

SCOPE OF WORK

CONTRACT TYPE

Specific Rate of Pay ☐
Cost Plus Fixed Fee ☒
Other ☐

CONTRACT DATE: N/A

PROJECT NUMBER: C 0701-232

PROJECT LOCATION: Palisade Curves

PROJECT CODE: 20924

THE COMPLETE SCOPE OF WORK INCLUDES THIS DOCUMENT (ATTACHED TO
THE CONTRACT FOR CONSULTANT SERVICES)

SECTION 1 PROJECT SPECIFIC INFORMATION
SECTION 2 PROJECT MANAGEMENT AND COORDINATION
SECTION 3 EXISTING FEATURES
SECTION 4 GENERAL INFORMATION
SECTION 5 PROJECT INITIATION AND CONTINUING REQUIREMENTS
SECTION 6 ENVIRONMENTAL WORK TASK DESCRIPTIONS
SECTION 7 PRECONSTRUCTION WORK TASK DESCRIPTIONS
SECTION 8 SERVICES AFTER DESIGN
SECTION 9 CONTRACT CONCLUSION (CHECKLIST)
APPENDICES

Table of Contents

SECTION 1	3
PROJECT SPECIFIC INFORMATION	3
1. PROJECT BACKGROUND.....	3
2. PROJECT GOALS	3
3. PROJECT LIMITS.....	4
4. WORK DURATION	4
5. CONSULTANT RESPONSIBILITY AND DUTIES	4
6. WORK PRODUCT	5
7. WORK PRODUCT COMPLETION	5
8. ADDITIONAL PROJECT INFORMATION.....	5
SECTION 2	6
PROJECT MANAGEMENT AND COORDINATION	6
1. CDOT CONTACT	6
2. PROJECT COORDINATION.....	6
SECTION 3	7
EXISTING FEATURES	7
1. STRUCTURES.....	7
2. UTILITIES	7
3. IRRIGATION DITCHES.....	7
4. RAILROADS.....	7
5. OTHER	7
SECTION 4	8
GENERAL INFORMATION	8
1. NOTICE TO PROCEED.....	8
2. PROJECT COORDINATION.....	8
3. ROUTINE REPORTING AND BILLING	8
4. PERSONNEL QUALIFICATIONS	8
5. CDOT COMPUTER/SOFTWARE INFORMATION	9
6. COMPUTER DATA COMPATIBILITY	9
7. PROJECT DESIGN DATA AND STANDARDS.....	9
SECTION 5	10
PROJECT INITIATION AND CONTINUING REQUIREMENTS	10
1. PROJECT MEETINGS.....	10
2. PROJECT MANAGEMENT	13
3. DEVELOP A PROJECT SCHEDULE AND ASSIGN TASKS.....	13
4. QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)	13
5. OBTAIN NECESSARY RIGHT-OF-ENTRY AND PERMITS.....	13

SECTION 6	14
ENVIRONMENTAL WORK TASK DESCRIPTIONS	14
1. CONSULTANT DISCLOSURE STATEMENT	15
2. PROJECT INITIATION	15
3. ENVIRONMENTAL ANALYSIS AND DOCUMENTATION	15
4. COST ESTIMATES AND FINANCIAL ANALYSIS	16
5. DATA COLLECTION, FIELD INVESTIGATION, MITIGATION MEASURES	17
6. NEPA DOCUMENTATION PROCESS	27
SECTION 7	32
PRECONSTRUCTION WORK TASK DESCRIPTIONS	32
1. PROJECT INITIATION AND CONTINUING REQUIREMENTS	32
2. PRELIMINARY DESIGN	32
SECTION 8	41
STUDY REPORTING WORK TASK DESCRIPTIONS	41
1. DEVELOP A STATEMENT OF PURPOSE AND NEED AND IDENTIFY GOALS FOR THE PROJECT AREA	41
2. ALTERNATIVES REPORT	41
SECTION 9	46
CONTRACT CONCLUSION (CHECKLIST)	46
1. SUPPLEMENTAL WORK	46
2. CONTRACT COMPLETION	46
TABLE 1 – SUBMITTALS	47
APPENDIX A	51
REFERENCES	51
1. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) PUBLICATIONS	51
2. COLORADO DEPARTMENT OF TRANSPORTATION PUBLICATIONS	51
3. CDOT PROCEDURAL DIRECTIVES	51
4. FEDERAL PUBLICATIONS	52
5. AREA:	52
APPENDIX B	53
SPECIFIC DESIGN CRITERIA	53
1. ROADWAY	53
APPENDIX C	54
DEFINITIONS	54

SECTION 1

PROJECT SPECIFIC INFORMATION

1. PROJECT BACKGROUND

Interstate 70 (I-70) serves as the primary transportation avenue through Mesa County, City of Grand Junction and much of Colorado. The Palisades Curves project area is along I-70 from milepost 42.00 to 46.00, US 6 MP 43 to 46.057 (appx), and includes bridge structure number H-03-AY.

There is a high crash rate on I-70 within the project area. The total number and type of crashes will be made available to the selected consultant team. In the eastbound direction, a sharp curve (50 MPH design speed) is introduced at the end of a series on long tangents and flat curves. In the westbound direction, the same sharp curve is introduced after a series of curves with varying design speeds. This inconsistency in the I-70 alignment is a leading contributor to the high crash rate within the project area. Additionally, drivers are not complying with posted speed limits.

The Colorado Department of Transportation (CDOT) will hire a consultant team (Consultant) to develop and evaluate alignment alternatives for I-70 within the project area, including a no action alternative. The scope of services to be provided by the Consultant shall include an alternative analysis evaluation and report (Study) with the goal of identifying existing conditions, anticipated problem areas, and developing a range of I-70 alignment alternatives to improve operations and safety of the corridor for all modes of transportation. The results of these efforts may ultimately be used to prepare National Environmental Policy Act (NEPA) studies and final design.

Project elements shall include:

- I-70 alignment alternatives
- Bridge structure selection and type alternatives
- Potential geotechnical impacts
- Potential hydraulic impacts to the Colorado River, Government Highline Canal, Orchard Mesa Canal
- Provide appropriate NEPA documentation as dictated by the chosen preferred alternative.
- FIR level design of chosen preferred alternative

2. PROJECT GOALS

This project is intended to produce the following improvements:

- | | | |
|---|-------------------------------------|--|
| A. Improve Operational Characteristics | <input checked="" type="checkbox"/> | |
| i. Improve overall traffic operations along I-70 from milepost 42 to 46 | | |
| ii. Improve travel time through corridor | | |
| iii. Improved riding surface through corridor | | |
| iv. Increase capacity as needed | | |
| | | |
| B. Improved Safety | <input checked="" type="checkbox"/> | |
| i. Improve traffic safety through corridor | | |
| ii. Reduce the number and severity of accidents | | |
| | | |
| C. Meet Schedule and Budget | <input checked="" type="checkbox"/> | |
| | | |
| D. Environmental - Adhere to all environmental compliance requirements | <input checked="" type="checkbox"/> | |

- E. Stakeholder Involvement ☒
- i. Facilitate and foster collaboration, communication, and partnerships among all members of the project team.
 - ii. Collect and catalog stakeholder/CDOT meeting notes, actions and comments during the collaboration process
- F. Public communication ☒
- i. Provide accurate, meaningful, and timely communication to the public concerning the project.
 - ii. Collect and catalog public comments received during the public process.

The objective of this project is to work with stakeholders to analyze and develop a range of I-70 alignment alternatives to improve operational performance and safety throughout the project area. The project will assist CDOT, public agencies, and resource agencies in identifying issues of importance to each respective agency.

3. PROJECT LIMITS

This project is located along I-70 in Palisade between milepost 42 and milepost 46 in Mesa County. Project limits include bridge structure H-03-AY. The approximate area of interest is shown in the image below.



4. WORK DURATION

The time period for the work described in this scope is estimated to begin **July 2017** and end **July 2019**.

5. CONSULTANT RESPONSIBILITY AND DUTIES

Though this project is anticipated to be environmentally cleared through the National Environmental Policy Act (NEPA) as an Environmental Assessment, the consultant will perform an all-encompassing review of the project and prepare a written recommendation of activities that coincide with the Project's Cost, Goals, and Planned improvements. Project elements include:

- I-70 horizontal and vertical alignment, cross section, and interchange with US 6
- Bridge structure selection and type
- Human Environment
- Geotechnical
- Public hearings
- Colorado River Flood Plain Impacts
- General Drainage

- Government Highline Canal & Orchard Mesa Canal Hydraulic analysis

6. WORK PRODUCT

The Consultant work products are:

A.	Reports	<input checked="" type="checkbox"/>
B.	Environmental Documents	<input checked="" type="checkbox"/>
C.	Project Coordination	<input checked="" type="checkbox"/>
D.	Schedules	<input checked="" type="checkbox"/>
E.	Public Meetings	<input checked="" type="checkbox"/>
F.	Meeting Minutes	<input checked="" type="checkbox"/>
G.	Project Meeting	<input checked="" type="checkbox"/>
H.	CAD Files of Preliminary Designs	<input checked="" type="checkbox"/>
I.	CAD Files of FIR Level Design	<input checked="" type="checkbox"/>

Requirements are further described in the sections that follow. All work required to complete this Scope of Work requires the use of English Units.

7. WORK PRODUCT COMPLETION

All submittals must be accepted by the CDOT Contract Administrator or designee.

8. ADDITIONAL PROJECT INFORMATION

Additional information regarding this project is included in the following documents:

- A. CDOT accident history data: Request through CDOT Traffic Group
- B. Alternative Draft Designs of I-70
- C. Traffic Data
- D. Existing ROW plans
- E. Existing conditions survey of project area

Copies of these documents may be requested from CDOT.

SECTION 2

PROJECT MANAGEMENT AND COORDINATION

1. CDOT CONTACT

The Contract Administrator for this project is: Rob Beck, PE Resident Engineer.

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

Nathan Jean, PE
Design Manager, Region 3, Program West
606 S. 9th Street, Room 201
Grand Junction, CO 81505
Office phone: 970-683-6362
Fax: 970-683-6369

2. PROJECT COORDINATION

Coordination will be required with the following*:

- | | | |
|----|---|--------------------------|
| A. | Town of Palisade | <input type="checkbox"/> |
| B. | Mesa County | <input type="checkbox"/> |
| C. | Union Pacific Railroad (UPRR) | <input type="checkbox"/> |
| D. | U.S. Army Corps of Engineers (USACE) | <input type="checkbox"/> |
| E. | Federal Highway Administration (FHWA) | <input type="checkbox"/> |
| F. | Utilities | <input type="checkbox"/> |
| G. | Government Highline Canal | <input type="checkbox"/> |
| H. | Orchard Mesa Canal | <input type="checkbox"/> |
| I. | Grand Valley Transit (GVT) | <input type="checkbox"/> |
| J. | Grand Valley Metropolitan Planning Organization (GVMPO) | <input type="checkbox"/> |
| K. | Colorado Parks and Wildlife (CPW) | <input type="checkbox"/> |
| L. | Ute Water | <input type="checkbox"/> |
| M. | Bureau of Land Management (BLM) | <input type="checkbox"/> |
| N. | Bureau of Reclamation (BOR) | <input type="checkbox"/> |
| O. | US Fish and Wildlife (USFWS) | <input type="checkbox"/> |

*list is not all-inclusive, there may be other coordination with other agencies required

The consultant should anticipate that a design which affects another agency will have to be accepted by that agency prior to its acceptance by CDOT. Consultant will make submittals to affected agencies and will coordinate the submittals with CDOT.

SCOPE OF WORK

SECTION 3 EXISTING FEATURES

1. STRUCTURES

I-70: Structure H-03-AY MP 43.682 – 43.701 – Bridge over Colorado River

I-70: Structure H-03-G MP 44.406 - CGC

(Additional minor structures and walls may be impacted)

2. UTILITIES

Contact Joe Carter, CDOT Utilities Coordinator at 970-683-6209

Contact Mr. Tillmon McSchooler, Xcel Energy at 970-244-2695

Contact Dave Priske, Ute Water at 970-242-7491

Contact Frank Watt, Town of Palisade Water at 970-464-1116

Contact Utility Notification Center of Colorado (U.N.C.C.) at 1-800-922-1987 or 811

Contact Don Olmstead, CDOT Electrician at 970-379-0539 for CDOT Utilities

3. IRRIGATION DITCHES

Government Highline Canal

Orchard Mesa Canal

4. RAILROADS

Union Pacific Railroad (UPRR)

5. OTHER

Colorado River, Bureau of Reclamation/US Fish and Wildlife fish ladder,, Colorado River diversion structure, US 6 Colorado River boat launch, BLM trailhead for Palisade Rim Trail.

SECTION 4 GENERAL INFORMATION

1. NOTICE TO PROCEED

Work shall not commence until the written Notice-to-Proceed is issued by CDOT. Work may be required, night or day, and/or weekends, and/or holidays, and/or split shifts. CDOT must concur in time lost reports prior to the time lost delays being subtracted from time charges. Subject to CDOT prior approval the time charged may exclude the time lost for:

- A. Reviews and Approvals
- B. Response and Direction

2. PROJECT COORDINATION

- A. Weekly Working Contact
Weekly written working contact shall be between the CDOT/PM and the Consultant Project Manager (C/PM) as defined in Appendix C.
- B. Project Manager Requirements
The Project Manager shall provide the appropriate parties with the following:
 - a. A written synopsis or copy of their respective contacts by telephone and in person with others
 - b. Copies of pertinent written communications

3. ROUTINE REPORTING AND BILLING

The Consultant shall provide the following on a routine basis:

- A. Coordination:
Coordination of all contract activities by the C/PM
- B. Periodic Reports and Billings:
The periodic reports and billings required by CDOT Procedural Directive 400.2 (Monitoring Consultant Contracts), including monthly drawdown schedules.
- C. General Reports and Submittals:
In general, all reports and submittals must be approved by CDOT prior to their content being utilized in follow-up work effort.

