

# **SCOPE OF WORK**

## **PROJECT SPECIFIC DESIGN ENGINEERING SH 9 IRON SPRINGS ALIGNMENT**

**CONTRACT TYPE: PROJECT SPECIFIC DESIGN ENGINEERING SERVICES**

**PROJECT NUMBER: 0091-042    PROJECT CODE: 19930**

**PROJECT LOCATION SH 9**

**SOUTH OF FRISCO MP 93 TO MP97**

**PROJECT SPECIFIC  
PART 1  
TABLE OF CONTENTS**

Description Page

Section 1	Project Specific Information	1
Section 2	Project Management and Coordination	2
Section 3	Project Description	2
Section 4	Known Existing Features	3
Section 5	Items to Be Furnished by CDOT	3
Section 6	General Information	4
Section 7	Work Activity Assignments	6
Section 8	Submittals	18
Section 9	Contract Conclusion	23

## SECTION 1 PROJECT SPECIFIC INFORMATION

The work to be performed resulting from this advertisement and SOW is contingent upon CDOT completing the environmental clearances on this project. CDOT is finalizing the Final Environmental Impact Study and 4(f) Evaluation (FEIS), Record of Decision (ROD) Environmental Assessment, EA and Decision Document (expected Finding of No Significant Impact- FONSI)

The successful consultant firm will be responsible for the full Individual Permit process for the 404 Permit from the Army Corps of Engineers. Wetland delineations and conceptual mitigation plans and commitments from the EA will be provided, and will need to be incorporated into the application.

### GENERAL REQUIRMENTS

The Colorado Department of Transportation is seeking professional engineering services for improvements to Highway 9 in Summit County. These services are needed to perform design and other related work for the major realignment of State Highway 9 between Swan Mountain Road and the access to the Hospital/ Peninsula Recreation Area intersection. Additional design related work will be required for some specific locations elsewhere within the Highway 9 Corridor. CDOT is in the process of completing an environmental study along this section of the corridor and the design will comply with the Final Environmental Impact Statement and 4(f) Evaluation (FEIS) and Record of Decision (ROD) and Template Environmental Assessment (EA) and expected Decision Document (expected Finding of No Significant Impact- FONSI). The limits of this project will be from approximate milepost 93 to approximate milepost 97 in Frisco.

The major elements of this contract include the following services: Project Initiation, Project Development Preliminary Design, Final Design, Right-of-Way Plans, Drainage Plans (and Drainage Study- including permanent Water Quality structures/system), Structural Plans (Walls and Underpass Arch Structures, Structure Selection Reports-Walls, Pavement Section Designs, Traffic Control Plans- including Signal Plans, Stormwater Management Plans, Environmental Mitigation Requirements, Individual Permit process for the 404 Permit from the Army Corps of Engineers including design of Wetland Mitigation (including potential for off-site locations). Design files of work completed from the EA will be provided.

#### **1 Description of Project:**

A 1.3-mile stretch of SH 9, just south of Frisco, is proposed to be realigned, rather than widened on the existing alignment (**Figure 1**). This stretch of SH 9, which falls between M.P. 93 to approximately M.P. 97, would provide a four-lane roadway (**Figure 2**) while moving the highway away from Dillon Reservoir. The Proposed Action, also referred to as the Iron Springs Alignment, would shorten SH 9 by approximately 0.4 mile. The Proposed Action would provide roadway safety benefits, as well as water quality and drinking water protection benefits, as a result of straightening the highway to remove a tight, compound curve (known as Leslie's Curve) which is in close proximity to Dillon Reservoir. A compound curve is a geometric condition in which there is not a tangent (straight) section of roadway in between two curves. The existing condition on Leslie's Curve is considered sub- standard and contributes to accidents in the area. The Proposed Action eliminates the need for sub-standard designs. The Proposed Action would include realignment of a portion of the existing Blue River Bikeway (part of a multi-use path). A portion of the bikeway would be moved to the current SH 9 alignment, following reclamation of the highway prism. The realigned bikeway would be approximately 0.4 miles longer than the existing one, but would be at a much gentler grade than the current alignment- and provides safer opportunities to cross SH 9 in underpass arch structures- while establishing connections to other trail systems adjacent to Dillon Reservoir. In addition, the Dickey Day Use Parking Lot would be moved west to a proposed parking lot, as shown on **Figure 1**, allowing for safer access due to an existing signalized intersection at SH 9 and Recreation Way. A Proposed Dickey Day Trail Connection would provide connectivity between the parking area and realigned bikeway. Construction could start as soon as 2016, and would take approximately two years to complete.

### **1.01 Project Improvements**

The improvements in the corridor are intended to provide increased capacity and safety on Highway 9, intersection enhancements, and access modifications. The design requirements are dependent upon, and shall be coordinated with the Record of Decision (ROD) adopted by the Federal Highway Administration (FHWA) for the Environmental Impact Statement (EIS) as well as the Template Environmental Assessment (EA) and expected Finding of No Significant Impact (FONSI) along south State Highway 9.

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

- Maintain Access to Businesses
- Increased capacity
- Improved safety
- Higher level-of-service

**1.03 Project Location.** This project is located on SH 9 from M.P 93 to M.P. 97

**1.04 Project Cost.** The construction cost (including CE and Indirects) of this project is estimated at \$14.5 million.

