

SCOPE OF WORK CDOT REGION 2 PROJECT SPECIFIC DESIGN ENGINEERING

CONTRACT TYPE: PROJECT SPECIFIC DESIGN ENGINEERING SERVICES

PROJECT NUMBER: IM025A-047

PROJECT CODE: 23463



PROJECT LOCATION: 1-25 Corridor from MP 0 to MP 13 in Trinidad, CO



**PROJECT SPECIFIC
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SECTION 1 PROJECT SPECIFIC INFORMATION

1.1 Planned Improvements. The general planned improvement is to address geometric deficiencies along I-25 and reconfigure or rebuild interchanges. The goal of the design(s) is to increase capacity, improve safety, improve pedestrian/bike movements, and maintain/improve access for customers to all the existing and future businesses along this section of I-25.

1.2 Project Goal. This project is intended to produce the following improvements:

- Maintain Access to Businesses
- Increased capacity
- Improved safety
- Higher level-of-service
- Improve mobility
- Update facilities to current interstate standards

1.3 Project Location. This project is located on I-25 Corridor from M.P. 0 to M.P. 13

1.4 Project Cost. The construction cost of some projects (known at this time) along the corridor is estimated at \$13-20 million.

1.5 Work Duration. The time period for the design work described in this scope is approximately 5 calendar years.

1.6 Consultant Responsibility. The Consultant may be responsible for multiple design disciplines all related to a singular project. There could be multiple projects occurring within this corridor. Some projects may be successive but some could be concurrent. A more specific description of discipline descriptions is below in Section 3.3.

1.7 Work Product. The Consultant work products are:

- Field Inspection Review (FIR) Plans
- Final Office Review (FOR) Plans
- Right of Way Plans
- AD Plans, Specifications, Cost Estimate
- Construction Plan Package
- Alternatives analysis
- Grant Applications

1.8 Work Product Completion. All submittals must be accepted by the CDOT Contract Administrator or their designee.

SECTION 2
PROJECT MANAGEMENT AND COORDINATION

2.1 CDOT Contacts. The Contract Administrator for this project is Karen Rowe, Regional Transportation Director Region 2.

General administration of this contract will be delegated to Ajin Hu, South Program Engineer.

Active day to day administration and monitoring of contract task orders will be delegated to Regional Resident Engineers or CDOT PEs within each task order.

Active day-to-day administration of the contract will be delegated to:

- Name: Joe DeHeart
- Title: Resident Engineer
- Address: Pueblo, CO 81001
- Telephone: (719) 546-5439

2.2 Project Coordination. Coordination will be required with the following:

- CDOT
- City of Trinidad
- Las Animas County
- SCTPR
- FHWA
- DNR

The Consultant should anticipate that a design which affects an agency will have to be accepted by that agency prior to its acceptance by the Colorado Department of Transportation. Submittals to affected agencies will be coordinated with CDOT.

SECTION 3 PROJECT DESCRIPTION

3.1 Background. This section of I-25 Corridor, is comprised of two sections with one being a mountains area over Raton Pass and the other consisting of business and commercial enterprises on the south end of the Town of Trinidad. This section of I-25 corridor has mainline deficient geometrics needing to be addressed as well as reconfigure or rebuild some interchanges.

3.2 Project Limits. The project lies within the Milepost 0 to Milepost 13 on the I-25 corridor in Trinidad, CO.

3.3 Work Elements.

- Project management: Scoping, Scheduling, Public Involvement, Coordination with major entities (CDOT, City of Trinidad, Las Animas County, SCTPR, FHWA, Utility Companies, etc.), Grant Writing assistance
- Right of Way/Surveying: Aerial Survey, Field Survey, Ownership Mapping, Right of Way plans (including contracting and obtaining title services if needed)
- Environmental: CATEX preparation (including all necessary work to obtain clearances)
- Design: Roadway, Bridge, Drainage, Landscaping, Irrigation, Maintenance of Traffic, Geotech, Structural, ITS/Signal/Lighting, Signing and Striping (including production of PS&E and/or Design-Build RFP packages, Value Engineering Studies, Constructability Reviews, and Design Services during Construction)
- SUE – project specific utility investigation level appropriate for the proposed work.

SECTION 4 KNOWN EXISTING FEATURES

4.1 Utilities. The consultant will coordinate with U.N.C.C. at 1-800-922-1987 to obtain utility information. Other existing features may exist and require additional coordination or data collection from individual utility companies.

4.2 Existing Bridge Inspection Reports

4.3 As-built drawings from past construction projects

4.4 Existing geological and rock fall studies

SECTION 5
ITEMS TO BE FURNISHED BY CDOT

5.1 Roadway CAD Design files, Specifications, Standards, etc. Electronic Files of applicable standards. All CDOT forms specified in this document.