4. PERSONNEL QUALIFICATIONS

The C/PM must be approved by the CDOT Contract Administrator. Certain tasks must be done by Licensed Professional Engineers (PE) or Professional Land Surveyors (PLS) who are registered with the Colorado State Board of Registration for Professional Engineers and Land Surveyors. National Institute for Certification in Engineering Technology (NICET) or other certifications may be required for project inspectors and testers.

All tasks assigned to the Consultant must be conducted by a qualified person on the Consultant team. The qualified person is a professional with the necessary education, certifications (including registrations and licenses), skills, experience, qualities, or attributes to complete a particular task.

This contract requires that the prime firm or any member of its team, be pre-qualified in the following disciplines for the entire length of the contract.

SCOPE OF WORK

AC – Acoustical engineering, AR – Architecture, BR – Bridge Design, BI – Bridge Inspection, CE – Civil Engineering, EL – Electrical Engineering, EN – Environmental Engineering, GE – Geotechnical Engineering, HD – Highway & Street Design, HY – Hydraulics, LA – Landscape Architecture, MA – Management (Contract Admin), MC – Management (Construction), ME – Mechanical Engineering, MT – Materials Testing, SA – Sanitary Engineering, SO – Soils Engineering, SE – Structural Engineering, SU – Surveying, TP – Transportation Engineering, TR – Traffic Engineering, TU – Tunneling

5. CDOT COMPUTER/SOFTWARE INFORMATION

The consultant shall utilize the most recent CDOT adopted software. The primary software used by CDOT is as follows:

A. Earthwork	InRoads
B. Drafting/CADD	InRoads and Microstation with CDOT's formatting configurations and standards
C. Survey/photogrammetry	CDOT TMOSS, InRoads
D. Bridge	CDOT Staff Bridge software shall be used in either design or design check
E. Estimating	Transport (an AASHTO sponsored software) as used by CDOT And Microsoft Excel
F. Specifications	Microsoft Word
G. Scheduling	Microsoft Project
H. Cartography	ESRI ArcGIS

6. COMPUTER DATA COMPATIBILITY

The data format for submitting design computer files shall be compatible with the latest version of the adopted CDOT software as of Notice to Proceed for the contract. 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 problem is resolved. Refer to Section 8, Table 1 - Submittals, for additional information regarding current formats and the acceptable transmittal media.

7. PROJECT DESIGN DATA AND STANDARDS

- A. General:
Appendix A provides a comprehensive list of state and federal reference material. However, Appendix A does not contain local agency reference material which may be pertinent to some projects. The consultant is responsible for obtaining and ensuring compliance with the most recent CDOT adopted version of the listed references including standards and specifications, manuals, and software or as directed by the CDOT/PM. Conflicts in criteria shall be resolved by the CDOT/PM.
- B. Specific Design Criteria:
Appendix B is a list of specific design criteria. The list is comprehensive and may include items that are not required for tasks defined in this scope. The Consultant shall submit any proposed changes to the pertinent criteria to the CDOT/PM at one of the periodic progress meetings prior to initiating design
- C. Construction Materials/Methods:
The materials and methods specified for construction 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.

SECTION 5

PROJECT INITIATION AND CONTINUING REQUIREMENTS

Note: This list establishes the individual task responsibility. Those tasks identified as CDOT/Other should utilize an abbreviation system to indicate whether the task will be completed by CDOT or another agency (i.e. “C” for CDOT and abbreviations as provided below). The consultant shall maintain the ability to perform all work tasks which are indicated below by an ‘X’ in the consultant column, in accordance with the forms and conditions contained herein, and the applicable CDOT standards. Where appropriate, mark “N/A” for not applicable items.

***Other Agency Abbreviations:**

- 1) Mesa County = MC

	CDOT (C)/ Other*	Consultant	Not Applicable
1. PROJECT MEETINGS			
The types and numbers of meetings shall be flexible and determined by an interactive process as approved by the CDOT/PM. Public Meeting efforts are accounted for in Section 5.			
A. Initial Project Meeting		X	
The meeting will review the Project Management Plan, project scope, schedule, key milestones, and project study area boundary. The meeting may include an on-site inspection to familiarize the entire project team with the character and conditions of the area. The Consultant shall develop an invitation list in coordination with CDOT, send notices with a draft agenda, and provide meeting minutes to all those invited. The Consultant will facilitate a chartering session among CDOT, Mesa County, other identified stakeholders and Consultant team members to establish the project charter, including defining the team's purpose and establish critical success factors, goals, roles and responsibilities, operating guidelines, interpersonal behaviors, and other elements. The charter will be a written document that is signed by all participants.			
B. Progress Meetings		X	
The CDOT and Consultant team will meet periodically as required (typically at one-month intervals). The meetings will review: activities required to be complete since the last meeting, problems encountered/anticipated and potential solutions, project schedule update, action items, and coordination required with other agencies. Most meetings can be attended via conference calls. Four progress meetings will be attended in person at the Colorado Department of Transportation's Grand Junction office. Progress meetings will also include technical meetings with appropriate stakeholders.			
C. Public Meetings		X	
The Consultant shall provide the presentation aids, and help conduct the meeting. This will include meeting records to be kept for NEPA, meeting attendees, comments, document comment responses, etc.			
i. Public Review Meetings	X	X	
These meetings are intended to disseminate project progress information to the public and representatives of local entities.			

SCOPE OF WORK

	CDOT (C)/ Other*	Consultant	Not Applicable
Notices will be mailed at least 14 days in advance of these meetings to those on the “contact list”.			
ii. Small Group Meetings (one-on-one) Meet with property and business owners or others directly affected by the project work to identify likely impacts and discuss possible mitigation or resolutions.	X	X	
D. Stakeholder Meetings Stakeholder involvement and public scoping early in the process is essential for success and mitigation of controversy. The CDOT, Consultant Team, and Stakeholders will regularly meet to review scoping efforts, stakeholder and public concerns; develop purpose and need; review evaluation criteria, alternative analysis, and preliminary sketches; check in on progress of design, potential conflicts, final evaluation criteria etc. as appropriate.	X	X	
E. FIR Meeting Consultant shall be responsible for organizing, facilitating, recording meeting minutes, and attending the FIR in person at the Colorado Department of Transportation’s Grand Junction office.	X	X	
F. Comment Resolution Meetings Comment Resolution meetings shall be completed by the Consultant. All meetings will be held in person at the Colorado Department of Transportation’s Grand Junction Office.		X	
G. Public Hearings		X	
i. Provide the following services, in coordination with the CDOT Region and EPB.		X	
ii. Determine location for public meeting and ascertain that facilities are ADA compliant		X	
iii. Advertise the public hearing/meeting date and location. The following media will be used for advertisement: newspapers, website, mailed meeting notices, email meeting notice, radio or television Public Service Announcements, door hangers, public displays, community newsletters, etc.		X	
iv. Hire translator, or sign language communicator, as needed		X	
v. Provide audio/visual equipment and support for presentations, as needed		X	
vi. Prepare the graphics/display boards to include, at a minimum, the following features:		X	
a. Purpose of and need for project		X	
b. Maps showing alternatives		X	
c. Description of social, environmental and economic impacts		X	
d. Design features		X	
e. Consistency with federal and local plans		X	
f. Right-of-way information, acquisition, and construction		X	
g. Source and amount of funding		X	
h. Location of 4(f) properties if required		X	
i. Any other project-specific resource impacts deemed appropriate		X	

SCOPE OF WORK

	CDOT (C)/ Other*	Consultant	Not Applicable
j. Mitigation measures that warrant public disclosure or relevance		X	
k. Anticipated project schedule and next steps		X	
l. How and where the public can provide comments		X	
vii. Provide a court reporter (if public hearing) and prepare a certified transcript of the public hearing within 10 working days after the public hearing/meeting.		X	
H. Structure Review Meeting While the major structural design work is progressing, the Consultant shall meet periodically with the CDOT Structure Reviewer to review the work. These meetings may be in addition to, or in conjunction with, the Project Progress Meetings. The number of structural meetings will not exceed 3.	X	X	
I. Meeting Minutes Project meeting minutes shall be completed by the Consultant and provided to the CDOT/PM within one week of the actual meeting. When a definable task is discussed during a meeting, the minutes will identify the "Action Item", the party responsible for accomplishing it, and the proposed completion date		X	
J. Contact List Establish and maintain a computerized list of all appropriate interested parties for the communication process.		X	
i. The information on the list shall include as a minimum:		X	
a. Name			
b. Firm (if any)			
c. Mailing/E-mail Address			
d. Phone/Fax Number			
ii. The contacts will be compiled from the list below, as supplemented by the Project Team and the attendees at public meetings:		X	
a. Public Agencies			
b. Elected/Appointed Officials			
c. Neighborhood Groups			
d. Property Owners/Tenants			
e. Business Interests			
f. Special Interests			
g. Railroads			
h. Media Contacts			
K. Public Notices/Advertisements Publicize the proposed project in accordance with the CDOT policies and procedures. Copies of the publication shall also be mailed to the individuals on the "contact list".		X	
L. Communication Aids			
i. Graphics Support – provide graphics for presentations and project documents. This may include slides, overhead projector slides, maps and plan views of conceptual design, computerized presentations and other displays for visual presentations at meetings.		X	
ii. Newsletter – a newsletter which will contain project progress information and announcements will be published at the		X	

SCOPE OF WORK

	CDOT (C)/ Other*	Consultant	Not Applicable
specified interval and will be distributed to those on the “contact list” specified by the CDOT/PM.			
iii. Internet web pages – All external CDOT-related Web sites shall be hosted on CDOT’s server and developed in-house with assistance from the Web Team and the Office of Public Relations. The use of all Web 2.0 and similar social marketing applications on behalf of CDOT (including all regions, divisions and offices) is strictly prohibited unless authorized by the Director of the Office of Public Relations. No CDOT employee, contractor or consultant working for CDOT will post material on behalf of the agency on such applications without expressed written consent of the Director of the Office of Public Relations. The Consultant shall support CDOT staff by providing data for the website.	X	X	
2. PROJECT MANAGEMENT At the kick-off meeting, or shortly thereafter, create and provide an approach for managing the project (i.e. involved staff, key team positions), including task orders, a schedule, document and agency reviews and other project needs. The Consultant shall coordinate all the work tasks being accomplished by all parties to ensure project work completion stages are on schedule. The consultant shall provide brief weekly written project updates to the CDOT Project Manager.		X	
3. DEVELOP A PROJECT SCHEDULE AND ASSIGN TASKS The Consultant is responsible for coordinating the required work schedule for project design. Prepare the initial project schedule for review by the CDOT/PM, and refine to provide detail as requested. Modifications will be made as necessary in collaboration with CDOT and appropriate justification.		X	
4. QUALITY ASSURANCE/QUALITY CONTROL (QA/QC) Prepare and submit a QA/QC plan as part of the planning documents noted above, and commit to adhering to the QA/QC process throughout the project.		X	
5. OBTAIN NECESSARY RIGHT-OF-ENTRY AND PERMITS Some activities may require work on land not controlled by CDOT. In such cases the Consultant shall obtain the necessary written permission to enter the premises. Written permission shall be coordinated with other CDOT staff and consultants that may need right-of-entry such as geotechnical and environmental personnel. Included in this written permission will be the names and telephone numbers of persons to contact should notification prior to entry be necessary.		X	
A. Signature Copies Permissions apply to CDOT personnel as well as Consultant personnel. CDOT Form 730 may be used for this purpose. Signed copies of written permission will be submitted to the CDOT/PM prior to entering private property for survey work.		X	
B. Permits Some activities such as materials testing on existing pavement and structures may require a permit. Permits will be obtained and copies submitted to the CDOT/PM.		X	

SECTION 6 ENVIRONMENTAL WORK TASK DESCRIPTIONS

A Tier II Template Environmental Assessment (EA) will be prepared to finalize alternative evaluation and approve the scope, location, and allow project development to proceed to final design, right of way acquisition and construction. If the EA results in a decision that no significant environmental impacts will occur as a result of the project then a Finding of No Significant Impact (FONSI) will be issued. Should the magnitude of impact be relatively small, a Categorical Exclusion document will be issued in place of the FONSI. In which case, no decision document will be issued.

The following work products related to environmental compliance will be drafted:

- Documentation of Logical Project Termini
- Public Involvement Program
- Purpose and Need Statement
- Full Range of Alternatives
- Evaluation Criteria
- Environmental Methodology Statements for applicable Resources
- Existing Conditions Memoranda for:
 - o Biological Resources
 - o Cultural Resources
 - o Demographics
 - o Socio-economic
 - o Environmental Justice
 - o Engineering Features
 - o Utilities
 - o Geologic Resources
 - o Hazardous Materials
 - o Noise
 - o Housing and Community
 - o Land Use
 - o Paleontological Resources
 - o Section 4(f) Resources
 - o Visual Character
 - o Wetland Resources
- Cumulative Effects (40 CFR 1508.7)

It is fully expected these materials will be thoroughly reviewed and useful for the current environmental analysis. Nothing in this Section precludes federal, state or local agencies or officials from fulfilling their responsibilities under federal, state, or local laws and regulations, NEPA, as codified in 42 United States Code (USC), section 4321, et. Seq., or any of NEPA's implementing regulations.

