

**Region 1 ADA Curb Ramps**  
**CONSTRUCTION ADMINISTRATION**  
**SCOPE OF WORK**

Scope Date: February 14, 2020

Estimated Construction Start Date: April 2020  
Region 1

PROJECT NUMBER: CO 1211-097  
PROJECT CODE: 23345  
CMS ID NUMBER:  
PROJECT LOCATION: Region 1 Corridors  
CONTRACT TYPE: Project Specific, Specific Rate of Pay  
CONTRACT SUBJECT: Independent Cost Estimating, Schedule Analysis, Inspection & Testing Services

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The Contract Administrator for this Contract will be:

Kurt Kionka, PE  
Resident Engineer – Region 1 North Program  
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Denver, CO 80216  
Office: 303-398-6738, Mobile: 720-390-8701  
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Active Day to Day administration and monitoring of this contract will be delegated to the following CDOT employee:

Andrea Hebard  
Construction Manager – Region 1 North Program  
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Denver, CO 80216  
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Email: andrea.hebard@state.co.us

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**Project Background**

The Region 1 ADA Curb Ramp Replacement Project (the “Project”) will be delivered through the Construction Manager/General Contractor (CMGC) process and the selected CMGC will support the preconstruction phase through analyzing the design and phasing options to optimize the scope within the budget and will have the opportunity to be the General Contractor during the construction phase. CDOT is soliciting Independent Cost Estimating, Schedule Analysis, Inspection, and Testing services (Consultant) to support CDOT staff during preconstruction and construction services.

## CORRIDOR GOALS

This Project is intended to produce the following improvements in conjunction with other projects in the Region:

1. Provide ADA compliant curb ramps for the public as well as a safe work zone for construction and the travelling public.
2. Maximize scope of work with the available fiscal resources.
3. Ensure the longevity of the project; compatibility with the ultimate configuration and emerging technologies.
4. Improve mobility and traffic operations; increase multimodal connections.

## PROJECT GOALS

1. Commit to the CMGC process by engaging the right team members at the right time to proactively problem solve, reduce risk, streamline design development, and construct a successful Project while showing a return on CMGC investment.
2. Utilize innovation while optimizing design and construction to maximize scope, provide best value, and not exceeded the Fixed Limit of Construction cost.
3. Create a collaborative and transparent team culture that engages in open conversation regarding project delivery (i.e. risk, constructability, reviews, material procurement, cost model, ROW acquisition, schedule, and third-party issues) throughout preconstruction and construction.
4. Be adaptable to scope adjustments with the ability to change direction and deliver quickly.
5. Strategically phase work by identifying work areas and construction packages to minimize disruption to the traveling public, while balancing cost and schedule.

The Project's major elements include, but are not limited to:

### ADA Curb Ramps

The Project risks have been identified as:

- Construction cost fluctuation
- Project duration uncertainty
- Vehicle and Pedestrian Traffic phasing
- Utilities
- Coordination with other major projects and stakeholders
- Industry resource availability

## General Requirements

This Scope of Work (SOW) has been carefully reviewed by the Department and reflects a plan of approach based on the above-specified goals. A successful project will include the team's ability to implement project goals, evaluate work elements, understand key issues and risks, and formulate a work plan that may produce new methodologies and project approach. Therefore, the Final Scope of Work for the project may change and evolve based on project innovation and methodologies. 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.

- 2- Consultant Inspectors**
- 1- Consultant Materials Tester**
- 1- Independent Cost Estimator**
- 1- Schedule Review Analyzer**

This work is located in Region 1 of the Colorado Department of Transportation. It is anticipated that there will be multiple construction packages as part of this project delivery over the time period of two years

### **Definitions**

Senior Inspector – An individual with a minimum 5 years of documented CDOT experience. This individual shall have the skill set and experience similar to that of a CEPM-I

Junior Inspector – An individual with a minimum 1 year of documented CDOT experience similar to that of an EPST-I

Materials Testing Technician – A competent individual with a minimum 2 years of documented CDOT experience – competent in all areas of materials testing.

Consultant Independent Cost Estimator – An individual with a minimum 2 years of documented experience using software and tools of a project cost estimator

Consultant Schedule Reviewer – An individual with a minimum 1 year of documented CDOT schedule review and analysis.

Below is a list of key skills that are needed to support CDOT staff. These skills are detailed for both preconstruction and construction services. Key Personnel should be scalable and flexible based on various funding scenarios and maintain consistency between packages and through preconstruction and construction phases. The Construction Management Team should be involved in key pre-construction meetings related to their package to ensure consistency between pre-construction and construction phases.