5.2 Project Specific Items.

- CDOT available accident history data
- CDOT available traffic data
- CDOT Roadway Design Model and Plans when developed
- Designs of previous projects
- As-constructed roadway, and existing ROW plans
- Soil Profile and Pavement Design
- CDOT Forms
- Exit 11 MIMR
- Exit 11 Final Geotech Report
- Exit 11 1601 request letter
- Exit 11 alternatives analysis

SECTION 6 GENERAL INFORMATION

6.1 Authorization to Proceed. Work will not commence until the written Notice-to-Proceed is issued by the State with certification from the Consultant that the work will be completed within the allotted time.

6.2 Project Coordination. The routine working contact will be between the CDOT Project Manager (CDOT/PM) and the Consultant Project Manager (C/PM). Each Project Manager will provide the other with:

- Written synopses or copy of their respective contacts (both by telephone and in person) with others.
- Copies of pertinent written communications

6.3 Routine Reporting and Billing. The Consultant will provide the following on a routine basis:

- Coordination of all contract activities by the C/PM
- The periodic reports and billings required by CDOT Procedural Directive 400.2 (Monitoring Consultant Contracts).
- Minutes of all Meetings: The minutes will be completed and will be provided to the CDOT/PM within five (5) working days after the meeting. When a definable task is discussed during a meeting, the minutes will identify the "Action Item", the agency responsible for accomplishing it, and the proposed completion date.
- In general, all reports and submittals must be accepted by CDOT prior to their content being utilized in follow-up work effort.

6.4 Personnel Qualifications. The Consultant Project Manager (C/PM) must be approved by the CDOT Contract Administrator or delegated day-to-day administrator. Certain tasks must be done by Licensed Professional Engineers or Professional Land Surveyors (PLS) who are registered with the Colorado State Board of Registration for Professional Engineers and Land Surveyors.

6.5 CDOT Computer/Software Information.

- Earthwork: Open Roads
- Drafting: Micro Station
- Survey: Open Roads TMOSS
- Estimating: Transport, an ASHTO-sponsored software and
- Specifications: Microsoft Word

Computer Data Compatibility. The data format used by the Consultant to submit surveying and photogrammetric data, shall be determined by the CDOT/PM in coordination with the respective Region PLS. The data format for submitting design computer files shall be compatible with the CDOT Open Roads program.

The Consultant shall immediately notify the CDOT/PM if the firm is unable to produce the desired format for any reason, and cease work until the problems are resolved.

6.6 Project Design Data and Standards.

- General. Attachment A is a list of technical references applicable to CDOT work. The Consultant is responsible for ensuring compliance with the listed references. Conflicts in criteria shall be resolved by the CDOT/PM.
- Specific Criteria. Attachment B is a list of specific project criteria. The list is comprehensive and may include items that are not required for tasks defined in this scope. The Consultant shall submit the pertinent criteria to the CDOT/PM at one of the periodic progress meetings prior to initiating design.
- Construction Materials/Methods. The materials specified for construction and any indicated construction methods will be selected to minimize the initial construction and long-term maintenance cost to the State of Colorado. Non-typical construction materials and methods must be approved in writing by CDOT.

6.7 CDOT's Right Not to Have the Consultant Perform the work. While it is anticipated that the Consultant will be asked to perform all the activities checked as performed by Consultant, CDOT reserves the right to perform any or all of these tasks, or to provide assistance to the Consultant on any or all such work.

Note: For all agreements that include final design services:

1. For Design-Bid-Build project, if the prime or sub consultant participate in more than 30% (of design costs) in the final design portion of the contract, they shall not be able to compete for construction administration and engineering services for the owner on the same project for which they are providing final design services.
2. For Design-Build project, if the prime or sub consultant participate in the creation of the RFQ, RFP, Books 1-5, and/or the procurement, short listing, BAFO, or award processes:
 - a. They shall not be able to participate as one of the Design-Build teams competing for the construction award of the project.
 - b. They may be eligible to perform construction administration and engineering services for the owner, if CDOT deems it appropriate.
 - c. If a prime recuses itself during the RFQ, RFP, and procurement phases of a DB project then its sub consultants are automatically recused also for this contract. Sub consultants still wanting to be involved with the DB project would have to provide their services through a separate contract event.
3. Prime or sub consultants who perform preliminary design (up-to FIR for DBB and up-to RFQ for DB) and environmental services (phase 1 and ISA for example) may continue with, or compete for, final design services.

SECTION 7 WORK ACTIVITY ASSIGNMENTS

7.1 **Type of work.** Type of work may include all or parts of the following activities:

1. General Engineering Services - The scope for general engineering and design services may include but shall not necessarily be limited to:
 - a. Provide conceptual drawings, graphs, data collection, or charts for the Region's planning, environmental, or other units as needed.
 - b. Conduct Studies - transportation, environmental, etc.
 - c. Provide support for region planning activities, including assistance with public meetings.
 - d. Provide design support for off systems or other modes of transportation alternatives.
 - e. Provide drafting support or CADD services. All CADD work for CDOT will be conducted using Micro Station and Open Roads Software, latest versions used by CDOT.
 - f. Provide lighting plans and analysis.
 - g. Provide support research or search county, state or other areas for records or documents relevant to the project or task.
 - h. Provide or acquire design services as required to complete tasks not specifically defined in the outline, but that may be required by specific task order.
 1. Assist in developing and writing grants for construction funding.
 - J. Public information and public involvement during design development of multiple projects
2. Surveying- The scope of work for surveying activities may include:
 - a. Perform surveys related to the horizontal and vertical alignment of the project.
 - b. Perform GPS control survey.
 - c. Perform topographical surveys.
 - d. Perform cross section surveys.
 - e. ROW support for design.
 - f. Perform utility surveys (include potholing).
 - g. Perform wetland survey.
 - h. Prepare project control diagram.
3. Photogrammetric Mapping
4. Right-of-Way Plan Preparation - The scope for right-of-way plan preparation may include:
 - a. Determine parcels.
 - b. Write parcel legal descriptions.
 - c. Determine parcel size.
 - d. Prepare R.O.W. plan tabulation sheet.
 - e. Prepare R.O.W. plan sheets.
 - f. Prepare monument tabulation monumentation sheets.
 - g. Prepare land survey control diagram.
 - h. Prepare total ownership maps.
 1. Title Research/Obtain Title Services.
 - J. Prepare Revisions to Legal Descriptions and R.O.W. Plan sheets.

5. Bridge/Structural Design Activities - The scope of work for bridge design activities may include:
 - a. Provide design services for various highway structures or portions of highway structures.
 - b. Furnish detailing services including drafting and quantity calculations for various highway structures or portions of highway structures.
 - c. Provide bridge design and detailed review of work performed by other designers.
 - d. Provide wall design and detailed review of work performed by other designers.
 - e. Provide structural selection reports and structure selection studies.
 - f. Provide a structure concept study.
 - g. Obtain structural data.
 - h. Provide foundation investigation report.
 1. Coordinate with outside agencies; for example, railroad agencies.

6. Roadway Design Activities -The scope of work for roadway design activities may include:
 - a. Provide design services including quantity calculations for the various components of roadway construction, which could include intersection layout, interchanges, signals, structures, lighting, landscaping, irrigation design, ditch design, waterline, sanitary sewer design, and roundabout efficiency.
 - b. Furnish detailing and drafting services utilizing Micro Station and Open Roads Software, latest CDOT adopted versions utilizing CDOT format. Other software required for design services and communication of information are Microsoft office products such as word, excel, power point. In addition, project wise or FTP sites may be required for file sharing. Other formats or software products may be required for specific tasks such as traffic modeling or truck turning movements.
 - c. Attend scoping reviews, design office reviews, field inspection reviews, and final office reviews and provide minutes as appropriate.
 - d. Prepare (PS&E Package) final plans, specifications and provide the CDOT project manager with detailed estimates that can be entered into CDOT Trns-port application system.
 - e. Prepare revisions under-advertisement to plans or specifications when necessary.
 - f. Design and layout of intersections and interchanges.
 - g. Hydrology Activities - The scope of work for the hydrology activities may include:
 - h. Collect historical drainage data.
 1. Establish drainage basin data.
 - J. Select run-off parameters and predict peak flow.

7. Hydraulics Design Activities - The scope of work for hydraulics design activities may include:
 - a. Furnish the size and location of drainage structures.
 - b. Furnish storm sewer design.
 - c. Furnish erosion protection design and NPDES requirements.
 - d. Furnish quantity calculations for drainage structures including in-igation and permanent BMP's for surface drainage.
 - e. Design of water and waste water systems.
 - f. Irrigation system designs including, but not limited to, typical ditches, traveling gun irrigation systems and other center pivot systems.
 - g. Traffic Engineering Activities -The scope of work for traffic engineering activities may include:

- h. Collect traffic data.
 - l. Perform traffic studies or analyses.
 - J. Perform in-field inventories of traffic control device locations and conditions.
 - k. Furnish design and quantity calculations necessary to prepare signal, signing or pavement marking plans.
 - L. Furnish detailing and drafting services.
 - m. Attend field inspection and final office review.
 - n. Prepare construction signing plans and schedules.
 - o. Prepare final plans and specifications.
8. Architectural Activities - The scope of work for architectural activities may include:
- a. Furnish design and quantity calculations of the various components of highway-related facilities.
 - b. Furnish detailing and drafting services.
 - c. Prepare final plans and specifications.
 - d. Evaluation and assistance in the resolution of problems encountered during construction of transportation-related facilities and/or state buildings.
9. Landscape Architectural Activities - The scope of work for landscape architectural activities may include:
- a. Conduct or participate in public meetings in determining treatments.
 - b. Provide estimates of quantities of native seeding and mulching for the FIR plans.
 - c. Determine most economic landscape alternative, finalize concept, and complete the plan.
 - d. Verify that an acceptable safe recovery distance exists between traveled way and all trees to be planted.
 - e. Coordinate all special permits that may be required.
 - f. Coordinate ROW requirements.
 - g. Write Special Provisions and submit to the CDOT/PM with the completed roadside plans.
 - h. Submit the approved plan/special provisions to the Design Engineer for inclusion in the Project Plans.
 - l. Verify availability of plant materials and submit letter to the CDOT/PM certifying that designated plants are available.
 - j. Provide recommendations for alternative landscape designs and recommendations for Best Management Practices for temporary and permanent erosion protection.
 - k. Provide Storm Water Plan Sheets with BMP locations and quantity calculations.
10. Noise Study - The scope of work for noise study activities may include:
- a. Predict or measure present noise levels.
 - b. Analyze noise levels for all alternatives, including the no-build. Noise level models will be made with at least CDOT's stamina noise computer model or better. Distances at which noise levels exceed acceptable levels will be determined for each alternate and plotted on Corridor maps.
 - c. Identify locations where noise abatement measures are needed, determine which measure is feasible and cost effective, and estimate construction and maintenance costs.