This list establishes the individual task responsibility. Those tasks identified as CDOT/Other should utilize an abbreviation system to indicate whether the task will be completed by CDOT or another agency (i.e. "C" for CDOT and abbreviations as provided below). The consultant shall maintain the ability to perform all work tasks which are indicated below by an 'X' in the consultant column, in accordance with the forms and conditions contained herein, and the applicable CDOT standards. Where appropriate, mark "N/A" for not applicable items.

***Other Agency Abbreviations:**

- 1) Mesa County = MC

SCOPE OF WORK

	CDOT (C)/ Other*	Consultant	Not Applicable
1. CONSULTANT DISCLOSURE STATEMENT		X	
40 Code of Federal Regulations (CFR) Section 1506.5(c) specifies that a disclosure statement to avoid conflict of interest must be prepared. If an environmental document is prepared with the assistance of a consulting firm, the firm must execute a disclosure statement.			
2. PROJECT INITIATION			
A. Review Applicable Existing Documents		X	
Review project-specific documents or data developed for the project. Review any additional data related to the assessment of environmental, social, and economic resources and impacts in the project area that are determined relevant. Examples of relevant documents are previous studies, planning efforts, access management plans, safety assessments, and other traffic studies. These resources may be CDOT documents or may have been created by local planning agencies or municipalities			
B. Extent of Narrative Required		X	
For each resource, review the methodology statements and recommend adjustments based on the current intent to prepare a Template EA. The template EA will substantially limit the required level of documentation for each resource. In general, the level of documentation will vary between a concise summary of the existing conditions, expected impacts and required mitigation or a statement that no impacts are expected. This will be detailed to the extent possible using information available during the scoping phase. For each resource, documentation shall be based on the current preferred selected alternative with the intent to prepare a Template EA.			
C. Project Study Area Limits/Logical Termini		X	
Preliminary project study area limits are established in Section 1 of the Generic Scope of Work document. Perform necessary research and data collection to verify the study area boundary for environmental resources and logical termini for use in scoping and project development. In coordination with the Environmental Project Manager, prepare a recommendation to the Federal Highway Administration (FHWA) for approval of the logical termini.			
D. Administrative Record		X	
Maintain a NEPA administrative record (project file) that adheres to the established process. Make available any and all parts of this record to the CDOT/PM (or his or her designee), or the Colorado Attorney General's office (as requested) at any time during the project's duration. All materials associated with the project administrative record will be delivered when closing the project in the format specified by the CDOT/PM. Final project invoice payments to the Consultant are conditional upon the professional and complete delivery of these materials to CDOT's office. Given the extent of documentation collected for the NEPA process, it is required that the consultant update the record regularly and provide information to CDOT electronically.			
3. ENVIRONMENTAL ANALYSIS AND DOCUMENTATION		X	
All environmental documentation, technical reports and technical memos will be submitted to CDOT, and may be required to be supplied to reviewers at CDOT EPB, FHWA, and the USDA-FS for early review as appropriate and necessary.			
A. Purpose and Need		X	

SCOPE OF WORK

	CDOT (C)/ Other*	Consultant	Not Applicable
Prepare the Purpose and Need Statement prepared for the project and facilitate review and approval by appropriate parties. The objectives of the project should be clearly identified and agreed upon early in the project process to prevent backtracking and limit schedule changes. Develop and refine, as necessary, to address information collected on the project during data collection, transportation analysis, and public and agency scoping and involvement. Review previously prepared studies to help direct Purpose and Need information as appropriate (e.g., local planning studies, engineering feasibility studies, etc.).			
B. Alternatives Development and Evaluation Review the Alternatives identified for the project. Conduct internal and external; coordination to determine if additional alternatives should be evaluated. Develop a full range of alternatives that will satisfy the Purpose and Need requirements of the project, including, but not limited to, those identified in earlier and ongoing studies of the area. The Consultant team, in coordination with CDOT and FHWA, will determine the design year to use for the project. Changes in the design year during the project may be subject to a Scope of Work modification.		X	
C. Evaluate Alternatives Impacts The consultant shall take into account the projected design-year traffic volumes and projected opening day traffic volumes for new facilities as developed for this Scope of Work, or as modified through later studies and calculations by CDOT. Evaluate the impacts of these alternatives according to established guidelines and examine the degree to which these alternatives satisfy the Purpose and Need requirements of the project. Set out these evaluations both schematically and in narrative form for review within a reasonable time after the notice to proceed.		X	
D. Alternatives Screening Process Apply an alternatives screening process to identify the reasonable alternatives (practical or feasible from a technical and economic standpoint), which will be subject to a more detailed evaluation. Develop NEPA-appropriate evaluation criteria, and measures of effectiveness, and submit them for review and approval by CDOT and FHWA before beginning the screening process. The rationale for eliminating alternatives will be thoroughly discussed within the documentation.		X	
E. Preliminary Design Alternatives For each alternative that passes the screening process, incorporate preliminary design for the alternatives to a level that clearly allows the identification of impacts within each environmental resource area. These alternatives may be carried through the entire analysis process until a decision document is written. If CDOT or another agency or Consultants performs selected alternative studies, the Consultant shall incorporate the results of these studies into the appropriate document.		X	
4. COST ESTIMATES AND FINANCIAL ANALYSIS			
A. Develop Cost Estimates and Financial Analyses As part of evaluating reasonable alternatives in the NEPA document, including the No-Action Alternative, develop cost estimates and financial analyses. Preliminary Engineering and Construction cost estimates will be completed for each alternative.		X	

SCOPE OF WORK

	CDOT (C)/ Other*	Consultant	Not Applicable
<p>5. DATA COLLECTION, FIELD INVESTIGATION, MITIGATION MEASURES</p> <p>The following analyses are required for each of the alternatives that pass the screening process. Each resource will be summarized concisely, focusing on issues of concern and specific impacts and mitigation in the NEPA document. The scope shall define any necessary updates to the existing conditions report (level of documentation, project tasks, and project deliverables for each of the resource areas). Identify the required area and resources to evaluate and determine the early coordination/scoping process as discussed above, but may evolve over the life of the project as new information is discovered through analysis. Reference other projects within the study area (to understand future planned conditions within the study area and to appropriately evaluate cumulative impacts to resources); these projects may be related to transportation, but may also be entirely unrelated to transportation (such as a timber sale, for example). As determined by the Consultant team, the Region, and EPB, a larger area is typically evaluated for cumulative effects based on the resource to be evaluated. The level of detail and analysis will be determined based on the level of environmental documentation (e.g., Feasibility Study, CatEx, EA, or EIS). It is expected the level of detail for this NEPA document will be a Template EA. Use of Geographic Information Systems (GIS) for environmental data is required to be in compliance with CDOT GIS standards. All GIS data shall be provided to CDOT in electronic format as needed for the administrative record.</p> <p>Relevant information will be incorporated in the NEPA document sections pursuant to recent guidance and experience related to the preparation of Template EAs. The Environmental Project Manager will determine appropriate resource categories and level of detail for the evaluation of affected environment, environmental consequences, and mitigation measures. If new or unique resources are identified during scoping, this scope of work will be modified to include these, as appropriate.</p>		X	
<p>A. Existing Roadway and Major Structures</p> <p>i Evaluate existing conditions to assess the proposed design relative to the following:</p> <ul style="list-style-type: none"> a. existing roadway safety and structure condition b. general traffic concerns c. geometry and conditions including cross-sections, shoulders, medians and lane widths d. noise walls e. Americans with Disabilities Act (ADA) accommodations and compliance f. Guardrail g. Lighting h. Traffic Signal Devices i. Signage, signals, lighting, grades, speeds, components, and structures should be included in the effort. <p>ii Construction Requirements</p> <ul style="list-style-type: none"> a. General constriction impact (of temporary nature) b. Material pits c. Haul roads 		X	

SCOPE OF WORK

	CDOT (C)/ Other*	Consultant	Not Applicable
iii Multi-modal Transportation: Document existing multi-modal transportation facilities including bike paths/lanes, sidewalks, alignments for transit (heavy rail, light rail, bus routes), transit stops/stations, and multi-modal centers. Signage, signals, lighting, grades, speeds, components, and structures should be included in the effort. Coordinate with the CDOT Division of Transit and Rail to obtain relevant data.		X	
2. Geospatial Data Assemble, store, manipulate and display data for resources as needed. Provide spatial data in shapefile or geodatabase format.		X	
3. Air Quality Perform the necessary air quality assessment as required and provide the results for integration into the NEPA document. These may include, but are not limited to, analysis or discussion of greenhouse gases (GHG) and construction issues such as fugitive dust emissions, and mitigation measures.		X	
4. Geologic Resources and Soil Document in the NEPA Document whether there are any geologic influences or constraints on the alternative designs under consideration. Constraints, including but not limited to unsatisfactory sub-grade materials, potential subsidence, potential for rockfall, etc. This task includes consideration and description of the corridor water table (i.e., depth/gradient).		X	
5. Water Quality			
i. Status of the water resources (quality, etc.) for the purposes of describing the “affected environment” before construction: ground water/aquifers, lakes, rivers, streams, and springs.		X	
ii. Water resource and quality impacts of the project during and following construction, determined by considering the project location and design concepts in relation to existing water resources including drainage ditches, aquatic as well as riparian habitat, and Sensitive Waters (Class 1 Aquatic Life, Recreation 1, and Water Supply, 303[d] listed, etc).		X	
iii. Municipal Separate Storm Sewer System (MS4) and Colorado Discharge Permit System (CDPS) design and permitting issues.	X		
iv. A mitigation plan that includes conclusions of effects, permanent best management practices (BMPs), temporary/construction BMPs, erosion control measures, and definition of maintenance responsibilities.	X	X	
v. The Driscoll Model WILL NOT be used for this project.			X
vi. Water Quality Technical Report			X
6. Floodplains Assessment			
i. Identify location of floodplains and any planned changes to the floodplains from adjacent development.		X	
ii. Add information to environmental resource mapping of existing conditions.		X	
iii. Determine the probable impacts of each alternative with respect to floodplains and drainage.		X	

SCOPE OF WORK

		CDOT (C)/ Other*	Consultant	Not Applicable
iv.	Identify adverse effects on the project area with respect to floodplains and drainage for each alternative (including during construction and relative to actual operating conditions).		X	
v.	Develop possible actions to mitigate for the adverse impacts and coordinate with roadway and structural designers.		X	
vi.	Analyze the impacts and mitigation. Included in the analysis will be a determination of significant impacts due to:		X	
	a. Single community access routes.		X	
	b. Risk for social or economic losses due to flooding.		X	
	c. Alteration of beneficial floodplain values.		X	
	d. Recommend preparation of Conditional Letter of Map Revision (CLOMR), Letter of Map Revision (LOMR) requirement		X	
vii.	Prepare a Floodplain and Drainage Assessment Report which will incorporate appropriate water quality control measures and BMPs as per the CDOT MS4 permit, New Highway Development program. If prepared, the report will be reviewed by the Region or EPB specialist and then finalized.		X	
7. Wetlands				
i.	Wetlands Determination/Delineation:		X	
	a. Conduct a field evaluation for the presence of wetlands within the project study area. Global Positioning System (GPS) should be used for this activity.		X	
	b. Delineate the boundaries and size of all anticipated jurisdictional and non-jurisdictional wetlands and waters of the US within the project area using United States Army Corps of Engineers (USACE) guidance listed in Appendix A.		X	
	c. Prepare wetlands maps that delineate the wetland boundaries within the corridor. GPS will be used for this mapping. Provide spatial data to the CDOT Region Wetland Specialist.		X	
	d. Coordinate the findings with the CDOT Region, USDA-FS, and the USACE. Obtain jurisdictional determination of the wetlands from the USACE after coordination with the CDOT Region Wetland Specialist.		X	
ii.	Wetland Finding Report		X	
	Prepare a Wetland Finding Report if required. The Functional Assessment of Colorado Wetlands (FACWet) should be used, as appropriate according to current CDOT procedures. Conduct a wetland assessment based on the NEPA document addressing the amount of permanent and temporary wetlands impacts and mitigation. Wetland mitigation should be identified as early as possible in the NEPA process. Mitigation sites must be evaluated for availability and suitability for wetland habitat.			
8. Vegetation and Noxious Weeds				
i.	Report existing conditions and conduct necessary field surveys to identify vegetation and noxious weeds within the project area. GPS		X	

SCOPE OF WORK

	CDOT (C)/ Other*	Consultant	Not Applicable
will be used for this activity. Plot major vegetation zones/ecosystems, and weed locations and densities on a map.			
ii. Perform an impact analysis.		X	
iii. Develop appropriate mitigation measures		X	
9. Fish and Wildlife			
i. Obtain lists of sensitive plant and animal species through coordination with the BLM, Colorado Parks and Wildlife (CPW) and in conjunction with CDOT.		X	
ii. Conduct necessary field surveys and identify fish and wildlife and their habitat within the project area. As appropriate, GPS will be used to identify habitat. Provide spatial data of survey area and occurrences to the CDOT Regional Biological Specialist.			
iii. Coordination with the USDA-FS, Colorado Division of Wildlife (CDOW) and US Fish and Wildlife Service (USFWS).	X	X	
iv. Perform an impact analysis.		X	
v. Develop appropriate mitigation measures		X	
vi. Prepare Biological Resources Report		X	
10. Threatened and Endangered (T&E) Species			
i. Determine the area of effect, in coordination with CDOT Region Biologist. Utilize IPAC to request an official list of Federally listed species from USFWS.		X	
ii. Conduct necessary desktop and field surveys and identify T&E species and/or Designated Critical Habitat. Provide spatial data of survey area and occurrences to the CDOT Region Biologist.		X	
iii. Review existing planning documents to determine any existing Habitat Conservation Plans (HCP) for T&E species.		X	
iv. Identify impacts to species and recommend mitigation.		X	
v. Based on affected environment and habitat, prepare the T&E species impact assessment.		X	
vi. Utilize CDOT SWIFT programmatic if appropriate. Coordinate with the CDOT Region Biologist. If needed, develop a Biological Assessment for the USFWS if federally listed T&E species and/or Designated Critical Habitat will be impacted and there is a federal nexus.		X	
vii. Develop a HCP with the USFWS if T&E species and/or Designated Critical Habitat will be impacted and if there is a federal nexus.		X	
viii. Identify any impacts and develop a mitigation plan to conform to requirements of the Endangered Species Act.		X	
11. Historic Properties, Section 106 and Section 4(f) Properties			
i. Perform and provide the survey report for review by the EPB Senior Staff Historian, and incorporate the information into the NEPA document. The following lists are not meant to be exhaustive.		X	
ii. Collection and Evaluation of Baseline Information as defined by Section 106 of the National Historic Preservation Act of 1966, as amended		X	
General Scope of Work			
i. Determine the area of potential effect (APE), in coordination with CDOT EPB Senior Historian. The APE should represent the geographic area where there is potential for direct and indirect		X	