**1.05 Work Duration.** An anticipated project starting date is **April 4, 2014.**

The expected duration of the project is approximately one (1) year, 365 Calendar Days with time reserved for Design Services during the Project Advertisement to Bidders and Design Services during Construction after project is awarded. Time Expires at end of CY 2017.

**1.06 Consultant Responsibility.** The Consultant is responsible for: IP 404 Permit, Sitemap, Roadway Plans, Wall Plans, Underpass Arch Structural Plans, Utility Plans, ROW Plans, Obtaining Title Services, Drainage and Grading Plans, Landscaping, Erosion Control Plans, Traffic Plans, Construction Phasing Plans and Design Services during Construction. See work activity assignments.

**1.07 Work Product.** The Consultant work products are:

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

**1.08 Work Product Completion.** All submittals must be accepted by the CDOT Contract Administrator or his designee.

**SECTION 2**  
**PROJECT MANAGEMENT AND COORDINATION**

**2.01 CDOT Contacts.** The Contract Administrator for this project is:  
David Eller, Regional Transportation Director Region 3.

General administration of this contract will be delegated to Michael Olson, East Program Engineer. Active day to day administration and monitoring of contract task orders will be delegated to Regional Resident Engineers or CDOT PEs within each task order.

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

- Name Grant Anderson
- Title Resident Engineer
- Address PO Box 2236 Frisco CO 80443
- Telephone 303-512-5601

**2.02 Project Coordination.** Coordination will be required with the following:

- CDOT
- US Army Corps of Engineers
- Town of Frisco
- Summit County/Continental Divide Land Trust
- United States Forest Service
- Denver Water

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

**SECTION 3**  
**PROJECT DESCRIPTION**

**3.01 Background**

The Colorado Department of Transportation is seeking professional services for improvements to Highway 9 in Summit County. These services are needed to perform design and other related work for the major widening of State Highway 9 between Swan Mountain Road and the access to the Hospital/ Peninsula Recreation Area intersection. Additional design related work will be required for some specific locations elsewhere within the Highway 9 Corridor. CDOT is in the process of completing an environmental study along this section of the corridor and the design will comply with the Final Environmental Impact Statement and 4(f) Evaluation (FEIS) and Record of Decision (ROD) and Template Environmental Assessment (EA) and expected Finding of No Significant Impact (FONSI). The limits of this project will be from approximate milepost 93 to approximate milepost 97 in Frisco, CO

**3.02 Project Limits**

The project lies within M.P. 93 to M.P. 97 on SH 9

**3.03 Work Elements**

The major work elements are: ROW Ownership mapping, Roadway Design, Drainage Design, Landscaping Design, Structural Design, Coordination with the major entities: CDOT, Town of Frisco, Summit County, Utility Plans, Right of Way Plans including contracting and obtaining title services if needed, and Design Services during Construction.

**SECTION 4  
KNOWN EXISTING FEATURES**

**4.01 Utilities**

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

**SECTION 5  
ITEMS TO BE FURNISHED BY CDOT**

**5.01** Template EA Documents, Topographic Survey including Preliminary Ownership Maps, Roadway Design files, CDOT Manuals, Specifications, Standards, etc. Electronic Files of applicable standards All CDOT forms specified in this document

**5.02** Project Specific Items

- ✓ CDOT available accident history data
- ✓ CDOT available traffic data
- ✓ CDOT Roadway Design Model and Plans when developed
- ✓ Designs of previous projects
- ✓ As-constructed roadway
- ✓ Existing ROW plans and project or land survey control diagrams
- ✓ CDOT Forms
- ✓ SH 9 Template Environmental Assessment (which includes all mitigation requirements and technical reports- including wetland delineation)
- ✓ SH 9 Decision Document (Expected FONSI )

**SECTION 6  
GENERAL INFORMATION**

**6.01 Authorization to Proceed.** Work will not commence until the written Notice-to-Proceed is issued by the State with certification from the Consultant that the work will be completed within the allotted time. Final Design cannot begin until the Decision Document is issued and signed by the FHWA and received by the CDOT.

**6.02 Project Coordination.** The routine working contact will be between the CDOT Project Manager (CDOT/PM) and the Consultant Project Manager (C/PM) as defined in Attachment C. Each Project Manager will provide the other with:

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

**6.03 Routine Reporting and Billing.** The Consultant will provide the following on a routine basis:  
a. Coordination of all contract activities by the C/PM

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

**6.04 Personnel Qualifications.** The Consultant Project Manager (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 Licensure for Architects, Professional Engineers and Professional Land Surveyors.

**6.05 CDOT Computer/Software Information.**

Earthwork-	InRoads
Drafting-CADD	InRoads and MicroStation with CDOT’s formatting and standards
Survey-	CDOT InRoads TMOSS
Geometry	InRoadsCOGO (CoordinateGeometry)
Estimating-	Transport, an ASHTO-sponsored software
Specifications-	Microsoft Word

**Computer Data Compatibility.**

The data format used by the Consultant to submit surveying and photogrammetric data shall be as determined by the CDOT/PM in coordination with the respective Region PLS. The data format for submitting design computer files shall be compatible with the latest version of the adopted CDOT program.

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

**6.06 Project Design Data and Standards**

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

**6.07 CDOT’s Right Not to Have the Consultant Perform the work:**

While it is anticipated that the Consultant will be asked to perform all the activities checked as performed by Consultant, CDOT reserves the right to perform any or all of these tasks, or to provide assistance to the Consultant on any or all such work.