Senior Inspector – weighted rating 25%

- Serves as support to CDOT.
- Documented Experience in Transportation Construction and understands Risk Management, CDOT Construction Specifications and Schedule.
- During preconstruction, add input when reviewing specifications and plans that will proactively address possible issues that may occur during construction. Skill set should be able to provide construction expertise, have input on production rates and methodology, and innovation.
- This person/people should have a minimum of 5 years of experience managing projects and a history of performing preconstruction input and analysis.
- Familiarity and knowledge of PROWAG & Survey-1-2-3

- Experience similar to that of a CEPM-I – MHT and traffic control review, erosion control inspection, public information requirements, submittal review, CDOT reporting requirements
- Anticipated time commitment: 100% throughout the duration of the project.

Junior Inspector – weighted rating 20%

- An individual with 1 year of documented CDOT experience
- Capable of independent construction observation, experience similar to that of an EPST-I.
- Understands order of precedence, methods of measurement and payment
- Has completed CDOT basics, basic math, plan reading and surveying
- Anticipated time commitment 100% throughout the duration of the project

Materials Testing Technician – weighted rating 25%

- An individual with 2 years of documented CDOT experience
- A fully competent tester fully functional in all aspects of materials testing and software as defined in the Field Materials Manual CP-10.
  - Certification and Training current for 2020 CDOT testing
- Anticipated time commitment 100% throughout the duration of the project

Independent Cost Estimator – weighted rating 15%

- Well organized and serve as the source for ensuring construction packages are severable, complete and in-line with the CMGC process.
- This person/people should have a minimum of 2 years of construction experience and a history of performing preconstruction input and analysis. Experience with a variety of tools used to estimate cost and familiarity with the type of work we will perform.
- Anticipated time commitment: 10 % intermittent throughout the duration of the Project.

Schedule Analysis – weighted rating 15%

- An individual with 1 year of documented CDOT experience analyzing baseline schedules, monthly updates – well versed in all aspects of 108.03.
- The Schedule Analyst shall have sufficient education, software, training and experience to correctly review and comment on the contractor’s schedules and method statements. The individual shall be experienced and competent in all aspects of highway construction within the scope of this project
- Anticipated time commitment: 10 % intermittent throughout the duration of the Project.
- Review the Contractor’s accepted as-planned schedule, schedule updates and method statements for compliance with contract requirements.
- Attend work session conference calls with contractor to develop Baseline Project schedule
- Initial schedule review including durations, logic, sequencing, and methods statements Provide written comments and recommendation to Project Engineer.
- Review complete project schedule submitted by contractor. Provide written comments and recommendation to Project Engineer.
- Perform a schedule delay analysis and determine the amount of Contractor and/or CDOT excusable delays.
- Prepare schedule reports and exhibits to assist in the evaluation of schedule delays and remaining as-planned work.

### **Initial Project Scoping Workshop (Pre-Construction Phase)**

There will be a Project Scoping Workshop meeting with the selected CMGC, CM Services Consultant and the CDOT Project Management team in Spring 2020. The Workshop will provide an opportunity to discuss Project status, goals, objectives, funding, preliminary preconstruction schedule, partnering, roles and responsibilities, scope of work and schedule for the potential early construction package, and develop Communication Plan and Escalation ladder. The Consultant shall meet with CDOT project personnel 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 Engineer.

### **Work Duration**

The time for the work described in this scope of work covers the period from Notice to Proceed to December 2022 or 90 days after Final Acceptance of the construction project, whichever is later. The anticipated time period for the Priority Section work described in this scope is approximately 6 months for design and 2 years for construction. Should additional funding be identified, these time periods will be extended. If additional funding is not secured by the completion of construction of the Priority Section and/or added design or construction packages, this contract will be terminated.

For portions of the project, night work will be required. Work will also be required during the day, on weekends, holidays, and/or on a split-shift basis. Workweeks 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. The Consultant shall meet with the CDOT Project Engineer if it is anticipated that Consultant services may not be required for a period exceeding two weeks. A procedure shall be agreed upon at the Initial Project meeting to resolve this issue.

### **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 and time 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 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. **Each of the different design packages will have different project numbers and billing should reflect as such.**

### **Status of Contract**

The consultant shall monitor the fiscal status of the contract, and advise the CDOT Construction Manager 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. Pre-construction support services will be issued as a separate task order from the Construction services.

### **Project Standards**

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

Proposed work procedures shall be coordinated with the CDOT Construction Manager and Project Director prior to the start of work.

### **Labor, Materials, Vehicles & Equipment**

The Consultant shall furnish all personnel, equipment and transportation required to perform the work. Consultant personnel shall have appropriate vehicles (equipped with flashing beacon), cell phone, cell phone booster/amplifier, computers, and miscellaneous equipment (calculator, office and lab supplies, safety equipment, etc.) required for performing the work including tablets able to perform work identified under "Technology" in this scope.