- d. Prepare a noise assessment report for acceptance by CDOT.
 - e. Conduct Noise survey(s) with affected receptors.
 - f. Value Engineering (VE) - The scope of work for value engineering activities may include:
 - g. Conduct VE meetings and provide minutes. The VE meetings should be considered for the following efforts:
 - h. Brain Storming
 - 1. Evaluating alternatives upon meeting the project purposes and need
 - J. Recommend alternatives
 - k. Most benefit to purpose and need
 - 1. Minimal or mitigatable impacts
 - m. Constructability
 - n. Cost
 - o. Best overall response to constraints and concerns
 - p. Collect and compile VE cost and workhour data.
 - q. Provide Final VERep011.
11. Constructability Reviews - The scope of work for constructability review activities may include:
- a. Solicit participation from external industry organizations or relevant construction
 - b. Review construction drawings at various stages of design development to ensure design represents a feasible and cost effective approach
 - c. Adjust or reconfigure design based on input from this review.
 - d. Document discussion and outcomes from meetings.
 - e. Prepare supporting drawings and cost estimates to facilitate meetings.
 - f. Geotechnical Services for Design - The scope of work for design services include:
 - g. Provide field sampling and testing of existing pavements and soils necessary for proper pavement design as per the CDOT Pavement Design Manual.
 - h. Perform boring and subsurface geotechnical investigations for Structure Selection Reports.
 - 1. Provide testing results used in the design process that are certified by a professional engineer.
 - J. Provide other geotechnical services as requested in writing, including but not limited to subsurface investigations, instrumentation, foundation reports, landslide evaluations, MSE wall designs, soil nail designs, and retaining wall designs.
12. Environmental Services -The scope of work for environmental services may include:
- a. Review environmental conditions, determine required permits.
 - b. Delineation and mitigation recommendations of wetlands.
 - c. Prepare and/or review environmental documents for CDOT projects.
 - d. Conduct and prepare environmental surveys and clearance (re-evaluation) reports.

13. Design Services Under Construction - the Scope of Work for design services under construction may include:

- a. Review of actual subsurface conditions to verify structural design.
- b. Review and approval of shop drawings.
- c. Changes in design based on field conditions.
- d. Services as needed per PE stamp requirements on design drawings.
- e. Claim and schedule analysis.
- f. Analysis of VE proposals.
- g. Analysis of construction phasing false work, shoring, methods statements, and CPM schedules (Microsoft Project and/or Primavera).
- h. Other Services - As requested Design and/ or General Engineering SOW by the Regions and specified in the task orders for other services not specified above may be requested on an as needed basis.

The scope of work for these services will include the details of the SOW and General Engineering Requirements.

SECTION 8

CONTRACT CONCLUSION

8.1 Contract Completion. This Contract will conclude at the end of the work duration as indicated in Section 1.5. If current contract work activities have not been completed or other needs have been identified by this deadline a contract extension of time or value may be considered.

**PROJECT SPECIFIC DESCRIPTION
SCOPE OF WORK EXHIBITS**

- A-1. Exit 11 interchange
- A-2. Exit 8 and/or 2 interchanges - Fisher Peak State Park Access
- A-3. Raton Pass Wild Life Fencing / Crossings
- A-4. Corridor Trail System
- A-5. OTHERCORRIDOR WORK

EXHIBIT A-1

Project Name: Exit 11 interchange

Project Number and Subaccount: 21324 IM 025A-040

Project Location: I25 Exit 11

Project Description/ Scope of Work for:

This scope of Work will provide for the design development of this interchange reconstruction.

Major disciplines of work that could be necessary to complete the design regardless of the delivery method could include project management, roadway, roundabout modeling and design, hydrology and hydraulics, bridge structures, wall structures, drainage structures, environmental resources investigation, environmental permit application and procurement, CatEx preparations, permanent water quality control features, landscaping, irrigation, lighting, geotechnical for roadway and structures, traffic operations, ITS, construction of phasing and maintenance of traffic during construction, surveying, determination of existing and proposed ROW, determination of existing utility locations and coordination of utility relocations, cost estimating, value engineering, and constructability reviews.

The procurement method has not been determined. A project delivery matrix and decision meeting will need to be completed.