**SECTION 7**  
**WORK ACTIVITY ASSIGNMENTS**

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

- A. General Engineering Services - The scope for general engineering and design services may include but shall not necessarily be limited to:
  - 1. Provide conceptual drawings, graphs, data collection, or charts for the Region's planning, environmental, or other units as needed.
  - 2. Conduct Studies - transportation, environmental, etc.
  - 3. Provide support for region planning activities, including assistance with public meetings.
  - 4. Provide design support for off systems or other modes of transportation alternatives.
  - 5. Provide drafting support or CADD services. All CADD work for CDOT will be conducted using MicroStation and Inroads Software, latest versions used by CDOT.
  - 6. Provide lighting plans and analysis.
  - 7. Provide support research or search county, state or other areas for records or documents relevant to the project or task.
  - 8. Provide or acquire design services as required to complete tasks not specifically defined in the outline, but that may be required by specific task order.
  
- B. Surveying - The scope of work for surveying activities may include:
  - 1. ROW and Survey support for design.
  - 2. Perform utility surveys (include potholing).
  - 3. Perform additional wetland survey if needed.
  - 4. Prepare Project Control Diagram.
  - 5. Locate & Survey BLM & GLO Aliquot & Public Land Survey System Corners.
  - 6. Locate & Survey all private property monumentation required to resolve property ownerships and locations and their intersections with the existing and proposed CDOT Right of Way.
  - 7. Prepare Land Survey Control Diagram
  - 8. Revise topography survey as needed due to recent clear cutting/logging operations
  
- C. Right-of-Way Plan Preparation - The scope for right-of-way plan preparation may include:
  - 1. Ownership Maps
    - a. Obtain and review ownership documents (Memorandums of Ownership and/or title commitment and supporting plats).
    - b. 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.

- c. 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.
  - d. Determine ownership and their property/boundary line locations. Locate the intersection of these property boundary lines with the existing CDOT ROW. Determine location and ownership of existing easements of record. Show as measured dimensions compared to record dimensions where they differ.
  - e. Secure additional property owner ties and additional topography where the highway improvement may affect improvements adjacent to the right of way (i.e. underground cables and conduits and overhead utilities, wells, irrigation ditches, septic tanks and leach fields).
  - f. Reconcile overlaps and gaps in ownerships as required by CDOT, documenting method used (may require additional field work). Include reasons and supporting evidence in the project narrative.
  - g. Label all monuments found with description of monument, point number, and project coordinates.
  - h. Show improvements and topography within the ownerships as well as existing access to the street system.
  - i. Number ownerships alternately as they occur along the Centerline in the same direction as the design stationing. Show current names of owners and lessees.
  - j. Calculate the total area of all ownerships affected, and establish bearings and distances on all ownership lines, including coordinate of all property corners.
  - k. The ROW Ownership Map shall be available for review at the time of the FIR.
  - l. The ROW Ownership Map is to be completed to the standards of a land survey plat.
2. Initiate ROW authorization process. Coordinate with the CDOT/PM to initiate the ROW authorization process. Typically, the corrected FIR plans (with final hydraulic and utility design inputs) will be used as the design basis for the ROW authorization plans.
  3. Right of Way Plans and Authorization Plan - Integrate toes of slopes and other design details such as lane lines, culverts, road approaches, etc. into ownership map (base map for ROW plans) from FIR design to determine new ROW requirements, access control, and easements. Normal scale, 1"=50' in urban areas, 1"=100' in rural areas. Revise numbering of ownerships to correspond to ROW acquisitions.
    - a. Calculate areas of parcels, easements, and remainders in accordance with CDOT Right-of-Way Manual.
    - b. Prepare ROW plan sheets as outlined in the CDOT ROW Manual
    - c. Prepare legal descriptions of parcels, easements and access control as directed by the CDOT ROW Manual
    - d. Prepare tabulation of properties sheet
    - e. Prepare Right-of-Way Title Sheet
    - f. Incorporate the Project Control, preliminary Land Survey Control and Monumentation Sheets into the plans.
    - g. On the Monumentation Sheet, list the Right-of-Way, Permanent or Slope Easement, etc., points to be set and the aliquot corners to be reset and the Temporary Easement points to be staked.

- h. Hold ROW Plan Review (ROWPR), with Design, ROW, Utilities, Environmental, Maintenance and Construction to determine if ROW plans are sufficient to proceed to authorization.
    - i. Transmit originals of the plan sheets, title sheet, tabulation of properties sheet, and revised ownership (memoranda of ownership and title commitments as directed by the Region 3 Survey Coordinator), calculations and supporting data (i.e., parcel diaries), and final electronic data for all work products.
  - 4. Appraisal staking - Stake the proposed ROW line, easements and existing ROW line, if required by the Survey Coordinator. Set lath or wooden stakes at all angle points and on line as necessary to have at least three stakes visible from any point on line. Mark COGO point numbers on all stakes and color code per CDOT Survey Manual. The appraisal stakes only need to be set at an accuracy of +/- 1.0 foot, unless the point fall near improvements, then +/- 0.25 foot is necessary.
  - 5. Appraisals (By CDOT)
  - 6. Right-of-Way Plan Revisions - Revise the Right-of Way plans as needed throughout the appraisal and negotiation process for those changes approved by the respective Region PLS. All plan revisions shall be submitted to the respective Region PLS within 5 working days after receiving notice from CDOT to proceed with a Plan Revision.
    - a. Title Insurance and Closing Services (Local Title Company preferred). Title commitments submitted to PLS for ROW plan authorization must be dated within 90 days per ROW Manual.
- D. Bridge/Structural Design Activities - The scope of work for bridge design activities may include:
- 1. Provide design services for various highway structures or portions of highway structures.
  - 2. Furnish detailing services including drafting and quantity calculations for various highway structures or portions of highway structures.
  - 3. Provide underpass arch design and detailed review of work performed by other designers.
  - 4. Provide wall design and detailed review of work performed by other designers.
  - 5. Provide structural selection reports and structure selection studies.
  - 6. Provide a structure concept study.
  - 7. Obtain structural data.
  - 8. Provide foundation investigation report.
  - 9. Coordinate with outside agencies; for example, railroad agencies.
- E. Roadway Design Activities - The scope of work for roadway design activities may include:
- 1. Provide design services including quantity calculations for the various components of roadway construction, which could include intersection layout, interchanges, signals, structures, lighting, landscaping, irrigation design, ditch design, waterline, and sanitary sewer design.
  - 2. Furnish detailing and drafting services utilizing MicroStation and Inroads Software, latest CDOT adopted versions utilizing CDOT format. Other software required for design services and communication of information are Microsoft office products such as word, excel, power point. In addition project wise or FTP sites may be required for file sharing. Other formats or