SCOPE OF WORK

		CDOT (C)/ Other*	Consultant	Not Applicable
	effects to historic properties and should include areas where easements and right of way (ROW) may be required.			
ii.	Conduct a literature and records search for previously recorded historic resources in the APE in the Office of Archaeology and Historic Preservation (OAHP) Compass database.		X	
iii.	Conduct an intensive architectural field survey of the APE and determine National Register of Historic Places (NRHP) eligibility for each resource 45 years or older. Potential resources may include man-made structures, irrigation ditches, railroads, etc.		X	
iv.	Coordinate with CDOT EPB Senior Historian to identify consulting parties (e.g., public, historic preservation groups, local historical societies, museums) who may be able to provide information regarding historic properties in the project area.		X	
v.	Write a comprehensive Historic Resources Survey Report according to guidelines established by the CDOT Cultural Resources Procedures Manual and OAHP to submit for review by the CDOT Region and/or EPB Senior Staff Historian.		X	
vi.	Determine potential effects, both direct and indirect, to historic resources.		X	
vii.	Prepare draft correspondence for eligibility and effects as necessary for the EPB Senior Staff Historian to submit to the SHPO.		X	
viii.	Prepare Section 4(f) documents as required. In most cases, the EPB Historian will develop Section 4(f) Exceptions and de minimis reviews and coordinate with FHWA. Consultant support would only apply to Section 4(f) Programmatic or Full Evaluations.		X	
	Historic Bridge Clearance (if applicable)			
i.	Coordinate with CDOT Historian to determine the eligible or non-eligible status of bridges that may be in the project area.		X	
ii.	Prepare correspondence as necessary for the CDOT Region and/or EPB Senior Staff Historian to submit to the SHPO.		X	
iii.	If bridges that have been determined to be eligible or listed on the NRHP are present and there is an adverse effect, develop alternatives to bridge replacement, including: No-Action, rehabilitation, build a companion structure, build a new bridge in a different location, and others dictated by the project circumstances. This information will be used in both the Section 106 consultation and in developing Section 4(f).		X	
iv.	Prepare a archival documentation or other creative mitigation of the bridge to mitigate adverse effects as outlined in the MOA for the project.		X	
v.	When applicable, prepare information for CDOT Adopt-a-Bridge program to mitigate adverse effects.		X	
vi.	Support CDOT Historian in the preparation of Section 4(f) documents Programmatic Evaluations for Historic Bridges if necessary.		X	
	Archaeology			
i.	A review of historic Compass database housed at the Colorado Office of Archaeology and Historic Preservation (OAHP) and other appropriate archival sources will be completed to determine if the area may contain significant archaeological sites or features.		X	

SCOPE OF WORK

		CDOT (C)/ Other*	Consultant	Not Applicable
ii.	Conduct an intensive field survey of the project corridor(s) and undertake site-specific test excavations, as necessary and appropriate, to determine National Register of Historic Places (NRHP) eligibility. The Consultant shall not undertake test excavations before consulting with the CDOT Senior Staff Archaeologist.		X	
iii.	Complete laboratory analyses of all collected artifacts and ancillary specimens.			X
iv.	Write a comprehensive survey report according to guidelines established by the OAHP. The report should present NRHP eligibility recommendations for every documented resource. Site effects determinations and management recommendations should not appear in the report.		X	
v.	Coordinate Tribal consultation and support EPB Senior Staff Archaeologist as needed.		X	
vi.	Although unlikely, prepare Section 4(f) documents for NRHP eligible archaeological resources as required.		X	
12. Paleontological Resources				
i.	Perform a literature and museum fossil database search and field assessment.		X	
ii.	Determine the presence or absence of paleontological resources.		X	
iii.	Conduct analysis to determine the scientific significance (research and/or educational value) of the resource.		X	
iv.	Write the paleontological technical report, including mitigation proposals, if necessary. The assessment report will be reviewed by the EPB Staff Paleontologist for adequacy.		X	
v.	Coordinate the mitigation plan with the EPB Staff Paleontologist.		X	
13. Land Use			X	
Collect, map and evaluate baseline information. Prepare information on land use and zoning, including maps of existing, planned and future uses. Prepare land use mapping. Mapping may include parcel use categories such as: land in public ownership, commercial, retail, wholesale, industrial, residential, vacant, mixed etc. which identifies jurisdictional boundaries and land usage along each alternative. (Information may be obtained from Department of Local Affairs, from old Sanborn maps, from archival aerial photos, from the local city, town or County, and/or from field verification.)				
Identify any impacts or consequences to land uses and recommend appropriate mitigation measures as necessary.				
14. Social and Economic Resources			X	
Collect, map, and evaluate baseline information to investigate and document the effects of the project alternatives on community cohesion, safety and security, neighborhoods, and accessibility of facilities and services. Investigate the effects of the project alternatives on commercial and industrial enterprises, employment, local tax base, regional earnings, etc. When relevant, recent Census data shall be utilized. This will be done at the regional and corridor level, as well as part of a cumulative effects analysis, as appropriate.				
Identify any impacts or consequences and recommend appropriate mitigation measures as necessary.				

SCOPE OF WORK

	CDOT (C)/ Other*	Consultant	Not Applicable
<p>15. Environmental Justice</p> <p>Collect the necessary U.S. Census and other applicable data to identify existing low-income and minority populations, as well as adverse effects and mitigation measures or alternatives that would avoid or reduce the impacts according to environmental justice guidelines. Impacts to these communities will be evaluated using CDOT and FHWA guidance in accordance with Executive Order 12898. Beneficial effects of the project on these populations will also be identified. The analysis will cross-reference other resources as appropriate (e.g., noise, air and water pollution, aesthetics, community cohesion, relocation impacts).</p> <p>As part of the project's public participation or public involvement program, ensure that meaningful opportunities for all members of the community to provide input to the project exist. Document the degree to which affected low-income or minority populations have been afforded the opportunity to provide input in the NEPA process related to the development of purpose and need, alternatives analysis and screening, , impact analysis, preferred alternative identification, and mitigation measures development. Collaborate with EPB's Environmental Justice specialist to determine the level of Environmental Justice outreach activities necessary to obtain sufficient input from low-income and/or minority populations. Document all outreach efforts and input (or feedback) for low-income and/or minority communities within an Environmental Justice Technical Report.</p>		X	
<p>16. Bicycle, Pedestrian and Recreation Facilities</p> <p>Research and identify existing and future planned facilities in the project area. The necessary data will be collected from project design documents, community transportation plans, local land developers, open space and park trails, or local governmental agency or community interest groups to determine if any facilities will be impacted, and as a result what mitigation is necessary. If the corridor is a heavily traveled biking facility, the scope of work shall include meetings to coordinate with bike users throughout the NEPA process (or other heavy uses) (If Section 4(f) resources are impacted see Section 4(f) and 6(f) Evaluation.)</p>		X	
<p>17. Residential/Business/Right-of-Way (ROW) Relocation</p> <p>The following activities will be performed and documented by a qualified member of the Consultant team, in coordination with the CDOT Region ROW manager (or designee), or Headquarters ROW specialist assigned to the project, in accordance with Title 23 CFR 710:</p>			
<p>i. Prepare a table identifying and listing all potentially affected properties including, at a minimum, ownership names, property and mailing addresses, estimated areas of impacts, and indicating which alternatives impact each property. This table will be submitted to the CDOT Region ROW Manager for review and may be included in the NEPA document (without personal property details) at the discretion of the CDOT Region and/or Headquarters ROW staff.</p>		X	
<p>ii. Perform a ROW field inspection of each short-listed alternative. Ascertain number of parcels, types of improvements, and possible</p>		X	

SCOPE OF WORK

	CDOT (C)/ Other*	Consultant	Not Applicable
issues (e.g., historic sites). Estimate family sizes for residential relocations.			
iii. Compile a ROW acquisition and relocation cost estimate for PREFERRED alternative.		X	
iv. Prepare a property ownership map based on tax records, which identifies ownerships for PREFERRED alternative.		X	
v. Develop and document mitigation measures		X	
18. Transportation Resources			
i. Develop traffic volumes using available traffic demand models; determine the design year during the scoping process for the project. The model expected to be used for this project is the 2040 model. Forecasts should be based on existing roadways and roadways that are committed to be constructed (that is, “No Action”—those that will be constructed regardless of whether the project in question moves forward). Future traffic forecasts must be developed for the No-Action Alternative and any build alternatives. The results of the travel demand forecast process will be developed into a technical report.		X	
ii. Analyze existing and future traffic operations analysis will be conducted for the No-Action Alternative and build alternative(s). Analysis will be completed in accordance with the latest edition of the Highway Capacity Manual or similar methodology. In addition, the Consultant shall use a micro simulation software package (i.e., CORSIM, VISSIM, Dynasmart-P, or others as approved by CDOT) to evaluate the operations of the entire roadway network and report the appropriate measures of effectiveness for the alternative(s). The selection of the software package for the required analyses will depend on the size and other characteristics of the network, the alternatives to be analyzed, and the measures of interest. At a minimum, analysis will consider existing traffic volumes, accident history, percent of truck traffic, directional splits on all arterials, turning movements at intersections, interchange and ramp characteristics, travel/access patterns, level of service, delays, travel times and speeds, and areas of congestion. During the alternatives development and evaluation process, the appropriate level of operations analysis will also be conducted on the alternatives being considered. The results of the operations analysis are documented into a Transportation Technical Report.		X	
iii. Conduct safety analysis and document accident rates based on data collected from local emergency services, Colorado State Patrol, and CDOT Traffic Analysis Unit; obtain weighted hazard index from CDOT/PM; evaluate trends; document safety issues and how they can be addressed.		X	
19. Utilities and Railroads		X	
Collect utility plans showing existing and proposed utility locations from CDOT Regional Utilities Engineer. The potential impacts on or from utilities in the project area will be analyzed as well as any appropriate mitigation measures.			
20. Section 4(f) and Section 6(f) Evaluation			
i. Inventory and map project area for Section 4(f) and/or 6(f) facilities.			

SCOPE OF WORK

		CDOT (C)/ Other*	Consultant	Not Applicable
ii.	Determine if any potential impacts or ROW acquisitions include Section 4(f) properties (e.g., publicly owned parks, recreational facilities, nationally significant historic sites, wildlife refuges) or Section 6(f) properties (those that have received Land and Water Conservation Funds).		X	
iii.	Determine and evaluate project impacts on Section 4(f) and/or 6(f) properties using preliminary design information, and the necessary commitments for mitigation measures. Determine whether impacts qualify under the “de minimis” 4(f) use. Prepare an analysis that includes avoidance alternatives, discussion of prudent and feasible, least harm (if necessary), minimization, and mitigation related to Section 4(f) properties. This may include the development of a new alternative(s) as an avoidance alternative(s)		X	
iv.	Determine if the Section 4(f) use could be evaluated as a De Minimis Finding. If so, prepare that documentation in consultation with CDOT Region or EPB Staff.		X	
v.	Prepare the Draft and Final documentation for Section 4(f) and/or 6(f) evaluation. This will go through the Region Planning and Environmental Manager (RPEM) to the EPB for review.		X	
vi.	Prepare evaluation and coordinate reviews with RPEM and EPB staff for review by FHWA.		X	
21.	Farmlands In coordination with the Natural Resource Conservation Service (NRCS), investigate and quantify the effect of the project alternatives on farmlands—determining whether farmlands in question are classified as “prime” or “unique,” as well as the extent to which impacts may affect local communities. The US Department of Agriculture Farmland Conversion Form (Form AD 1006) will be completed as necessary. Develop mitigation measures, if applicable, for impacts.			X
22.	Noise Prepare a technical noise assessment in accordance with the most recent CDOT Noise Analysis and Abatement Guidelines and submit a comprehensive noise assessment document to CDOT for review and acceptance. The analysis will consist of the following, each of which must be covered in the noise assessment document:		X	
i.	Definition of relevant noise abatement criteria and identification of noise-sensitive land uses.		X	
ii.	Determination of existing noise levels (by measurement and/or modeling).		X	
iii.	Prediction of future traffic noise levels for all alternatives, including the No-Action Alternative, using FHWA’s current Traffic Noise Model.		X	
iv.	Determination of traffic noise impacts.		X	
v.	Identification and evaluation of feasibility and reasonableness of noise abatement measures. Coordinate with Project Engineer with regards to locations and heights of proposed abatement measures.		X	
vi.	Development of recommendations regarding noise abatement measures.		X	
vii.	Assessment of construction related noise issues.		X	