If this project will deliver through Design-Build (DB), the work will include aerial photography/survey, land survey, ownership map, ROW plans, title commitment work. It is assumed that ROW acquisition activities will not be included in the scope of work. If DB, then other work will include risk assessment and documentation, 30% design development, utility mapping and utility relocation determination and coordination. Work will include conducting or facilitating any required value engineering studies and/or constructability reviews. The Consultant will prepare an independent cost estimate of the project prior to the start of the DB procurement process and also update that estimate up-to and including a BAFO process if applicable. Further activities will be assistance in developing the Book 1, Book 2, Book 3, Book 4 and Book 5 of the RFP. It is assumed that the consultant would not be involved with the statement of interest process nor the scoring or short listing of DB teams. The consultant will be involved during the one-on-one meetings and any edits or revisions to the RFP and Book(s) until the Final has been published. Once the DB team's contract is executed then that would end the Consultants involvement in the DB procurement process.

If this project will be delivered through a Design-Bid-Build (DBB), the work will include aerial photography/survey, land survey, ownership map, ROW plans, title commitment work. It is assumed that ROW acquisition activities will not be included in the scope of work. Other work will include risk assessment and documentation, 30% design development, utility mapping and utility relocation determination and coordination. Once specific construction funding has been identified, further work will include 100% design and PS&E package, conducting or facilitating any required value engineering studies and/or constructability reviews. The Consultant will prepare an independent cost estimate of the project at the key milestone dates of Scoping, FIR, and FOR.

EXHIBIT A-1 (con't)

Project management activities will include creating and maintaining a design schedule, proactive work to ensure design activities are being completed on schedule, and management of project scope relative to available or projected funding. Work will also include facilitating or participating in stakeholder meetings with for example City of Trinidad, Las Animas County, SCTPR, local business owners, local residents, civic organization.

EXHIBIT A-2

Project Name: Exit 8 and/or 2 Interchanges – Fisher Peak State Park access

Project Number and Subaccount: TBD

Project Location: I25 Exit 8 and/or 2

Project Description/ Scope of Work for:

This scope of Work will provide for the design development of these interchanges for reconstruction or modification.

Major disciplines of work that could be necessary to complete the design regardless of the delivery method could include project management, roadway, hydrology and hydraulics, bridge structures, wall structures, drainage structures, environmental resources investigation, environmental permit application and procurement, CatEx preparations, permanent water quality control features, landscaping, irrigation, lighting, geotechnical for roadway and structures, traffic operations, ITS, construction of phasing and maintenance of traffic during construction, surveying, determination of existing and proposed ROW, determination of existing utility locations and coordination of utility relocations, cost estimating, value engineering, and constructability reviews.

The procurement method has not been determined. A project delivery matrix and decision meeting will need to be completed.

If this project will deliver through Design-Build (DB), the work will include aerial photography/survey, land survey, ownership map, ROW plans, title commitment work. It is assumed that ROW acquisition activities will not be included in the scope of work. If DB, then other work will include risk assessment and documentation, 30% design development, utility mapping and utility relocation determination and coordination. Work will include conducting or facilitating any required value engineering studies and/or constructability reviews. The Consultant will prepare an independent cost estimate of the project prior to the start of the DB procurement process and also update that estimate up-to and including a BAFO process if applicable. Further activities will be assistance in developing the Book 1, Book 2, Book 3, Book 4 and Book 5 of the RFP. It is assumed that the consultant would not be involved with the statement of interest process nor the scoring or short listing of DB teams. The consultant will be involved during the one-on-one meetings and any edits or revisions to the RFP and Book(s) until the Final has been published. Once the DB team's contract is executed then that would end the Consultants involvement in the DB procurement process.

If this project will be delivered through a Design-Bid-Build (DBB), the work will include aerial photography/survey, land survey, ownership map, ROW plans, title commitment work. It is assumed that ROW acquisition activities will not be included in the scope of work. Other work will include risk assessment and documentation, 30% design development, utility mapping and utility relocation determination and coordination. Once specific construction funding has been identified, further work will include 100% design and PS&E package, conducting or facilitating any required value engineering studies and/or constructability reviews. The Consultant will prepare an independent cost estimate of the project at the key milestone dates of Scoping, FIR, and FOR.

EXHIBIT A-2 (con't)

Project management activities will include creating and maintaining a design schedule, proactive work to ensure design activities are being completed on schedule, and management of project scope relative to available or projected funding. Work will also include facilitating or participating in stakeholder meetings with for example City of Trinidad, Las Animas County, SCTPR, local business owners, local residents, civic organization.

EXHIBIT A-3

Project Name: Wild Life Fencing / Crossings

Project Number and Subaccount: TBD

Project Location: I25 various locations

Project Description/ Scope of Work for:

This scope of Work will provide for the design development of wild life fencing or crossing(s) along the corridor.

Major disciplines of work that could be necessary to complete the design regardless of the delivery method could include project management, roadway, hydrology and hydraulics, bridge structures, wall structures, drainage structures, environmental resources investigation, environmental permit application and procurement, CatEx preparations, permanent water quality control features, landscaping, irrigation, lighting, geotechnical for roadway and structures, traffic operations, ITS, construction of phasing and maintenance of traffic during construction, surveying, determination of existing and proposed ROW, determination of existing utility locations and coordination of utility relocations, cost estimating, value engineering, and constructability reviews.