Consultant staff shall be supplied with a state of the art computer w/modem (phone, ISDN or cable as required) and wireless aircard, a color printer (that can be networked for all staff or black/white for other staff and print 11"x17"), a scanner (capable of scanning 11"x17" sheets), and loaded with the most current version of MS Office software (& Site Manager or LIMS program if applicable).

The Consultant shall have digital GPS video cameras available to staff at all times and document the project accordingly submitting with videos relevant photos to the CDOT Project Director on a regular basis.

Personnel qualifications, staffing level, and number and types of vehicles shall be subject to the approval of the Project Director. The Consultant shall assign personnel for the duration of the project unless otherwise approved by the CDOT Project Director.

The following equipment shall be furnished by the consultant tester 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:

- 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

### **Technology**

The Consultant shall provide tablets for each consulting staff member and CDOT staff member during the Project (pre-construction and construction), that meet or exceed the following Specifications: 16 GB of Memory, 8 MP photos, 3G/Wifi capable with service plan, 12.9 Inch (diagonal) screen, and Bluetooth keyboard and protective cover, internal GPS, and the ability to install programs and applications that will be used on the Project.

This project will utilize electronic based applications to perform construction oversight activities. All staff will need a Google (Gmail) email address – a google shared drive will be used for document storage

### **Documentation**

Electronic documentation is required – all Each of the Consultant's personnel shall maintain a daily diary for each day of the week regardless if work is performed on the project. They shall use CDOT's automated Form 103a - Project Diary unless otherwise directed by the CDOT Construction Manager. The contents of the diary shall be brief and include accurate statements of progress and conditions encountered during the prosecution of the work. Sketches shall also be included 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 Consultant or CDOT Construction Manager

at the end of each workday and a copy shall be filed in the project records within one working day of its date.

### **Work Description for Construction Phase**

#### **Task 1.0      Inspection**

Provide CDOT Project Engineer with the following construction management and inspection support.

- 1.1 Construction Coordination: Regularly scheduled weekly and as-needed meetings will be conducted with the Contractor and other involved parties to review, update, and coordinate construction activities. Weekly meetings will include a review of issues that are impacting progress, the cost to complete the work, and significant situations encountered related to the construction of the project. Meeting minutes will be prepared to document items discussed, decisions reached, direction given, and actions to be taken.
- 1.2 Review of Contractor's Method of Handling Traffic: Review and approve the Contractor's Method(s) of Handling Traffic (MHT) submittals. During construction, monitor the Contractor's MHT for implementation of traffic signing, barriers, and other traffic control measures in accordance with the approved plan.
- 1.3 Review of Construction for Conformance with Plans and Specifications: Monitor the Contractor's construction activities with respect to the contract documents and relevant schedule submittals governing the performance of the work. Resolve construction problems and/or recommend action for their resolution, as they relate to changed field conditions or conflicts in the contract documents. Coordinate with the designer during construction for implementation of revisions to the plans as may be required.
- 1.4 Review of Progress Schedule & Processing Shop/Working Drawings Submitted by the Contractor: Schedule submittals shall be thoroughly reviewed for completeness and accuracy. Appropriate action shall be taken when deficiencies are noted.

Submittals, design drawings, shop drawings, materials, and test procedures received from the Contractor will be forwarded to appropriate CDOT design personnel for review and approval. Approved drawings will be returned to the Contractor, as well as a copy retained for use during the remainder of the project.

- 1.5 Daily Inspection: Perform daily inspections of construction activities to document activities performed and assessment of conformance with the contract documents. Inspection items may include but are not limited to excavation, backfill, and compaction operations; concrete placement; paving; drainage; utilities; structures; signing and striping; landscaping; and traffic control installations.

Quantities of work elements constructed will be measured and recorded to support the



preparation and processing of progress pay estimates to the Contractor. Quantities will be documented in an interim quantity book for tracking of quantities constructed as compared to the original design quantities on the project. Quantities of work will be agreed upon with the Contractor and then reflected in monthly progress pay estimates prepared by the Consultant's staff. Assist CDOT in resolving disputes in quantities with the Contractor prior to the preparation of the pay estimate.

- 1.6 Materials Testing: Direct, coordinate, supervise, monitor, manage and administer all materials sampling and testing to ensure that the required sampling, materials testing and documentation is obtained in a timely manner and maintained in accordance with the Materials Manual and Contract requirements to verify the quality of the work performed by the construction contractor.
- 1.7 Project Documentation: Maintain project submittal register, track project correspondence, check daily diaries, prepare inspectors progress reports, and complete appropriate CDOT paperwork and forms.