SCOPE OF WORK

	CDOT (C)/ Other*	Consultant	Not Applicable
viii. The above items will be addressed and documented in a Noise Technical Report, which will be prepared and submitted to CDOT for review and acceptance. Prior to beginning this work, the Consultant shall meet with CDOT to review the appropriate noise methodology. Noise modeling should be completed for the model year 2040. The draft and final technical report will be completed and made available to the CDOT Noise Specialist for review; the findings will be incorporated into the NEPA document.		X	
23. Visual Resources Identify and inventory the highway corridor landscape units/types/themes, and project view shed; identify key views to and from the project, including to and from the highway and other likely locations of viewers; analyze existing visual resources and viewer response/exposure and any impacts expected from the project. Recommend and develop mitigation measures for identified impacts. When specified, the following will be investigated: natural areas (e.g. scenic landscapes such as national parks or forests), wildlife habitat, topography, major drainages, unique land forms, soil types, plant communities. Quality (including vividness, intactness, and unity); viewer sensitivity/exposure (over space and time) and existing aesthetic liabilities.		X	
24. Energy Discuss in general terms the construction and operational energy requirements and conservation potential of various alternatives under consideration. The discussion should be reasonable and supportable. A calculation of energy consumption during construction should be included.		X	
25. Hazardous Materials Perform and document the following Initial Site Assessment (ISA) and/or Modified Environmental Site Assessment (MESA) activities:		X	
i. Conduct regulatory research that includes the collection, mapping and Evaluation of data for the following resources:		X	
a. Hazardous Waste Lists compiled by U.S. EPA or CDPHE which identify, utilizing a database provider if appropriate.		X	
b. Records kept by U.S. EPA or CDPHE on hazardous waste regulation violations or citations		X	
c. Lists kept by the appropriate fire department		X	
d. Available historic tax records which indicate past land use (coordinate with property ownership and land use data research), such as Sanborn Fire Insurance Maps		X	
e. Available historic aerial photos of the corridor (e.g., United States Geological Survey, public libraries, etc.)		X	
f. Historic topographic maps		X	
g. Any pertinent records maintained by CDOT		X	
h. Documented personal interviews, if approved by CDOT/PM		X	
i. Agency file reviews		X	

SCOPE OF WORK

	CDOT (C)/ Other*	Consultant	Not Applicable
ii Analyze results of regulatory research and records review and identify potential impacts construction activities may have on existing hazardous waste sites. Assess potential liability issues and hazards to the public and construction workers and develop potential mitigation options. Prepare the ISA/MESA Document to include the following:		X	
a. Prepare the draft and subsequent final ISAs to address comments provided by CDOT.		X	
b. ISAs will conform to American Society for Testing and Materials (ASTM) standards for Phase I reports (with limitations), and make a determination of the necessity of a Phase II report.		X	
c. Identify how the presence of hazardous waste locations may impact each alternative, including the no-action alternative. GIS mapping will be desired.		X	
iii Conduct In-Situ Tests via performing the following and providing a survey report, as determined on a project-specific basis:		X	
a. Select locations for soil boring/monitoring wells based on information obtained above, geologic review, and alignment considerations.		X	
b. Install monitoring wells and obtain soil and water samples for chemical analysis as well as geotechnical and geologic data.		X	
c. Perform asbestos and lead based paint testing as determined appropriate.		X	
iv Phase II site assessment if deemed to be important for the alternatives screening process.		X	
26. Cumulative Impacts		X	
Consistent with CEQ regulations, the cumulative effects of each proposed action on a resource, ecosystem or human community will be evaluated for each alternative. The analysis will both list and consider incremental impacts of each alternative in conjunction with all past, present, and reasonably foreseeable future actions, no matter what entity (federal, non-federal, local government, or private) is taking or has taken the action; but the analysis should only focus on meaningful effects. Develop the scope of the analysis in consultation with FHWA and CDOT, and, in general, will base temporal and spatial boundaries on the natural boundaries of resources of concern and the period of time that the proposed action's impacts will persist. The analysis will be incorporated into the NEPA document, and mitigation measures specific to cumulative impacts, if needed, will be identified.			
Standard FHWA global climate change language is to be incorporated within every cumulative impacts section of a NEPA document.			
27. Mines		X	
Research of readily available data			
6. NEPA DOCUMENTATION PROCESS		X	
Develop, coordinate, write, review, conduct QA/QC and finalize the appropriate NEPA document in accordance with the current provisions of the following laws, regulations, and standards.			
A. Preliminary Data Submission		X	

SCOPE OF WORK

	CDOT (C)/ Other*	Consultant	Not Applicable
Provide a report detailing all the data collected for the resources listed under “Data Collection, Field Investigation and Analysis” and “Environmental Analysis and Documentation” of this Scope of Work for the affected environment and impact sections of the NEPA document. The level of effort will be directly commensurate with the class of action and degree of controversy of the project. The Scope of Work will be revisited for possible update at the end of this Preliminary Data Submission task when more is understood about the impacts or analyses that will be necessary (determined during scoping and data collection).			
B. Preliminary and Final NEPA Document Preparation		X	
Assign a team leader qualified to (1) manage the NEPA process, (2) develop a schedule for document preparation, printing, review, and comment response, (3) will direct the Consultant team in the following tasks in coordination with the CDOT Region, EPB, and FHWA. The CDOT NEPA Manual specifies the number of copies to be provided for document review for each phase of the NEPA process.			
i. Distribute the internal draft NEPA document and relevant technical reports for review to a distribution list specified by CDOT. Prepare a specified number of the preliminary NEPA document and relevant technical reports with each version. Provide a specified number of review cycles of the preliminary NEPA document and relevant technical reports. Coordinate and conduct a specified number of comment resolution meetings for distribution list comments. Respond to comments within a reasonable number of working days after received.		X	
ii. Lead the effort with Consultant team to determine whether the “class of action” (EA or EIS) decided upon during the scoping process is still valid after the impacts and mitigation measures have been determined.		X	
iii. Determine review process to be used for the NEPA document.		X	
iv. Coordinate the impacts and mitigation measures with CDOT, and appropriate agencies, and FHWA. Take necessary actions to resolve issues.		X	
v. Prepare a NEPA document outline for review by CDOT and FHWA. Prepare a specified number of versions of the outline to be submitted and reviewed, with reviews and approvals being conducted by CDOT, FHWA, and other appropriate agencies.		X	
vi. Prepare and provide to the CDOT Region up to three versions of the complete Preliminary NEPA document and relevant technical reports [in paper format and also in electronic format]. Provide a specified number of review cycles of the draft NEPA document and relevant technical reports for Region review.		X	
vii. Prepare and provide to CDOT EPB a specified number of the complete preliminary NEPA document and relevant technical reports. Provide effort for a specified number of the draft NEPA document and relevant technical reports for CDOT EPB review.		X	
viii. Prepare and provide to FHWA Colorado Division and FHWA Legal copies of the complete preliminary NEPA document and relevant technical reports. Provide effort for no more than preliminary review cycles of the draft NEPA document and relevant technical reports for FHWA Colorado Division and FHWA Legal review.		X	

SCOPE OF WORK

	CDOT (C)/ Other*	Consultant	Not Applicable
ix. Distribute the draft NEPA document and relevant technical reports for review to a distribution list specified by CDOT. Prepare a specified number of the Preliminary NEPA document and relevant technical reports with each version including a comment/response period. Provide effort for a specified number of review cycles of the Preliminary NEPA document and relevant technical reports		X	
x. After each review cycle, make appropriate revisions to each subsequent version draft NEPA document and relevant technical reports until all comments are sufficiently addressed. Copies of each subsequent draft shall be provided to CDOT for distribution to CDOT, and appropriate agencies, and FHWA.		X	
xi. For the review cycles listed above, prepare a comment/response matrix for each draft NEPA document and relevant technical reports that describes how each comment was addressed. This matrix will be distributed with each version of the draft document and relevant technical reports that CDOT and FHWA review.		X	
xii. Submit the NEPA document to CDOT for signature and routing to FHWA for approval.		X	
xiii. Draft NEPA Document Distribution, Advertising and Public Review, Review and Concurrence, and Public NEPA Document Availability and Advertisement		X	
Provide the following services in coordination with the CDOT Region or EPB specialist [or CDOT Public Relations specialist as appropriate]:		X	
i. Create draft and final text for the public Notice of Availability of the NEPA document and the date, time and location of the public hearing for placement in all appropriate local papers.		X	
ii. Follow the signature process outlined in the CDOT NEPA Manual.		X	
iii. Prepare all aspects of the project necessary for public review of the NEPA document and relevant technical reports, including placing the documents in libraries, on the project web site, and with agencies. For public dissemination the Consultant shall provide an agreed upon number of copies of the signed NEPA document.		X	
iv. Compile public comments in determined format by CDOT/PM.		X	
v. Provide an electronic version of the NEPA document and relevant technical reports on the CDOT website in PDF, or other read only format.		X	
vi. Make revisions to the NEPA document and relevant technical reports. The resulting NEPA document and relevant technical reports will be provided to CDOT for distribution and final review, prior to preparing the signature copy. Provide certification that all comments have been addressed. The Consultant shall submit a signature copy of the NEPA document and relevant technical reports [to CDOT] for signatures and routing to FHWA for approval, and then will provide copies of the signed final NEPA document to CDOT.		X	
C. Decision Document (FONSI/ROD) Preparation			
i. There is no guarantee of the outcome of the NEPA process in order to determine next steps after an EA, and therefore a scope of work cannot be prematurely developed for the NEPA decision document. This scope of work and contract will be reevaluated once the preliminary EA		X	

SCOPE OF WORK

	CDOT (C)/ Other*	Consultant	Not Applicable
process is complete and the lead agency has made a decision on how to proceed.			
ii. In the event that significant impacts are identified in the EA, the NEPA process would be required to continue to the preparation of an EIS rather than a FONSI. Continuing to preparation of an EIS after completion of an EA is at CDOT's and FHWA's discretion, and should not be considered part of the initial EA scope of work. At this point, a separate Consultant contract would be required, with a new scope of work.		X	
iii. In the event that a decision document is deemed necessary, this contract and scope of work would be amended with the concurrence and agreement of both CDOT and FHWA (and other applicable agencies). At the conclusion of the public comment period, (if the project is determined to have no significant impact, a Finding of No Significant Impact (FONSI)) (if determined to have a significant impact then a Record of Decision (ROD)) document may be prepared. In the event a scope of work is prepared for a NEPA decision document to be drafted, the following services would be addressed in coordination with the Region and EPB:		X	
a. Prepare draft NEPA decision document and relevant supporting documentation for incorporating comments received at the public hearing/meeting or from the NEPA document public review period.		X	
b. Submit draft NEPA decision document and relevant supporting documentation to CDOT Region, EPB, and FHWA for three reviews.		X	
c. Coordinate and conduct a draft NEPA decision document and relevant supporting documentation review meeting and modify the draft decision document to respond to comments received. Provide certification that comments have been addressed.		X	
d. If necessary, re-submit the draft NEPA decision document and relevant supporting documentation for review to ensure that all comments have been made.		X	
e. If necessary, modify the draft NEPA decision document and relevant supporting documentation to respond to comments received.		X	
f. Submit final NEPA decision document and relevant supporting documentation for signature using the signature process outlined in the CDOT NEPA Manual. Make a specified number of hard copies and a specified number of electronic versions of the final NEPA decision document and relevant supporting documentation on compact disc.		X	

SCOPE OF WORK

	CDOT (C)/ Other*	Consultant	Not Applicable
iv. This Scope of Work could be supplemented for additional as-yet unidentified work, if CDOT determines additional work is warranted or needed. In the event that none of the alternatives are selected at the conclusion of the [EA/EIS] process, this portion of the scope and contract will be voided.		X	

SECTION 7

PRECONSTRUCTION WORK TASK DESCRIPTIONS

Note: The following activities of communication, consensus building, project team reviews, conceptual design, data gathering, documentation, and formal public notice shall be planned by the Consultant and coordinated with the CDOT/PM. The time of their accomplishment will overlap and parallel paths of activity should be planned to finish the development phase in accordance with the shortest possible schedule. A project plan shall be developed by the Consultant which satisfies the requirements of the project development. This plan must be approved by the Contract Administrator (see Section 2.01) before starting the work.

This list establishes the individual task responsibility. Those tasks identified as CDOT/Other should utilize an abbreviation system to indicate whether the task will be completed by CDOT or another agency (i.e. “C” for CDOT and abbreviations as provided below). The consultant shall maintain the ability to perform all work tasks which are indicated below by an ‘X’ in the consultant column, in accordance with the forms and conditions contained herein, and the applicable CDOT standards. Where appropriate, mark “N/A” for not applicable items.