software products may be required for specific tasks such as traffic modeling or truck turning movements.

3. Attend scoping reviews, design office reviews, field inspection reviews, and final office reviews and provide minutes as appropriate.
4. Prepare (PS&E Package) final plans, specifications and provide the CDOT project manager with detailed estimates that can be entered into CDOT Trns-port application system.
5. Prepare revisions under-advertisement to plans or specifications when necessary.
6. Design and layout of intersections and interchanges.

F. Hydrology Activities - The scope of work for the hydrology activities may include:

1. Collect historical drainage data.
2. Establish drainage basin data.
3. Select run-off parameters and predict peak flow.

G. Hydraulics Design Activities - The scope of work for hydraulics design activities may include:

1. Furnish the size and location of drainage structures.
2. Furnish storm sewer design.
3. Furnish erosion protection design and NPDES requirements.
4. Furnish quantity calculations for drainage structures including irrigation and permanent BMP's for surface drainage.
5. Design of water and waste water systems.

H. Traffic Engineering Activities - The scope of work for traffic engineering activities may include:

1. Collect traffic data.
2. Perform traffic studies or analyses.
3. Perform in-field inventories of traffic control device locations and conditions.
4. Furnish design and quantity calculations necessary to prepare signal, signing or pavement marking plans.
5. Furnish detailing and drafting services.
6. Attend field inspection and final office review.
7. Prepare construction signing plans and schedules.
8. Prepare final plans and specifications.

I. Architectural Activities - The scope of work for architectural activities may include:

1. Furnish design and quantity calculations of the various components of highway-related facilities.
2. Furnish detailing and drafting services.
3. Prepare final plans and specifications.
4. Evaluation and assistance in the resolution of problems encountered during construction of transportation-related facilities and/or state buildings.

J. Landscape Architectural Activities - The scope of work for landscape architectural activities may include:

1. Coordination with Region 3 Landscape Specialist to verify goals and general direction for developing re-vegetation plan.

2. Provide estimates of quantities of native seeding and mulching for the FIR plans.
3. Determine the most cost effective landscape alternative, finalize concept, and complete the plan.
4. Verify that an acceptable safe recovery distance exists between traveled way and all trees to be planted.
5. Coordinate all special permits that may be required.
6. Coordinate ROW requirements.
7. Write Special Provisions and submit to the CDOT/PM with the completed roadside plans.
8. Submit the approved plan/special provisions to the Design Engineer for inclusion in the Project Plans.
9. Verify availability of plant materials and submit letter to the CDOT/PM certifying that designated plants are available.
10. Provide recommendations for alternative landscape designs and recommendations for Best Management Practices for temporary and permanent erosion protection.
11. Provide Storm Water Plan Sheets with BMP locations and quantity calculations.

K. Geotechnical Services for Design - The scope of work for design services include:

1. Provide field sampling and testing of existing pavements and soils necessary for proper pavement design as per the CDOT Pavement Design Manual.
2. Perform boring and subsurface geotechnical investigations for Structure Selection Reports.
3. Provide testing results used in the design process that are certified by a professional engineer.
4. Provide other geotechnical services as requested in writing, including but not limited to subsurface investigations, instrumentation, foundation reports, landslide evaluations, MSE wall designs, soil nail designs, and retaining wall designs.

L. Environmental Services - The scope of work for environmental services may include:

1. Review template EA and ensure all mitigation requirements that are needed during Construction are incorporated into the Construction Plans.
2. Coordinate with CDOT environmental staff to verify compliance requirements and direction.
3. Facilitate coordination between CDOT environmental and engineering staff and appropriate regulatory or resource agencies.
4. Determine environmental conditions and any applicable required permits that were not already identified.
5. Prepare a complete Clean Water Act Section 404 Individual permit application, conduct any necessary coordination, and obtain Individual Permit (404) from US Army Corps of Engineers
6. Delineation and mitigation recommendations of wetlands (using data already incorporated into the EA).
7. Prepare and/or review environmental documents for CDOT projects.

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

1. Review of actual subsurface conditions to verify structural design.
2. Review and approval of shop drawings.
3. Changes in design based on field conditions.
4. Services as needed per PE stamp requirements on design drawings.
5. Claim and schedule analysis.
6. Analysis of VE proposals.

