to AASHTO requirements.
11. Tape measure and various hand tools.
12. High/low and recording thermometers.
13. Various office supplies and calculators.
14. Computer with CDOT-approved programs.
15. CDOT M&S Standards, Construction Manual, and Inspector's Checklist.
16. Concrete testing equipment: air meter, slump cone, unit-weight scale, hand tools, and beam molds.

#### **4.0 Miscellaneous**

A supplement to this task order may be necessary in the event the level of effort required increases beyond that described, including but not limited to extended construction duration and/or additional construction shifts.

Direct costs will be expended as required for the proper performance of the work, and in accordance with CDOT requirements and approvals. Work may be required night and/or day, weekends, holidays, and/or on a split shift basis when requested by the Resident Engineer. Workweeks may be in excess of or less than the standard 40-hour week. Workhour estimates will be based on **50 hours** maximum per week for field work and **40 hours** maximum per week for non-field work.