***Other Agency Abbreviations:**

- 1) Mesa County = MC

	CDOT (C)/ Other*	Consultant	Not Applicable
1. PROJECT INITIATION AND CONTINUING REQUIREMENTS			
A. Environmental Mitigation and Requirements		X	
Ensure that any mitigation commitments within the NEPA documentation are incorporated into the project design plans			
B. Traffic Control		X	
Consultant field activities that interfere with traffic operations within existing roadways will require control of traffic. The Consultant shall plan and provide any required traffic control for the survey, testing, or the design process. Traffic control operations will be in accordance with the MUTCD. The proposed Method for Handling Traffic (MHT) must be submitted to the CDOT/PM. Also, certification of the Traffic Control Supervisor as a Worksite Traffic Supervisor by the American Traffic Safety Services Association (ATSSA) or as a TCS (Traffic Control Supervisor) by the Colorado Contractors Association (CCA) shall be required.			
2. PRELIMINARY DESIGN			
A. Traffic Engineering			
i. Review locations with “potential for accident reduction map” and or traffic operations analysis and or the safety assessment report as provided by CDOT to determine which safety improvements will be incorporated into the project.		X	
ii. Analyze the proposed project design with the traffic projection data		X	
iii. Recommend the appropriate geometry (i.e., number of lanes, auxiliary lanes, weaving distances, etc.) in accordance with the current version of Highway Capacity Manual.		X	

SCOPE OF WORK

		CDOT (C)/ Other*	Consultant	Not Applicable
iv.	The proposed design shall be reviewed to ensure compatibility with existing signing procedures throughout the preliminary roadway design process		X	
v.	Use traffic data appropriate to the anticipated construction timing in developing detour alternatives.		X	
vi.	Develop the total ESAL for the design life and submit to the CDOT/PM for the pavement design.		X	
vii.	Submit the traffic data and recommendations to the CDOT/PM for review.		X	
B. Structures				
i.	Existing bridge condition investigation Determine condition of existing bridge deck, superstructure and substructure material is required		X	
C. Hydrology/Hydraulic Engineering				
i.	Hydrology			
a.	Establish drainage basin data: delineate, determine size, waterway geometrics, vegetation cover, land use.		X	
b.	Collect historical data; research flood history and previous designs in the project proximity; and obtain data from other sources (e.g., Urban Drainage & Flood Control District, Colorado Water Conservation, CDOT Maintenance, and local residents).		X	
c.	Select a storm frequency based on the established criteria.		X	
d.	Complete a hydrological analysis using existing studies or approved methods.		X	
e.	Perform a risk analysis.		X	
ii.	Hydraulics			
a.	Accomplish the preliminary design of minor drainage structures:		X	
	(i) <i>Determine location and crossing alignment. Identify channel centerline by highway station or coordinates, as appropriate.</i>			
	(ii) <i>Determine the allowable headwater.</i>			
	(iii) <i>Assess the degree of sediment and debris problems to be encountered, including abrasion and corrosion.</i>			
	(iv) <i>Type, size, shape and material of the structures</i>			
	(v) <i>Prepare preliminary structure cross-sections to determine the elevations, flow lines, slopes and lengths of the structures. Show the flow quantity on the sections.</i>			
	(vi) <i>Complete the design computations.</i>			
	(vii) <i>Determine high water level.</i>			
b.	A water surface profile and complete hydraulic analysis is required for major structures. Determine the following:		X	
	(i) <i>Water surface profile and hydraulic analysis</i>			
	(ii) <i>Required hydraulic size and skew of the bridge</i>			
	(iii) <i>Minimum low girder elevation using CDOT criteria</i>			
	(iv) <i>The design year frequency</i>			

SCOPE OF WORK

	CDOT (C)/ Other*	Consultant	Not Applicable
(v) <i>The design year and 500 year high water elevations</i>			
(vi) <i>Predicted total scour profile for design year and 500 year scour</i>			
(vii) <i>The channel erosion protection for structures</i>			
c. If required, identify and assist CDOT in coordinating any required potential funding participation of local municipalities or agencies.		X	
d. Recommend culvert pip sizes, type, shape and material for proposed detours.		X	
iii. Preliminary Hydraulics and Hydrology Report. Include the following		X	
a. <i>Hydrology analysis</i>			
b. <i>Minor structure hydraulic designs</i>			
c. <i>Major structure hydraulic designs</i>			
d. <i>Detour hydraulic designs</i>			
e. <i>Structure cross-sections</i>			
f. <i>Storm Water Management Plan</i>			
g. <i>Appendix:</i>			
(i) <i>Drainage basin maps</i>			
(ii) <i>Hydrology/hydraulic worksheets</i>			
D. Utility Coordination			
i. Location Maps		X	
Obtain utility location maps from the Utility Companies which identify utility features in the project area. Perform ASCE Quality Level B Subsurface Engineering to identify existing utility locations and to identify ownership, type, size and special conditions should utility relocations be required, and research and obtain copies of utility easements (public and private) and utility franchise agreements to determine conditions under which the utility was established in its present location (e.g. by revocable permit or by a privately owned easement).			
ii. Incorporate utility locations in plans from utility survey and finalize the identification of existing utilities (both wet and dry) that will be impacted by design and finalized the existing utility plans with call-outs indicating which existing utilities are impacted by the project.		X	
iii. Ditch Company Coordination – Contact ditch companies regarding ditch requirement and restrictions and coordinate with the Regional Utility Engineer			
iv. Railroad Company Coordination – Contact the railroad regarding railroad requirements and restrictions and coordinate with the Regional Utility Engineer.			
		X	
A. Roadway Design and Roadside Development	X	X	
Coordinate all design activities with required CDOT specialty units and other outside entities.			
i. Roadway Design		X	
a. Input, check, and plot survey data		X	

SCOPE OF WORK

		CDOT (C)/ Other*	Consultant	Not Applicable
	b. Verify that a project specific coordinate system approved by CDOT is used to identify the horizontal locations of key points. The coordinate systems used for roadway design and ROW shall be compatible.		X	
	c. Input and check horizontal and vertical alignments against all design criteria. Necessary variances and/or design decisions will be identified with justification and concurrence by CDOT & FHWA.		X	
	d. Provide alignments, toes of slope and pertinent design features, including permanent and temporary impacts, to the ROW, Utility and Environmental Managers.		X	
	e. Plot/develop all required information on the plans in accordance with all applicable CDOT policies and procedures.		X	
	f. Using current approved CDOT software, generate a 3 dimensional design model and produce preliminary quantities		X	
ii.	Roadside Development: For roadside items including but not limited to, guardrails, delineators, landscaping, sprinkler systems, sound barriers, bike paths, sidewalks, lighting, curb ramps, truck escape ramps, and rest areas provide the following:		X	
	a. Layouts in the plans		X	
	b. Critical locations in the plans for irrigation sleeves and other utility conduits underneath the proposed roadways.		X	
	c. Coordinate the roadside items with the Storm Water Management Plan (SWMP).			X
B. Right-of-Way	The following work shall be done by, or under the immediate supervision of, a Professional Land Surveyor (PLS). The following work may be included as part of a Surveying contract or part of a Right-of-Way plans preparation contract.			
i.	Research		X	
	a. Identify affected ownership from preliminary design plans	X	X	
	b. Obtain assessor's maps for the project		X	
	c. Locate documents which transfer title		X	
	d. Prepare chain of title as described in the manual or as directed by the CDOT Project Manager		X	
	e. Look for encumbrances, liens, releases, etc.			X
	f. Make physical inspection of property. Note any physical evidence of apparent easements, wells, ditches, ingress, and egress			X
	g. Check with local entities such as the County Road Department or County Engineer for location of existing roads or easements		X	
	h. Check for and obtain latest subdivision plats and vacations of streets		X	

SCOPE OF WORK

	CDOT (C)/ Other*	Consultant	Not Applicable
ii. Ownership Map		X	
For additional detail on required drafting software, see Section 8 Submittals. Project coordinate system ownership map shall be submitted along with a “Project Narrative”.			
a. Review preliminary design and survey report.		X	
b. Review project coordinate system and basis of bearing from Control Survey prior to calculations		X	
c. Compute alignment of ROW centerline and store coordinates of all found monuments within the first tier of properties left and right of Centerline		X	
d. Review ownership documents (Memoranda of Ownership and/or title commitments, deeds and supporting plats)		X	
e. Calculate coordinates of lost or obliterated aliquot corners using guidelines established by the Bureau of Land Management. (To be used in resetting corners according to Colorado Revised Statutes)		X	
f. Establish subdivisions of sections using Bureau of Land Management Guidelines. Show all section lines and ¼ section lines on the ownership map and ROW plans		X	
g. Determine existing Right-of-Way limits from deeds of record, CDOT plans and found ROW markers. Previous Right-of-Way plans, if available, will be provided by CDOT as an aid		X	
h. Determine ownerships and their property boundary locations. Locate the intersection of these property boundary lines with the existing CDOT Right-of-Way. Determine location and ownership of existing easements of record.		X	
i. Secure additional property ties and additional topography where the highway improvement may affect improvements adjacent to the Right-of-Way. This additional topography should include:		X	
(i) Proximate buildings, sheds, etc.			
(ii) Underground cables and conduits			
(iii) Wells			
(iv) Irrigation ditches and systems			
(v) Septic tanks, cesspools, and leaching fields			
(vi) Landscaping			
(vii) Other			
j. Reconcile overlaps and gaps in ownerships as required by CDOT, documenting method used (may require additional field work). Include reasons for decisions in the “Project Narrative”.		X	
k. Plot OWNERSHIP MAP. If entire ownership will not fit on the sheet at this scale, an additional abbreviated OWNERSHIP MAP may be used at a scale of 1”=1 mile, or other suitable scale, to show the configuration of large ownerships. Metric equivalents may be required.		X	
l. Label all monuments found with description of monument and project coordinates (from Control Survey Diagram)		X	

SCOPE OF WORK

	CDOT (C)/ Other*	Consultant	Not Applicable
m. Show improvements and topography within the ownerships and existing access to the street/county road system.		X	
n. Number ownerships alternately as they occur along the centerline from south to north or west to east in the same direction as the stationing. Show current names of owners and lessees		X	
o. Calculate the total area of all ownerships affected, including coordinates of all property corners. Deduct areas for existing road Rights-of-Way. Bearings and distances do not need to be shown on 1" = 1 mile abbreviated OWNERSHIP MAPS		X	
p. Different land uses within a property should be cross-hatched or shaded.		X	
q. In the lower right corner of the OWNERSHIP MAP, show seal, number and name of Professional Land Surveyor supervising the work		X	
r. Transmit finished reproducible OWNERSHIP MAP, electronic drawing files, and Memoranda of Ownership to CDOT along with all calculations, field notes, and supporting data. The OWNERSHIP MAP will include a copy of the control and monumentation sheet		X	
C. Major Structural Design		X	
Major structures are bridges and culverts with a total length greater than twenty feet or retaining walls with a total length greater than one hundred feet and a maximum exposed height at any section of over five feet. This length is measured along centerline of roadway for bridges and culverts, and along the top of wall for retaining walls. Overhead sign structures (sign bridges, cantilevers, and butterflies extending over traffic) are also major structures, but are exempt from the structure preliminary design activity defined here.			
The CDOT Structure Reviewer will participate in coordinating this activity.			
i. Structural Data Collection		X	
a. Obtain the structure site data. The following data, as applicable, shall be collected: (Typical roadway section, roadway plan and profile sheets showing all alignment data, topography, utilities, preliminary design plan) Right-of-Way restrictions, preliminary hydraulics and geology information, environmental constraints, lighting requirements, guardrail types, recommendations for structure type, and architectural recommendations.		X	
b. Obtain data on existing structures. When applicable, collect items such as existing plans, inspection reports, structure ratings, foundation information, and shop drawings. A field investigation of existing structures will be made with notification to the Resident Engineer.		X	
ii. Structure Selection and Layout		X	
a. Review the structure site data to determine the requirements that will control the structure size, layout, type, and rehabilitation alternatives. On a continuing basis, provide		X	

SCOPE OF WORK

	CDOT (C)/ Other*	Consultant	Not Applicable
support data and recommendations as necessary to finalize the structure site data.			
b. Determine the structure layout alternatives. For bridges, determine the structure length, width, and span configurations that satisfy all horizontal and vertical clearance criteria. For walls, determine the necessary top and bottom of wall profiles.		X	
c. Determine the structure type alternatives. For bridges, consider precast and cast-in-place concrete and steel superstructures and determine the spans and depths for each. For walls, determine the feasible wall types.		X	
d. Determine the foundation alternatives. Consider piles, drilled caissons, spread footings, and mechanically stabilized earth foundations based on geology information from existing structures and early estimates from the project geologist. To obtain supporting information, initiate the foundation investigation as early as possible during the preliminary design phase.		X	
e. Determine the rehabilitation alternatives. Continued use of all or parts of existing structures shall be considered as applicable. The condition of existing structures shall be investigated and reported. Determine the modifications and rehabilitation necessary to use all or parts of existing structures and the associated costs.		X	
f. Compute preliminary quantities and preliminary cost estimates as necessary to evaluate and compare the structure layout, type, and rehabilitation alternatives.		X	
g. Evaluate the structure alternatives. Establish the criteria for evaluating and comparing the structure alternatives that, in addition to cost, encompass all aspects of the project's objectives. Based on these criteria, select the optimum structure layout, type, and rehabilitation alternative, as applicable, for recommendation to CDOT.		X	
h. Prepare preliminary general layout for the recommended structure. Prepare structure layouts in accordance with current standards. Special detail drawings and a detailed preliminary cost estimate shall accompany the general layout. The special detail drawings shall include the architectural treatment. Perform an independent design and detail check of the general layout.		X	
iii. Structure Selection Report		X	
Prepare a structure selection report to document, and obtain approval for, the structure preliminary design. By means of the structure general layout, with supporting drawings, tables, and discussion, provide for the following:			
a. Summarize the structure site data used to select and layout the structures. Include the following:		X	
(i) <i>Existing structure data, including sufficiency rating and whether or not the structure is on the "select list".</i>			
(ii) <i>Project site plan</i>			