The procurement method has not been determined. A project delivery matrix and decision meeting will need to be completed.

If this project will deliver through Design-Build (DB), the work will include aerial photography/survey, land survey, ownership map, ROW plans, title commitment work. It is assumed that ROW acquisition activities will not be included in the scope of work. If DB, then other work will include risk assessment and documentation, 30% design development, utility mapping and utility relocation determination and coordination. Work will include conducting or facilitating any required value engineering studies and/or constructability reviews. The Consultant will prepare an independent cost estimate of the project prior to the start of the DB procurement process and also update that estimate up-to and including a BAFO process if applicable. Further activities will be assistance in developing the Book 1, Book 2, Book 3, Book 4 and Book 5 of the RFP. It is assumed that the consultant would not be involved with the statement of interest process nor the scoring or short listing of DB teams. The consultant will be involved during the one-on-one meetings and any edits or revisions to the RFP and Book(s) until the Final has been published. Once the DB team's contract is executed then that would end the Consultants involvement in the DB procurement process.

If this project will be delivered through a Design-Bid-Build (DBB), the work will include aerial photography/survey, land survey, ownership map, ROW plans, title commitment work. It is assumed that ROW acquisition activities will not be included in the scope of work. Other work will include risk assessment and documentation, 30% design development, utility mapping and utility relocation determination and coordination. Once specific construction funding has been identified, further work will include 100% design and PS&E package, conducting or facilitating any required value engineering studies and/or constructability reviews. The Consultant will prepare an independent cost estimate of the project at the key milestone dates of Scoping, FIR, and FOR.

EXHIBIT A-3 (con't)

Project management activities will include creating and maintaining a design schedule, proactive work to ensure design activities are being completed on schedule, and management of project scope relative to available or projected funding. Work will also include facilitating or participating in stakeholder meetings with for example City of Trinidad, Las Animas County, SCTPR, local business owners, local residents, civic organization.

EXHIBIT A-4

Project Name: Corridor Trail System
Project Number and Subaccount: TBD
Project Location: I25 various locations

Project Description/ Scope of Work for:

This scope of Work will provide for the design development of an attached or detached trail system facilitating movements to and from the City of Trinidad and the Fisher Peak State Park.

Major disciplines of work that could be necessary to complete the design regardless of the delivery method could include project management, roadway, hydrology and hydraulics, bridge structures, wall structures, drainage structures, environmental resources investigation, environmental permit application and procurement, CatEx preparations, permanent water quality control features, landscaping, irrigation, lighting, geotechnical for roadway and structures, traffic operations, ITS, construction of phasing and maintenance of traffic during construction, surveying, determination of existing and proposed ROW, determination of existing utility locations and coordination of utility relocations, cost estimating, value engineering, and constructability reviews.

The procurement method has not been determined. A project delivery matrix and decision meeting will need to be completed.

If this project will deliver through Design-Build (DB), the work will include aerial photography/survey, land survey, ownership map, ROW plans, title commitment work. It is assumed that ROW acquisition activities will not be included in the scope of work. If DB, then other work will include risk assessment and documentation, 30% design development, utility mapping and utility relocation determination and coordination. Work will include conducting or facilitating any required value engineering studies and/or constructability reviews. The Consultant will prepare an independent cost estimate of the project prior to the start of the DB procurement process and also update that estimate up-to and including a BAFO process if applicable. Further activities will be assistance in developing the Book 1, Book 2, Book 3, Book 4 and Book 5 of the RFP. It is assumed that the consultant would not be involved with the statement of interest process nor the scoring or short listing of DB teams. The consultant will be involved during the one-on-one meetings and any edits or revisions to the RFP and Book(s) until the Final has been published. Once the DB team's contract is executed then that would end the Consultants involvement in the DB procurement process.

If this project will be delivered through a Design-Bid-Build (DBB), the work will include aerial photography/survey, land survey, ownership map, ROW plans, title commitment work. It is assumed that ROW acquisition activities will not be included in the scope of work. Other work will include risk assessment and documentation, 30% design development, utility mapping and utility relocation determination and coordination. Once specific construction funding has been identified, further work will include 100% design and PS&E package, conducting or facilitating any required value engineering studies and/or constructability reviews. The Consultant will prepare an independent cost estimate of the project at the key milestone dates of Scoping, FIR, and FOR.

EXHIBIT A-4 (con't)

Project management activities will include creating and maintaining a design schedule, proactive work to ensure design activities are being completed on schedule, and management of project scope relative to available or projected funding. Work will also include facilitating or participating in stakeholder meetings with for example City of Trinidad, Las Animas County, SCTPR, local business owners, local residents, civic organization.

EXHIBIT A-5

Project Name: OTHER CORRIDOR WORK

Project Number and Subaccount: TBD

Project Location: Transportation improvement needs from MP 0 to MP 13.