## **Task 2.0 Post Construction Support**

- 2.1 Completion, Inspection and Punch List: Conduct a final inspection with the Contractor, CDOT Project Director, CDOT Project Engineer, and CDOT Maintenance representative(s) upon substantial completion. The result of the inspection is the development of a punch list of remaining and/or outstanding work to be performed by the Contractor prior to final project acceptance.
- 2.2 As-Constructed Drawings: Complete as-constructed drawings of work completed by the Contractor including final pay quantities.
- 2.3 Completion Inspection and Close-Out: Following the completion of all punch list items by the Contractor, conduct a final inspection with representatives from the Contractor and CDOT, to confirm the completion of all work. The result of this inspection will constitute final project acceptance.
- 2.4 Preparation of Final Pay Estimate: Determine final quantities with appropriate supporting documentation (hard copy & digital as needed) and checks and prepare final pay estimate.

## **Inspection Services**

Inspection work shall conform to the CDOT Construction Manual, the Inspector Checklist and SiteManager requirements. Each of the Consultant's field inspectors shall maintain a daily diary for each day of the week on the project. They shall use CDOT's Form 103 or automated 103a - Project Diary, or other form approved by the Project Director. SiteManager documentation procedures will apply. 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 become a part of the permanent project record.

Inspection responsibilities may include but are not limited to the following:

1. Preparing and transmitting updates of construction activities to the CDOT's Public Information Officer.

2. Periodic reports and billings required by CDOT Procedural Directive 400.2.
3. Monitoring and documenting contractor payroll compliance.
4. Participation in weekly progress meetings with contractor, subs, utilities and other interested parties.
5. Securing project documentation from the contractor.
6. Anticipating project problems and directing solutions to the Consultant Project Engineer.
7. Reviewing drawings and data submitted by the construction contractor and suppliers for conformance with the specifications. Inform and obtain concurrence as needed from the Consultant Project Engineer and keep relevant documentation for project records.
8. Maintaining accurate notes reflecting actual construction details to be used in preparation of as-constructed plans.
9. Communicating with adjacent landowners as required toward resolving issues that arise due to construction.
10. Review and approve the Contractor's Method of Handling Traffic if delegated by the Consultant Project Engineer.
11. Monitoring compliance with and taking appropriate action to preserve safety on the project for all workers and traveling public in accordance with Method of Handling Traffic (MHT) and the Manual of Uniform Traffic Control Devices (MUTCD).
12. Initial, follow up, and final inspections of work in progress including interim and final measurements and coordination with Consultant Tester to ensure materials testing requirements are met.
13. Promptly notifying contractors and Consultant Project Engineer of non-compliance with the contract plans and specifications.
14. Performance of special tests, investigations, or monitoring which are required to fulfill the intent of the CDOT inspection program.
15. Preparation of inspection documentation for development of progress payments for the contractor in accordance with prescribed procedures.
16. Submittal of standard documentation reports no later than the following working day.
17. Preparation of routine correspondence to the contractor, CDOT Staff, local agencies, etc.
18. Providing liaison and communication to contractor field crews.
19. Assist the Project Engineer with preparation of final "As Constructed" plans.
20. Assist in preparing punch lists of uncompleted work, non-conformance reports, and deficiency notices.
21. Assist in preparing responses to contractors' and suppliers' requests for information, submittals, change notices, claims, and correspondence.

### **Materials Testing**

The consultant shall sample, test, inspect and document all materials generated and produced on the project. This includes: materials delivered to the project that are listed in the Summary of Approximate Quantities in accordance with the SCHEDULE in the 2019 Field Materials Manual; materials that may be added to the project through contract modification; and altered material quantities whether increased or decreased.

The consultant's Project Engineer and field tester(s) shall review project quantities on a monthly basis to ensure that sufficient tests have been performed for the material placed to date. The consultant shall also provide any other services as requested by the CDOT Project Director or Consultant Project Engineer.

Testing of materials that are specifically designated to be pre-inspected or pre-tested by this or any other Department of Transportation shall remain the responsibility of CDOT. The consultant shall document and transport samples of any and all materials to the 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 column titled “Central Laboratory” in the SCHEDULE.

The consultant shall sample, test and inspect those specified materials utilized in construction. Other services may be requested in writing by the Construction Manager. Test results and inspection observations shall be documented by the consultant and approved by the Consultant Project Engineer in accordance with the references cited above in Project Standards. The materials tester will be responsible for materials sampling, testing, and documentation as directed by the Project Engineer to supplement the project testing staff during peak periods. The materials tester needs to be certified to perform the project sampling and testing in accordance with CDOT requirements. These requirements typically include the following certifications: CDOT Field Tester Certification, LIMS, CAPA levels A&B, ACI field I, and WAQTC, and nuclear gauge operation.

#### CONSTRUCTION MANAGEMENT REQUIREMENTS

**2- Consultant Inspectors – 1 Sr inspector & 1 Jr inspector**

**1-Consultant Materials Tester – Competent**

**1-Independent Cost Estimator- previous CMGC experience**

**1-Schedule Review Analyzer- has experience analyzing CPM per 108.03**