7. Analysis of construction phasing false work, shoring, methods statements, and CPM schedules (Microsoft Project and/or Primavera).
- N. Other Services - As requested Design and/ or General Engineering SOW by the Regions and specified in the task orders for other services not specified above may be requested on an as needed basis.

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

**REMAINDER OF PAGE LEFT BLANK INTENTINALLY**

This following list establishes the consultant's individual responsibility for anticipated tasks. The consultant shall maintain the ability to perform all work tasks which are indicated below by an 'X' mark in the consultant column, in accordance with the applicable CDOT standards. Selected work tasks shall be assigned only after coordination and consultation with CDOT. The Consultant is also responsible for coordinating the required work schedule for those tasks accomplished by CDOT and other agencies. CDOT reserves the right to perform any or all tasks or to assist the Consultant in the tasks checked as Consultant tasks below.

**PRECONSTRUCTION**

CDOT/OTHER    CONSULTANT

A. Project Initiation and Continuing Requirements:

1. Initial Project Meeting	<u>  X  </u>	<u>  X  </u>
2. Review Environmental Mitigation Requirements	<u>  X  </u>	<u>  X  </u>
3. Independent Design Review	<u>      </u>	<u>  X  </u>
4. Project Schedule	<u>  X  </u>	<u>  X  </u>
5. Develop Design Criteria	<u>  X  </u>	<u>  X  </u>
6. Initiate Survey	<u>      </u>	<u>      </u>
7. Right-of-Entry and Permits	<u>      </u>	<u>  X  </u>
8. Traffic Control	<u>  X  </u>	<u>  X  </u>
9. Initial Submittals	<u>  X  </u>	<u>  X  </u>
10. Progress Meetings	<u>  X  </u>	<u>  X  </u>
11. Structure Review Meetings	<u>  X  </u>	<u>  X  </u>
12. Project Management	<u>  X  </u>	<u>  X  </u>

B. Project Development:

1. Communication and Consensus Building		
a. Contact List	<u>  X  </u>	<u>      </u>
b. Public Notices/Advertisements	<u>  X  </u>	<u>      </u>
c. General Meetings	<u>  X  </u>	<u>      </u>
(1) Small Group	<u>  X  </u>	<u>      </u>
(2) General Public	<u>  X  </u>	<u>      </u>
(3) Project Review	<u>  X  </u>	<u>      </u>
d. Communication Aids	<u>  X  </u>	<u>      </u>
(1) Graphics Support	<u>  X  </u>	<u>  X  </u>
(2) Newsletter	<u>  X  </u>	<u>      </u>
(3) Wall Displays	<u>  X  </u>	<u>  X  </u>
(4) Study Model	<u> N/A </u>	<u> N/A </u>
(5) Local Office	<u>  X  </u>	<u>      </u>
2. Project Review Team	<u>  X  </u>	<u>  X  </u>
3. Route Location Surveys	<u>  X  </u>	<u>      </u>
a. Presurvey Conference	<u>      </u>	<u>  X  </u>
b. Survey Data Research	<u>      </u>	<u>      </u>
c. Secure Rights of Entry	<u>      </u>	<u>  X  </u>

d.	Project Control Survey		
	(1) Locate or establish HARN Stations	_____	_____
	(2) Monumentation	_____	_____
	(3) Project Control	_____	_____
e.	Photogrammetry	_____	_____
f.	Supplemental Surveying	_____	<u>  X  </u>
g.	Accuracy Tests	_____	<u>  X  </u>
h.	Review (by Professional Land Surveyor)	_____	<u>  X  </u>
4.	Conceptual Design		
a.	Urban Planning and Aesthetics	<u>  X  </u>	<u>  X  </u>
b.	System Feasibility for Interchanges	<u> N/A </u>	<u> N/A </u>
c.	Alternatives Analysis	<u> N/A </u>	<u> N/A </u>
d.	Final Alternatives Reports	<u> N/A </u>	<u> N/A </u>
e.	Interchange Approval Process	<u> N/A </u>	<u> N/A </u>
5.	Data Gathering Analysis, and Mitigation (from Template EA) Development		
a.	Traffic Related		
	(1) Traffic Study	<u> N/A </u>	_____
	(2) Accident Study	<u> N/A </u>	_____
	(3) Noise Study	<u> N/A </u>	<u> N/A </u>
	(4) Air Quality	<u> N/A </u>	<u> N/A </u>
	(a) Air Quality Monitoring	<u> N/A </u>	<u> N/A </u>
	(b) Air Quality Analysis	<u> N/A </u>	<u> N/A </u>
	(5) Alternate Transportation Sys.	<u> N/A </u>	<u> N/A </u>
b.	Archaeology		
	(1) Gather Data & Analysis	<u>  X  </u>	_____
	(2) Mitigation Implementation	_____	<u>  X  </u>
c.	Paleontology		
	(1) Gather Data & Analysis	_____	_____
	(2) Mitigation Implementation	_____	<u>  X  </u>
d.	Initial Geology Investigation	<u>  X  </u>	<u> N/A </u>
e.	Water Quality		
	(1) Quality Analysis	<u> N/A </u>	<u> N/A </u>
	(2) Quality Monitoring	<u> N/A </u>	<u> N/A </u>
f.	Ecological Assessment	<u> N/A </u>	_____
g.	Historical		
	(1) Historical Bridge Clearance	<u> N/A </u>	<u> N/A </u>
	(2) Historical Study & Clearance	_____	_____
h.	Floodplain and Drainage Assessment	_____	<u>  X  </u>