Project Description/ Scope of Work for:

There are other transportation improvement needs along the I25 corridor that are not specific projects identified by CDOT or SCTPR. These projects and their scopes of work will be determined in the future.

Major disciplines of work that could be necessary to complete these unknown and various design projects could include project management, roadway, hydrology and hydraulics, wall structures, drainage structures, environmental resources investigation, environmental permit application and procurement, permanent water quality control features, landscaping, irrigation, geotechnical for roadway and structures, traffic operations, construction of phasing and maintenance of traffic during construction, surveying, determination of existing and proposed ROW, determination of existing utility locations and coordination of utility relocations, cost estimating, value engineering, and constructability reviews.

The procurement method has not been determined for any of these other projects. It is assumed the delivery method will be design-bid-build for these other projects.

The work will include the necessary engineering disciplines to accomplish the scope of work of each of these other projects.

Project management activities will include creating and maintaining a design schedule, proactive work to ensure design activities are being completed on schedule, and management of project scope relative to available or projected funding. Work will also include facilitating or participating in stakeholder meetings with for example City of Trinidad, Las Animas County, SCTPR, local business owners, local residents, civic organization.

Grants may be the funding source for design and construction of projects along the corridor. The consultant will write and develop and/or assist in writing and developing potentially multiple grant applications for the various projects along the corridor. Certain projects may even be funding through multiple grants culminating towards the total projects funding need.

Other work that may be required for these other projects, may require alternatives analysis and/or feasibility studies.

**PROJECT SCOPE OF
WORK ATTACHMENTS**

- A. References
- B. Specific Design Criteria
- C. Definitions

ATTACHMENT A

References

REFERENCES

- A. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) PUBLICATIONS (using latest approved versions):
1. A Policy on Design Standards-Interstate System
 2. A Policy on Geometric Design of Highways and Streets
 3. Guide for Design of Pavement Structures
 4. Standard Specifications for Highway Bridges
 5. Guide for the Design of High Occupancy Vehicle and Public Transfer Facilities
 6. Guide for Development on New Bicycle Facilities
 7. Standard Specifications for Transportation Materials and Methods of Sampling and Testing- Part I, Specifications and Part II, Tests
 8. Highway Design and Operational Practices Related to Highway Safety
 9. Roadside Design Guide
- B. COLORADO DIVISION OF HIGHWAYS PUBLICATIONS (using latest approved versions):
1. Action Plan
 2. CDOT Design Guide (all volumes)
 3. CDOT Bridge Design Guide
 4. CDOT Bridge Detailing Manual
 5. Bridge Rating Manual
 6. Project Development Manual
 7. Wetlands and Water Quality
 8. Filed Log of Structures
 9. Cost Data Book
 10. Drainage Design Manual
 11. CDOT Quality Manual (when updated)
 12. Survey Manual
 13. Field Materials Manual
 14. CDOT Design Guide, Computer Aided Drafting (CAD)
 15. Erosion Control and Storm Water Quality Guide
 16. Standard Plans, M & S Standards (also available on the Internet)
 17. Standard Specifications for Road and Bridge Construction and CDOT Supplemental Specifications
 18. Item Description and Abbreviations (with code numbers)" compiled by Cost Estimate Unit, CDOT (also available on the Internet)
 19. Right-of-Way Manual, Chapter 2, Plans and Descriptions Procedures and General Information
 20. The State Highway Access Code
 21. Utility Manual
 22. Open Roads TMOSS Generic Format
 23. Field Open Roads TMOSS Topography Coding
 24. Topography Modeling Survey System User Manual
 25. Interactive Graphics System Symbol Table

ATTACHMENT A

References {con't}

C. CDOT PROCEDURAL DIRECTIVES (using latest approved versions):

- No. 400.2 Monitoring Consultant Contracts
- No. 501.2 Cooperative Storm Drainage System
- No. 514.1 Field Inspection Review (FIR)
- No. 516.1 Final Office Review (FOR)
- No. 1304.1 Right-of-Way Plan Revisions
- No. 1305.1 Land Surveys
- No. 1601 Interchange Approval Process
- No. 1700.3 Plans, Specifications and Estimates (PS & E) and Authorization to Advertise for Bids under Certification Acceptance (CA)
- No. 1700.7 Plans and Specifications for Structure Plans under CA
- No. 1700.8 Plans and Specifications for Traffic Engineering Plans under Certifications Acceptance
- No. 1905.1 Preparation of Plans and Specifications for Structures prepared by Staff Bridge Branch

D. FEDERAL PUBLICATIONS (using latest approved versions):

1. Manual on Uniform Traffic Control Devices
2. Highway Capacity Manual
3. Urban Transportation Operations Training - Design of Urban Streets, Student Workbook
4. Reference Guide Outline - Specifications for Aerial Surveys and Mapping by Photogrammetric Methods for Highways
5. FHWA Federal-Aid Policy Guide
6. Technical Advisory T6640.8A
7. U.S. Department of Transportation Order 5610.1E
8. "Geometric Geodetic Accuracy Standards and Specifications for Using GPS Relative Positioning Techniques.