SCOPE OF WORK

	CDOT (C)/ Other*	Consultant	Not Applicable
(iii) <i>Roadway vertical and horizontal alignments and cross sections at the structure</i>			
(iv) <i>Construction phasing</i>			
(v) <i>Utilities on, below, and adjacent to the structure</i>			
(vi) <i>Hydraulics</i> <i>Channel size and skew, design year frequency, minimum low girder elevation, design year and 500 year high water elevations, estimated design year and 500 year scour profiles, and channel erosion protection</i>			
(vii) <i>Preliminary geology information for structure foundation</i>			
(viii) <i>Architectural requirements</i>			
b. Report on the structure selection and layout process. Include the following:		X	
(i) <i>Discuss the structure layout, type, and rehabilitation alternatives considered</i>			
(ii) <i>Define the criteria used to evaluate the structure alternatives and how the recommended structure was selected</i>			
(iii) <i>Provide a detailed preliminary cost estimate and general layout of the recommended structure</i>			
c. Obtain acceptance by CDOT on the recommended structure and its layout. Allow approximately two weeks for review of the structure selection report. The associated general layout, with the revisions required by the CDOT review, will be included in the FIR plans. The structure selection report, with the associated general layout, must be accepted in writing by CDOT prior to the commencement of further design activities.		X	
d. Foundation Investigation Request Initiate the foundation investigation as early in the preliminary design phase as is practical. On plan sheets showing the project control line, its stations and coordinates, utilities, identify the test holes needed and submit them to the project geologist. The available general layout information for the new structure shall be included in the investigation request		X	
D. Preparation for the FIR			
i. Coordinate, complete, and compile the plan inputs from other branches: materials, hydraulics, traffic, right-of-way, and Staff Bridge.		X	
ii. If a major structure is included in the project, a general layout (which has been accepted by CDOT) will be included in the FIR plans.		X	
iii. Prepare the preliminary cost estimate for the work described in the FIR plans base on estimated quantities.		X	
iv. The FIR plans shall comply with CDOT requirements and shall include: title sheet, typical sections, general notes, plan/profile sheets, and preliminary layouts of interchanges/intersections.		X	

SCOPE OF WORK

	CDOT (C)/ Other*	Consultant	Not Applicable
The plan/profile sheets will include the following: all existing topography, survey alignments, projected alignments, profile grades, ground line, existing ROW, rough structure notes (preliminary drainage design notes, including pipes, inlets, ditches and channels), and existing utility locations.			
a. The following items will be mandatory for the FIR plans:		X	
(i) <i>Preliminary earthwork (plotted cross sections at critical points with roadway template and existing utility lines at known or estimated depths)</i>			
(ii) <i>Catch points</i>			
(iii) <i>Proposed Right-of-Way</i>			
(iv) <i>Pit data (if required)</i>			
(v) <i>Soil profile and stabilization data</i>			
(vi) <i>Structure general layouts (if applicable)</i>			
b. Typical plan sheet scales will be as follows:		X	
(i) <i>Plan and Profile 1 inch = 50 feet (Urban)</i>			
<i>1 inch = 100 Feet (Rural)</i>			
(ii) <i>Intersections 1 inch = 20 feet</i>			
v. The ROW ownership map shall be included in the FIR plan set		X	
vi. The plans shall be submitted to the CDOT/PM for a preliminary review prior to the FIR		X	
vii. FIR plan reproduction		X	
viii. The preliminary construction phasing including preliminary traffic control plan with proposed detours will be included in the FIR plan set		X	
ix. CDOT form 1048 – project scoping procedures completion checklist		X	
E. Field Inspection Review			
i. Attend the FIR		X	
ii. The FIR meeting minutes shall be prepared by the C/PM, approved by the CDOT/PM, and distributed as directed		X	
iii. The FIR original plan sheets shall be revised/corrected in accordance with the FIR meeting comments within thirty (30) working days		X	
iv. Design decisions concerning questions raised by the FIR will be resolved in cooperation with the CDOT/PM. The C/PM shall document the decision and transmit the documentation to the CDOT/PM for approval.		X	
v. A list of all deviations from standard design criteria along with the written justification for each one shall be submitted to the CDOT/PM		X	
F. Post-FIR Revisions		X	
The Consultant shall complete the revisions required by the FIR before this phase of work is considered to be complete			

SECTION 8

STUDY REPORTING WORK TASK DESCRIPTIONS

This list establishes the individual task responsibility. Those tasks identified as CDOT/Other should utilize an abbreviation system to indicate whether the task will be completed by CDOT or another agency (i.e. "C" for CDOT and abbreviations as provided below). The consultant shall maintain the ability to perform all work tasks which are indicated below by an 'X' in the consultant column, in accordance with the forms and conditions contained herein, and the applicable CDOT standards. Where appropriate, mark "N/A" for not applicable items.

*Other Agency Abbreviations:

- 1) Mesa County = MC

	CDOT (C)/ Other*	Consultant	Not Applicable
1. DEVELOP A STATEMENT OF PURPOSE AND NEED AND IDENTIFY GOALS FOR THE PROJECT AREA		X	
A. Develop an Executive Summary Containing the Following		X	
i. Refer to data from the existing conditions regarding existing and expected deficiencies in the transportation system serving the project area to compile a list of system deficiencies. Where possible, locate the deficiencies on a base map for use at the public meetings.		X	
ii. Reference the list of issues that resulted from contacts with stakeholders, public outreach, and general knowledge of the project area to identify a list of key needs in the project area.		X	
iii. Produce a written statement of purpose and need. This statement should be an "umbrella" statement for the project area, based on identification of needs and deficiencies. The statement should reflect the context sensitivity of the study area's communities to help reach their transportation goals by encouraging the consideration of land use, transportation, environmental and infrastructure needs in an integrated manner. It should include the following:		X	
a. Description of project location, length, termini, and a definition of the project study area.			
b. Description of existing transportation facilities and services, including transit, highway, bus service, park-n-Rides, bicycles and pedestrian, ADA compliance, etc.			
c. Identification of specific transportation problems and deficiencies (improvements, highway, pedestrian, bicycle, travel times, and transit).			
d. System linkage information			
e. Existing and future capacity traffic projections			
f. Social, economic, and environmental justice issues related to purpose and need.			
g. Safety problems.			
h. A summary of previous and current transportation studies, community plans, and planning efforts relevant to the project.			
i. Identify goals for the project area			
2. ALTERNATIVES REPORT			

SCOPE OF WORK

		CDOT (C)/ Other*	Consultant	Not Applicable
A. Alternatives Analysis			X	
i.	Develop Preliminary Evaluation Criteria Prior to development of reasonable alternatives, the Consultant will work with CDOT and the Stakeholders to develop preliminary evaluation criteria and submit the criteria to FHWA for review. Established criteria will be used to evaluate and screen the list of potential preliminary alternatives.		X	
ii.	Develop Alternatives The Consultant shall develop an agreed number of alternatives from a universe of options and meaningful implementation phases, which will satisfy the operational requirements and goals of the project. The alternatives shall address the project goals and objectives, account for potential impacts and any necessary roadway improvements, bridge structure types and hydraulic impacts. The Consultant shall then identify the reasonable alternatives that could be applied for the project area. The Consultant shall investigate project area configurations that satisfy the project's goals and objectives. The alternative analysis will also consider the type of improvements to be used. Conceptual layouts will be developed for each. These alternatives shall respond to projected design year traffic volumes as developed in the travel demand forecasting. The Consultant will evaluate the potential concerns and critical issues of each alternative concept and the degree that each accomplishes the goals and objectives of the study. The Consultant shall complete a conceptual layout of the alternatives decided upon by Mesa County, GVMPO, CDOT, FHWA, and other jurisdictions as appropriate. The design parameters, such as structure type, design speed, maximum grades, and typical section will be determined at the beginning and used on each alternative. The Consultant shall prepare the conceptual design for each improvement configuration with a magnitude of cost.		X	
iii.	Screen Alternatives The Consultant shall utilize a NEPA-appropriate screening process on the alternatives developed to identify the feasible and significantly different alternatives, which will be later subject to a more detailed NEPA environmental assessment. The purpose of this screening is to eliminate the obviously infeasible alternatives or alternatives that do not meet the Purpose and Need. The rationale for elimination shall be thoroughly discussed within the Study documentation for those alternatives that are eliminated from further consideration.		X	

SECTION 8

STUDY REPORTING WORK TASK DESCRIPTIONS

SCOPE OF WORK

		CDOT (C)/ Other*	Consultant	Not Applicable
v.	Before and After Views The Consultant shall develop a perspective view of each configuration type in a "before" and "after" illustration of existing features and proposed design, as necessary for presentation to stakeholders and the general public.		X	
vi.	Test Alternatives Analysis Following the development of a short-list of alternatives, the Consultant shall perform a comprehensive test of each of the short-listed alternatives. This test shall utilize a decision process, which includes a compilation of all appropriate criteria. In addition to the socioeconomic and environmental concerns, the decision criteria shall include design standards. The criteria will be compiled in coordination with other activities. Following that, a decision matrix shall be created which combines a list of the alternatives under consideration with the results of the test with each criterion.		X	
vii.	The alternatives shall then be further developed with initial design and financial analysis. Initial Design of Alternatives Once the alternatives have been tested, initial design will be performed to analyze the designated alternatives. The initial design shall be sufficient to determine general cut and fill limits, right-of-way and easement requirements, hydraulic implications, earthwork and structural requirements. Design parameters such as design speeds, maximum grades, typical sections, intersection and pedestrian routing will be determined at the beginning of the study. The level of design detail will be limited to the available data and base mapping. The initial design for the roadways, general construction phasing, and major structures will be completed sufficiently so that preliminary cost estimates can be developed and the satisfaction of pertinent design criteria can be demonstrated. Necessary variances will be identified. The following shall be available following completion of the design: <input type="checkbox"/> Plan and profile of roadways <input type="checkbox"/> Typical sections of roadways <input type="checkbox"/> Preliminary hydraulic recommendations <input type="checkbox"/> Preliminary right-of-way requirements <input type="checkbox"/> Recommended construction sequence <input type="checkbox"/> Phasing opportunities		X	
viii.	Financial Analysis of Alternatives A total cost estimate will be developed in whole or phases of improvement if feasible. Preliminary and final engineering, ROW, construction engineering, construction, and maintenance for the design life will be analyzed		X	

B. Feasible Alternatives Recommendation

SCOPE OF WORK

	CDOT (C)/ Other*	Consultant	Not Applicable
i. A “Final Alternatives Report” will be submitted which documents the analysis process. This shall include the final staging plan, socioeconomic and environmental concerns, utility conflicts, hydraulics, and right-of-way requirements, and total conceptual cost for the recommended alternatives. The Consultant is responsible for ensuring that the recommended alternative(s) complies with applicable standards and criteria. Where appropriate, required variances will be identified. A draft for the report shall be submitted for review and comment prior to the submittal of the final report.		X	

SECTION 9
CONTRACT CONCLUSION (CHECKLIST)

1. SUPPLEMENTAL WORK

It is anticipated that this contract may be supplemented for:

- A. Final Design
- B. Completion of the final ROW plans

2. CONTRACT COMPLETION

This Contract will be satisfied upon acceptance of the following items if applicable:

- A. Project Schedule
- B. Project Progress Meeting Minutes
- C. All documents found In Research
- D. All Permission to Enter Property forms
- E. Photography Products
- F. Ownership Map
- G. Completion of review of contract submittals
- H. FIR Design Plans, FIR Specifications, and FIR Estimate
- I. All Environmental Clearances
- J. Hydraulic Report
- K. Structural Report
- L. Geotechnical Report
- M. Materials Report
- N. Environmental Technical Resource Reports
- O. Environmental NEPA Documents

SCOPE OF WORK

TABLE 1 – SUBMITTALS

Note: This list establishes the individual task responsibility. Those tasks identified as CDOT/Other should utilize an abbreviation system to indicate whether the task will be completed by CDOT or another agency (i.e. “C” for CDOT and abbreviations as provided below). The consultant shall maintain the ability to perform all work tasks which are indicated below by an ‘X’ in the consultant column, in accordance with the forms and conditions contained herein, and the applicable CDOT standards. Where appropriate, mark “N/A” for not applicable items.