	<u>CDOT/OTHER</u>	<u>CONSULTANT</u>
i. Right-of-Way		
(1) Early ROW	<u>      </u>	<u>  X  </u>
(2) ROW Review	<u>  X  </u>	<u>  X  </u>
(3) Prepare Legal Description	<u>      </u>	<u>  X  </u>
j. 4(f)/6(f) Activity		
(1) Evaluation	<u>  X  </u>	<u>      </u>
(2) Clearance/Concurrence	<u>  X  </u>	<u>      </u>
k. Threatened and/or Endangered Species		
(1) Determination of Presence	<u>  X  </u>	<u>      </u>
(2) Implement Mitigation	<u>      </u>	<u>  X  </u>
l. Wetlands		
(1) Wetlands Determination	<u>  X  </u>	<u>      </u>
(2) Wetlands Findings Report	<u>  X  </u>	<u>      </u>
(3) Implement Mitigation	<u>      </u>	<u>  X  </u>
m. Hazardous Materials		
(1) Field Search	<u>  N/A  </u>	<u>      </u>
(2) Research	<u>  X  </u>	<u>      </u>
(3) Conduct in-situ tests	<u>  X  </u>	<u>      </u>
(4) Analyze and Assess Impacts	<u>  X  </u>	<u>      </u>
n. Existing Roadway/Major Structure	<u>  x  </u>	<u>  X  </u>
o. Construction Requirements	<u>  X  </u>	<u>  X  </u>
p. Aesthetic Considerations	<u>  X  </u>	<u>  X  </u>
q. Utilities	<u>  X  </u>	<u>  X  </u>
r. Economics	<u>  N/A  </u>	<u>  N/A  </u>
s. Farmlands	<u>  N/A  </u>	<u>  N/A  </u>
t. Energy Usage	<u>  N/A  </u>	<u>  N/A  </u>
6. Environmental Assessment (EA) Process (if needed)	<u>  N/A  </u>	<u>  N/A  </u>
7. Environmental Impact Study (EIS) Process (if needed)	<u>  N/A  </u>	<u>  N/A  </u>
8. Design Report Process	<u>  N/A  </u>	<u>  N/A  </u>
9. Obtain Permits	<u>      </u>	<u>  X  </u>

C. Preliminary Design:

1. Design Field Surveys		
a. Presurvey Conference	<u>      </u>	<u>      </u>
b. Survey Data Research	<u>      </u>	<u>      </u>
c. Secure Rights of Entry	<u>      </u>	<u>      </u>
d. Project Control Survey		
(1) Locate or Establish HARN Stations	<u>      </u>	<u>      </u>
(2) Monumentation	<u>      </u>	<u>      </u>
(3) Local Project Control	<u>      </u>	<u>      </u>
e. Inroads TMOSS Survey	<u>      </u>	<u>      </u>
f. Terrain Survey	<u>      </u>	<u>      </u>

	<u>CDOT/OTHER</u>	<u>CONSULTANT</u>
g. Utility Survey	_____	_____
h. Hydraulic Survey	_____	_____
i. Material Survey	_____	_____
j. Supplemental Surveying	_____	<u>X</u>
k. Survey Report	_____	_____
l. Accuracy Tests	_____	_____
m. Review (by Professional Land Surveyor)	_____	<u>X</u>
2. Traffic Engineering	_____	<u>X</u>
3. Materials Engineering	<u>X</u>	<u>X</u>
a. Preliminary Soil Investigation	<u>X</u>	<u>X</u>
b. Pavement Rehabilitation	_____	_____
c. New Pavement Structure	_____	<u>X</u>
d. Pavement Justification	<u>X</u>	<u>X</u>
e. Pavement Design Report	<u>X</u>	<u>X</u>
f. Existing Bridge Investigation	_____	_____
g. Foundation Investigation	<u>X</u>	<u>X</u>
4. Hydrology/Hydraulics Engineering		
a. Hydrology	_____	<u>X</u>
b. Hydraulics	_____	<u>X</u>
c. Preliminary Hydraulics Report	_____	<u>X</u>
5. Utility Coordination		
a. Location Maps	_____	<u>X</u>
b. Reviews and investigations	_____	<u>X</u>
(1) "Potholing"-Excavation	_____	<u>X</u>
(2) "Potholing"-Surveying Utility Locations	_____	<u>X</u>
c. Relocation recommendations	_____	<u>X</u>
d. Ditch Company coordination	_____	_____
6. Roadway Design and Roadside Development		
a. Roadway Design	_____	<u>X</u>
b. Roadside Development	_____	<u>X</u>
<input type="checkbox"/> Guardrail and delineator	_____	<u>X</u>
<input type="checkbox"/> Landscaping	_____	<u>X</u>
<input type="checkbox"/> Sprinkler Systems	<u>N/A</u>	_____
<input type="checkbox"/> Sound Barriers	<u>N/A</u>	_____
<input type="checkbox"/> Bikepaths	_____	<u>X</u>
<input type="checkbox"/> Truck Escape Ramps	<u>N/A</u>	<u>N/A</u>
<input type="checkbox"/> Rest Areas	<u>N/A</u>	<u>N/A</u>
<input type="checkbox"/> Safety analyses (CDOT to provide data)	<u>X</u>	_____
c. Lighting Plan	<u>N/A</u>	_____