E. AREA:

1. Manual for Railway Engineering

F. PROJECT SPECIFIC:

1. Exit 11 MIMR

ATTACHMENT B
Specific Design Criteria

SPECIFIC DESIGN CRITERIA

Note: The following criteria will be developed by the consultant and coordinated with the CDOT/PM prior to starting the design.

A. ROADWAY

1. BASIC DESIGN

- a. The basis for design will be the data in CDOT Form 463, Design Data. A copy of the latest applicable Design Data form will be furnished to the consultant.

2. GEOMETRIC AND STRUCTURE STANDARDS

- a. Horizontal Curvature
- b. Vertical Alignment
- c. Sight Distance
- d. Super Elevation
- e. Frontage Roads Separation Width
- f. Access
- g. Airway - Highway Clearances
- h. Bridges and Grade Separation Structures
 1. Walls
 - j. Curbs and Gutters

3. GEOMETRIC CROSS SECTION

- a. Travel Lane
- b. Shoulder
- c. Side Ditches
- d. Side Slopes
- e. Median

4. INTERSECTIONS AT GRADE

5. TRAFFIC INTERCHANGES

6. ROADSIDE DEVELOPMENT

7. LIGHTING

8. BICYCLES AND PEDESTRIANS

9. PERMANENT WATER QUALITY CONTROL

ATTACHMENT C

Definitions

AASHTO	American Association of State Highway & Transportation Officials
ADT	Average two-way 24 hour Traffic in Number of Vehicles
AREA	American Railway Engineering Association
ATSSA	American Traffic Safety Services Association
AT&SF	Atchison, Topeka & Santa Fe Railway Company
BAMS	Bid Analysis and management Systems (now called Transport)
BLM	Bureau of Land Management
BNRR	Burlington Northern Railroad
CA	Contract Administrator. The CDOT Manager responsible for the satisfactory completion of the contract by the consultant.
CAP	CDOT's Action Plan
CBC	Concrete Box Culvert
CDOT	Colorado Department of Transportation
CDOT/PM	Colorado Department of Transportation Project Manager - The CDOT Engineer responsible for the day to day direction and CDOT - Consultant coordination of the design effort
CDOT/STR	Colorado Department of Transportation Structure Reviewer-The CDOT Engineer responsible for reviewing and coordinating major structural design.
CEA	Council on Environmental Quality
COG	Council of Governments
COGO	Coordinate Geometry Output
CONSULTANT	Consultant for this project
CONTRACT ADMINISTRATOR	Typically, a Region Engineer or Branch Head. The CDOT employee directly responsible for the satisfactory completion of the contract by the Consultant. The contract administration is usually delegated to a CDOT Project Manager.
C/PM	Consultant Project Manager - The Consultant Engineer responsible for combining the various inputs in the process of completing the project plans and managing the Consultant design effort.
DEIS	Draft Environmental Impact Statement
DHV	Future Design Hourly Volume (two-way unless specified otherwise)
DNR	Department of Natural Resources
D&RGW	Denver Regional Council of Governments Denver & Rio Grande Western Railroad

ATTACHMENT C

**Definitions
(continued)**

EA	Environmental Assessment
EIS	Environmental Impact Statement
ESAL	Equivalent Single Axle Load
ESE	Economic, Social and Environmental
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FHPM	Federal-Aid Highway Policy Guide
FHWA	Federal Highway Administration
FIR	Field Inspection Review
FONSI	Finding of No Significant Impact
FOR	Final Office Review
GPS	Global Positioning System

**MAJOR
STRUCTURES**

Bridges and culverts with a total length greater than twenty feet (for walls 100 feet and maximum exposed height at any section of over five feet). This length is measured along the centerline of roadway for bridges and culverts, and is the horizontal distance along the top of wall for retaining walls. Overhead structures (sign bridges, cantilevers and butterflies extending over traffic) are also major structures.

MPO	Metropolitan Planning Organization
NEPA	National Environment Policy Act
NGS	National Geodetic Survey
NICET	National Institute for Certification in Technology
NOAA	National Oceanic and Atmospheric Administration
PAPER SIZES	See Computer-Aided Drafting manual
PE	Professional Engineer registered in Colorado
PM	Program Manager
PLS	Professional Land Surveyor registered in Colorado
PRT	Project Review Team
PS&E	Plans, Specifications and Estimate
PROJECT	The work defined by this scope

ROW Right-of-Way: A general term denoting land, property, or interest therein, usually in a strip, acquired for or devoted to a highway.

ROWPR	Right-of-Way Plan Review
RTD	Regional Transportation Director
SH	State Highway Numbers

ATTACHMENT C

**Definitions
(continued)**

**TMOSS (Open
Roads)**

Terrain Modeling Survey System

TOPOGRAPHY

Topography normally refers to existing cultural or man-made details.

UD & FCR

Urban Drainage and Flood Control Region

Note: For other definitions and terms, refer to Section 101 of the CDOT Division of Highways Standard Specifications for Road and Bridge Construction and the CDOT Design Guide.