***Other Agency Abbreviations:**

1) Mesa County = MC

Hard Copy	Electronic Copy		Work Tasks	CDOT (C)/ Other*	Consultant	Not Applicable
	PDF	Orig.				
			Project Development			
X	X	X	Billings		X	
X	X	X	Meeting Minutes		X	
X	X	X	Project Schedule		X	
X	X	X	Completed Specific Design Criteria		X	
			Survey Plan			X
			Approved MHT's			X
			Traffic Control Supervisor Certification			X
X	X	X	Permissions to Enter		X	
			Initial Submittal of TMOSS and or MOSS Compatible Data			X
			Initial Submittal of an Original Plan Sheet			X
X	X	X	Public Communication Contact List		X	
			Route Location Survey			X
			Traffic Control Supervisor Certification			X
			Approved MHT's			X
			Survey data in raw, unedited formats			X
			Pothole data including invert elevations			X
			Culverts report			X
			Access report			X
			Topographic survey notes			X
			Contour plan checked for errors			X
			Survey control diagram			X
			Field books			X
			Electronic Survey Files			X
			Survey TMOSS Data			X
			Monument Records			X
			Control & Monumentation Plan Sheets			X
			Aerial Photography Index Map Sheets			X
			Aerial Photography Contact Sheets			X
			Permits			X
			401 Permit			X
			Dewatering / 402 Permit			X

SCOPE OF WORK

Hard Copy	Electronic Copy		Work Tasks	CDOT (C)/ Other**	Consultant	Not Applicable
	PDF	Orig.				
			404 Permit			X
			SB 40 Permit			X
			Wildlife Certification			X
			CDPS Storm Water Permit			X
			CDPHE Discharge Permit			X
			Environmental Work Tasks		X	
X	X	X	Appropriate NEPA Document (CatEx, EA, EIS, FONSI or ROD)		X	
X	X	X	Figures and Exhibits from NEPA Document		X	
X	X	X	Air Quality Technical Report		X	
X	X	X	Geologic Technical Report		X	
X	X	X	Water Quality Technical Report		X	
X	X	X	Wetland Finding Report		X	
X	X	X	Integrated Noxious Weed Management Plan		X	
X	X	X	Biological Resources Report		X	
X	X	X	Biological Assessment		X	
X	X	X	Historic Resource Technical Reports		X	
X	X	X	Section 4(f) Documents		X	
X	X	X	Paleontological Technical Report		X	
X	X	X	Environmental Justice Technical Report		X	
X	X	X	Transportation Technical Report		X	
X	X	X	Noise Technical Report		X	
X	X	X	Hazardous Materials Documentation (ISA/MESA)		X	
			Preliminary Design		X	
			Electronic Survey Data			X
X	X	X	Traffic Data & Recommendations		X	
			Geology & Soils Investigation Report			X
			Pavement Design Report			X
			Existing Bridge Condition Report			X
X	X	X	Foundation Investigation Report		X	
X	X	X	Engineering Geology Plan Sheet(s)		X	
X	X	X	Preliminary Hydraulics & Hydrology Report		X	
			Preliminary Storm Water Management Plan			X
X	X	X	Utility Relocation Recommendations		X	
X	X	X	Ditch Structure Plans		X	
X	X	X	Structural Selection Report		X	
X	X	X	Foundation Investigation Request		X	
			Final Materials Recommendations			X
			Final Pavement Selection Report			X
X	X	X	Intersection Traffic Report		X	
X	X	X	Traffic Report		X	X
X	X	X	Preliminary Cost Estimate		X	
X	X	X	FIR Plan Set		X	
X	X	X	List of deviations from Standard Design Criteria		X	
X	X	X	Corrected FIR Plan Set		X	
X	X	X	Final Hydraulics & Hydrology Report		X	
			Final Design			X

SCOPE OF WORK

Hard Copy	Electronic Copy		Work Tasks	CDOT (C)/ Other*	Consultant	Not Applicable
	PDF	Orig.				
			ROW Authorization Plans			X
			Final Utility Plan Set			X
			Final Railroad Plan Set			X
			PUC Exhibit			X
			Bound Final Geotechnical Report 2 copies			X
			Correspondence with Agencies, Entities, and Public			X
			Right-of-way		X	
X	X	X	Memorandum of Ownership		X	
X	X	X	Preliminary Ownership Map		X	
			Area Calculations			X
			Authorization Plans			X
			Legal Descriptions			X
			Final Right-of-way Ownership Map			X
			Stabilization Plans			X
			Traffic Engineering			X
			Safety Assessment			X
			Signing/Pavement Marking Plans			X
			Signal Warrant Study			X
			Signalized Intersection Plans & Specifications			X
			Traffic Control Plan			X
			Roadside Planning			
			Landscape Plan & Specifications			X
			Certification of Plant Availability			X
			Irrigation Plans & Specifications			X
			Bike path Plans & Specifications			X
			Sound Barrier Plans & Specifications			X
			Truck Escape Ramp Plans & Specifications			X
			Rest Area Plans & Specifications			X
			Lighting Plans & Specifications			X
			Structure Final Review Plans & Specifications			X
			Construction Phasing Plan			X
			Storm Water Management Plan			X
			FOR Plans & Specifications			X
			FOR Cost Estimate			X
			Final Review Revisions			X
			Construction Plan Package			
			Final Plans (11X17), Specifications (duplex) & Estimate Package for Ad.			X
			Final Cross Sections			X
			Schedule of Quantities			X
			Design Decisions			X
			Variances			X
			Findings In the Public Interest			X
			Original Surface Digital Terrain			X
			Final Surface Digital Terrain Model			X
			Design Digital Terrain Model			X
			Staking Data			X

SCOPE OF WORK

Hard Copy	Electronic Copy		Work Tasks	CDOT (C)/ Other*	Consultant	Not Applicable
	PDF	Orig.				
			Earthwork Quantities			X
			Mass/Haul diagram			X
			Project Calculations (2 copies)			X
			Worksheets (2 copies)			X
			Design Notes			X
			Independent Design Review Reports			X
			Roadway Design Data Submittal			X
			Major Structure Design Final Submittal			X
			Bridge Construction Pack			X
			Record Plan Sets			X

APPENDIX A REFERENCES

1. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) PUBLICATIONS

(using latest approved versions):

- A. A Policy on Design Standards-Interstate System
- B. A Policy on Geometric Design of Highways and Streets
- C. Guide for Design of Pavement Structures
- D. Standard Specifications for Highway Bridges
- E. Guide for the Design of Highway Occupancy Vehicle and Public Transfer Facilities
- F. Guide for the Development of Bicycle Facilities
- G. Standard Specifications for Transportation Materials and Methods of Sampling and Testing – Part 1, Specifications and Part II, Test
- H. Highway Design and Operational Practices Related to Highway Safety
- I. Roadside Design Guide
- J. Load Resistance Factor Design (LRFD) Specifications

2. COLORADO DEPARTMENT OF TRANSPORTATION PUBLICATIONS

(using latest approved versions):

- A. Design Guide (all volumes)
- B. Bridge Design Guide
- C. Bridge Detailing Manual
- D. Bridge Rating Manual
- E. Project Development Manual
- F. Erosion Control and Stormwater Quality Guide
- G. Field Log Structures
- H. Cost Data Book
- I. Drainage Design Manual
- J. NEPA Manual
- K. Environmental Stewardship Guide
- L. Quality Manual
- M. Survey Manual
- N. Field Materials Manual
- O. Standard Plans, M & S Standards
- P. Standard Specifications for Road and Bridge Construction and Supplemental Specifications
- Q. Item Descriptions and Abbreviations (with code number) compiled by Engineering Estimates and Markey Analysis Unit (“Item Book”)
- R. Right-of-Way Manual
- S. The State Highway Access Code
- T. Utility Manual
- U. TMOSS Generic Format
- V. Field TMOSS Topography Coding
- W. Topography Modeling Survey System User Manual
- X. Interactive Graphics System Symbol Table

3. CDOT PROCEDURAL DIRECTIVES

(This list is not all inclusive and may be amended, as appropriate, to reflect use of latest applicable and approved versions):

- A. No. 27.1 Social Marketing - Use of Web 2.0 and Similar Applications
- B. No. 31.1 Web Site Development
- C. No. 400.2 Monitoring Consultant Contracts

SCOPE OF WORK

- D. No. 500.1 Plans, Specifications and Estimates (PS&E) and Authorization to Advertise for Bids under Certifications Acceptance (CA)
- E. No. 500.5 Local Entity/State Contracts and Local Entity/Consultant Contracts and Local Entity/R.R. Contracts under CA
- F. No. 501.2 Cooperative Storm Drainage System
- G. No. 1601.1 Interchange Approval Process

4. **FEDERAL PRUBLICATIONS**

(using latest approved versions):

- A. Manual on Uniform Traffic Control Devices
- B. Highway Capacity Manual
- C. Urban Transportation Operations Training – Design of Urban Streets, Student Workbook
- D. Reference Guide Outline – Specifications for Aerial Surveys and Mapping by Photogrammetric Methods for Highways
- E. Executive Order 12898
- F. FHWA Federal-Aid Policy Guide
- G. Technical Advisory T6640.8A
- H. U.S. Department of Transportation Order 5610.1E
- I. Geometric Geodetic Accuracy Standards and Specifications for Using GPS Relative Positioning Techniques
- J. ADAAG Americans With Disabilities Act Accessibility Guidelines
- K. 23 CFR 771, the FHWA Technical Advisory T6640.8A

5. **AREA:**

- A. Manual for Railway Engineering
- B. Any appropriate local agencies reference as appropriate

APPENDIX B

SPECIFIC DESIGN CRITERIA

Note: The following criteria will be developed by the consultant and coordinated with the CDOT/PM prior to starting the design. The Consultant shall develop the CDOT Form 463 and insert a copy upon completion.

1. ROADWAY

A. BASIC DESIGN

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.

B. GEOMETRIC AND STRUCTURE STANDARDS:

- i. Design Speed, horizontal alignment, curvature, vertical alignment, sight distance and superelevation is specified in Form 463.
- ii. Use of Spirals –
- iii. Passing Sight Distance –
- iv. Decision Sight Distance –
- v. Frontage Roads, Separation Width –
- vi. CDOT Access Code
- vii. Airway – Highway Clearances Design Guide –
- viii. Bridges and Grade Separation Structures, Clearances to Structures and Obstructions, CDOT Design Guide –
- ix. Curb and Gutters, Type –

C. GEOMETRIC CROSS SECTION are as specified in Form 463

D. INTERSECTIONS AT GRADE:

- i. Type –
- ii. Special Considerations –

E. TRAFFIC INTERCHANGES:

- i. Type –
- ii. Ramp Type –
- iii. Special Considerations –

F. DESIGN OF PAVEMENT STRUCTURE:

- i. Pavement Type & Percent Trucks are as specified in Form 463 –
- ii. Economic Analysis Period –
- iii. Design Life –

G. MISCELLANEOUS DESIGN CONSIDERATIONS:

- i. Fence Type –
- ii. FEMA Category –
- iii. Design Flood Frequency –

H. ROADSIDE DEVELOPMENT

- i. Landscaping –
- ii. Specifications for Revegetating Disturbed Areas to be provided by CDOT
- iii. Noise Control –
- iv. Type –
- v. Guardrail and End Treatments –

I. LIGHTING:

- i. Type –

SCOPE OF WORK

APPENDIX C DEFINITIONS

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

1	AASHTO-	American Association of State Highway & Transportation Officials
2	ADT-	Average two-way 24-hour Traffic in Number of Vehicles
3	AREA-	American Railway Engineering Association
4	ATSSA-	American Traffic Safety Services Association
5	AT&SF-	Atchison, Topeka & Santa Fe Railway Company
6	ADAAG-	Americans with Disabilities Accessibility Act Guidelines
7	BAMS-	Bid Analysis and Management Systems
8	BLM-	Bureau of Land Management
9	BNRR-	Burlington Northern Railroad
10	CA-	Contract Administrator. The CDOT Manager responsible for the satisfactory completion of the contract by the consultant.
11	CAP-	CDOT's Action Plan
12	CBC-	Concrete Box Culvert
13	CDOT-	Colorado Department of Transportation
14	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 (as defined in Section 2 of this document)
15	CDOT/STR-	Colorado Department of Transportation Structure Reviewer – The CDOT Engineer responsible for reviewing and coordinating major structural design
16	CDPHE-	Colorado Department of Public Health and Environment
17	CEQ-	Council on Environmental Quality
18	COG-	Council of Governments
19	COGO-	Coordinate Geometry Output
20	CONSULTANT-	Consultant for this project
21	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 (as defined in Section 2 of this document).
22	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.
23	DEIS-	Draft Environmental Impact Statement
24	DHV-	Future Design Hourly Volume (two-way unless specified otherwise)
25	DRCOG-	Denver Regional Council of Governments
26	D&RGW-	Denver & Rio Grande Western Railroad
27	EA-	Environmental Assessment
28	EIS-	Environmental Impact Statement
29	ESAL-	Equivalent Single Axle Load
30	ESE-	Economic, Social and Environmental
31	FEIS-	Final Environmental Impact Statement
32	FEMA-	Federal Emergency Management Agency
33	FHPG-	Federal Aid Highway Policy Guide
34	FHWA-	Federal Highway Administration
35	FIPI-	Finding In Public Interest
36	FIR-	Field Inspection Review
37	FONSI-	Finding of No Significant Impact

SCOPE OF WORK

38	FOR-	Final Office Review
39	GPS-	Global Positioning System
40	MAJOR STRUCTURES-	Bridges and culverts with a total clear span length greater than twenty feet. This length is measured along the centerline of roadway for bridges and culverts, from abutment face to abutment face, Retaining structures are measured along the horizontal distance along the top of the wall. Structures with exposed heights at any section over five feet and total lengths greater than a hundred feet as well as overhead structures including (bridge signs, cantilevers and butterflies extending over traffic) are also considered major structures.
41	MPO-	Metropolitan Planning Organization (i.e. Denver Regional Council of Governments, Pikes Peak Area Council of Governments, Grand Junction MPO, Pueblo MPO, and North Front Range Council of Governments).
42	MS4-	Municipal Separate Storm Sewer System
43	NEPA-	National Environmental Policy Act
44	NGS-	National Geodetic Survey
45	NICET-	National Institute for Certification in Technology
46	NOAA-	National Oceanic and Atmospheric Administration
47	PAPER SIZES-	See Computer-Aided Drafting Manual (CDOT); Table 6-13 and Table 8-1
48	PE-	Professional Engineer registered in Colorado
49	PM-	Program Manager
50	PLS-	Professional Land Surveyor registered in Colorado
51	PRT-	Project Review Team
52	PS&E-	Plans, Specifications and Estimate
53	PROJECT-	The work defined by this scope
54	ROR-	Region Office Review
55	ROW-	Right-of-Way: A general term denoting land, property, or interest therein, usually in a strip acquired for or devoted to a highway
56	ROWPR-	Right-of-Way Plan Review
57	RTD-	Regional Transportation Director
58	T/E-	Threatened and/or Endangered Species
59	SH-	State Highway Numbers
60	TMOSS-	Terrain Modeling Survey System
61	TOPOGRAPHY-	In the context of CDOT plans, topography normally refers to existing cultural or man-made details.
62	UDFCD-	Urban Drainage and Flood Control District
63	USACE-	United States Army Corp of Engineers