7.	Right-of-Way		
a.	Research	<u>      </u>	<u>  X  </u>
b.	Ownership Map	<u>      </u>	<u>  X  </u>
c.	Prepare Legal Description	<u>      </u>	<u>  X  </u>
8.	Major Structural Design		
a.	Structural Data Collection	<u>      </u>	<u>  X  </u>
b.	Structure concept study	<u>      </u>	<u>  X  </u>
c.	Structure Selection Report	<u>      </u>	<u>  X  </u>
d.	Foundation Investigation Request	<u>      </u>	<u>  X  </u>
9.	Construction Phasing Plan	<u>      </u>	<u>  X  </u>
10.	Preparation for the FIR	<u>  X  </u>	<u>  X  </u>
11.	Field Inspection Review	<u>  X  </u>	<u>  X  </u>
12.	Post FIR Revisions	<u>      </u>	<u>  X  </u>
 D. Final Design:			
1.	Project Review	<u>  X  </u>	<u>  X  </u>
2.	Design Coordination	<u>      </u>	<u>  X  </u>
3.	Utility Coordination	<u>      </u>	<u>  X  </u>
4.	Hydraulic Design	<u>      </u>	<u>  X  </u>
a.	Data Review	<u>      </u>	<u>  X  </u>
b.	Storm Water Pollution Prevention Plan	<u>      </u>	<u>  X  </u>
c.	Major Structure Channel Design	<u>  N/A  </u>	<u>  N/A  </u>
d.	Final Hydraulics Report	<u>      </u>	<u>  X  </u>
5.	Interim Plans		
a.	Initiate ROW Authorization Process (ROWPR)	<u>      </u>	<u>  X  </u>
b.	Final Utility Plans	<u>      </u>	<u>  X  </u>
c.	Final Railroad Plans	<u>  N/A  </u>	<u>  N/A  </u>
6.	Right-of-Way		
a.	ROW Plans Content	<u>  X  </u>	<u>  X  </u>
b.	Title Insurance and Closing Services	<u>  X  </u>	<u>  X  </u>
c.	Authorization Plan	<u>  X  </u>	<u>  X  </u>
d.	Appraisal Staking	<u>      </u>	<u>  X  </u>
e.	ROW Plan Revisions (During Negotiations)	<u>  X  </u>	<u>  X  </u>
f.	Prepare Legal Description	<u>  X  </u>	<u>  X  </u>
g.	Title Commitments	<u>  X  </u>	<u>  X  </u>
7.	Materials Engineering		
a.	Materials Data	<u>  X  </u>	<u>  X  </u>
b.	Stabilization validity	<u>  X  </u>	<u>  X  </u>
c.	Stabilization Plan	<u>  X  </u>	<u>  X  </u>

	<u>CDOT/OTHER</u>	<u>CONSULTANT</u>
8. Traffic Engineering		
a. Permanent Signing/Pavement Marking Plans	<u>      </u>	<u>  X  </u>
b. Signalized Intersections	<u>  X  </u>	<u>  X  </u>
c. Traffic Control Plan	<u>      </u>	<u>  X  </u>
9. Roadside Planning		
a. Landscaping	<u>      </u>	<u>  X  </u>
b. Other	<u>      </u>	<u>  X  </u>
<input type="checkbox"/> Sprinkler systems	<u>  N/A  </u>	<u>      </u>
<input type="checkbox"/> Bikepaths	<u>      </u>	<u>  X  </u>
<input type="checkbox"/> Sound barriers	<u>  N/A  </u>	<u>      </u>
<input type="checkbox"/> Truck escape ramps	<u>  N/A  </u>	<u>  N/A  </u>
<input type="checkbox"/> Rest Areas	<u>  N/A  </u>	<u>  N/A  </u>
<input type="checkbox"/> Guardrail and delineator	<u>  X  </u>	<u>  X  </u>
<input type="checkbox"/> Safety analyses (CDOT help w/data)	<u>  X  </u>	<u>  X  </u>
c. Lighting Plans	<u>  N/A  </u>	<u>      </u>
10. Roadway Design	<u>      </u>	<u>  X  </u>
11. Final Major Structural Design		
a. Structure Final Design	<u>      </u>	<u>  X  </u>
b. Preparation of Structure Plans and Specifications	<u>      </u>	<u>  X  </u>
c. Independent Design, Detail, and Quantity Check	<u>      </u>	<u>  X  </u>
d. Bridge Rating and Field Packages	<u>      </u>	<u>  X  </u>
e. Structure Final Review Plans and Specifications	<u>  X  </u>	<u>  X  </u>
12. Construction Phasing Plan	<u>      </u>	<u>  X  </u>
13. Plan Preparation for FOR	<u>      </u>	<u>  X  </u>
14. Final Office Review	<u>  X  </u>	<u>  X  </u>
15. Construction Plan Package	<u>  X  </u>	<u>  X  </u>
E. Corridor Management Support		
1. Design Control	<u>  (N/A)  </u>	<u>      </u>
2. Information Services	<u>  (N/A)  </u>	<u>      </u>
3. Budget Planning Support	<u>  (N/A)  </u>	<u>      </u>
F. Value Engineering	<u>  (N/A)  </u>	<u>      </u>

**SERVICES AFTER DESIGN**

A. Review of Shop Drawings	<u>  X  </u>	<u>  X  </u>
B. Construction Services		
1. Coordinate Schedule	<u>  X  </u>	<u>      </u>
2. Provide field observation		
a. Pile driving/caisson drilling	<u>  N/A  </u>	<u>      </u>
b. Major concrete pours	<u>  X  </u>	<u>      </u>
c. Placement of girders	<u>  N/A  </u>	<u>      </u>
d. Splicing of girders	<u>  N/A  </u>	<u>      </u>
e. Post-tensioning duct and anchorage placement	<u>  X  </u>	<u>      </u>
f. Post-tensioning operations	<u>  X  </u>	<u>      </u>
3. Technical assistance	<u>  X  </u>	<u>  X  </u>
4. Submittals		
a. Diary	<u>  X  </u>	<u>      </u>
b. Documentation/justification	<u>  X  </u>	<u>      </u>
c. Progress reports	<u>  X  </u>	<u>      </u>
d. Calculations, drawings, and specifications	<u>  X  </u>	<u>      </u>
e. Daily time sheets	<u>  X  </u>	<u>      </u>
C. Post Design Plan Modifications	<u>  X  </u>	<u>  X  </u>
D. Post Construction Services:		
1. Final earthwork determination	<u>  X  </u>	<u>      </u>
2. As-built plans	<u>  X  </u>	<u>      </u>
3. Revisions to Right-of-Way Plans (Excess Land)	<u>      </u>	<u>  X  </u>
4. Monument ROW	<u>      </u>	<u>  X  </u>
5. Set Property Corners (Remainders)	<u>      </u>	<u>  X  </u>
6. Deposit ROW Plans	<u>      </u>	<u>  X  </u>
E. Construction Engineering	<u>  X  </u>	<u>      </u>

**SECTION 8  
SUBMITTALS**

A. Project Initiation and Continuing Requirements:

Part 1

A.1. Periodic Reports & Billings		<u>  X  </u>
A.2. Meeting Minutes	<u>  X  </u>	<u>  X  </u>

Part 2

A.3. Project Schedule	<u>  X  </u>	<u>  X  </u>
A.4. Completed Specific Design	<u>  X  </u>	<u>  X  </u>

		<u>CDOT/OTHER</u>	<u>CONSULTANT</u>
	Criteria (Attachment B)	<u>X</u>	<u>X</u>
A.5	Survey Plan	<u>X</u>	
A.6	Permissions to Enter (Form 730)		<u>X</u>
A.7	Traffic Control Plan <u>X</u>	<u>X</u>	
A.8	Initial Submittal of Inroads TMOSS and/or InRoads Compatible Data		<u>X</u>
A.9	Initial Submittal of an Original Plan Sheet	<u>X</u>	<u>X</u>
B. Project Development:			
B.1.a.	Public Communication Contact List	<u>X</u>	
B.3.	Route Location Survey:		
	<input type="checkbox"/> Electronic Survey Files		
	<input type="checkbox"/> Survey Inroads TMOSS Data		
	<input type="checkbox"/> Monument Records		<u>X</u>
	<input type="checkbox"/> Control & Monumentation Plan Sheets		<u>X</u>
	<input type="checkbox"/> Aerial Photography Index Map Sheets	<u>N/A</u>	<u>N/A</u>
	<input type="checkbox"/> Aerial Photography Contact Prints	<u>N/A</u>	<u>N/A</u>
	<input type="checkbox"/> Aerial Photography Negatives	<u>N/A</u>	<u>N/A</u>
	<input type="checkbox"/> Photogrammetry Electronic Data	<u>N/A</u>	
	Base Map Sheets		
	Base Map Index Sheet(s)		
	<input type="checkbox"/> Rectified Photos with Mylar Originals	<u>N/A</u>	<u>N/A</u>
B.4.b.	System Feasibility Study	<u>N/A</u>	
B.4.d.	Final Alternatives Report	<u>N/A</u>	
B.5.a.(3)(d)	Noise Assessment Report	<u>N/A</u>	
B.5.a.(4)(b)	Air Quality Report	<u>N/A</u>	
B.5.b.(2)	Archaeology Survey Report & Mitigation Plan	<u>X</u>	
B.5.c.(2)	Paleontology Preliminary Report & Mitigation Plan	<u>X</u>	
B.5.e.(1)	Water Quality Report	<u>N/A</u>	
B.5.f.(5)	Ecology Report	<u>X</u>	
B.5.g.(1)	Historical Bridge Clearance or Mitigation Plan	<u>N/A</u>	<u>N/A</u>
B.5.g.(2)	Historical Cultural Resources Report	<u>X</u>	
B.5.h.(5)	Floodplain and Drainage Assessment Report & Mitigation Plan		<u>X</u>
B.5.i.(2)(b)	ROW Report	<u>X</u>	
B.5.j.(2)(e)	4(f)/6(f) Mitigation Plan	<u>X</u>	

B.5.k.(1)(c)	Threatened and/or Endangered Species Assessment		<u>  X  </u>	<u>      </u>
B.5.l.(2)(b)	Wetlands Findings Report	<u>  X  </u>	<u>      </u>	<u>      </u>
B.5.m.(4)	Hazardous Materials Findings Environmental Assessment (EA)		<u>  X  </u>	<u>      </u>
B.6.a.(3)	Preliminary EA	<u>  X  </u>	<u>  N/A  </u>	<u>      </u>
B.6.d.(3)	Certified Verbatim Transcript		<u>  N/A  </u>	<u>  N/A  </u>
B.6.e.	Finding of No Significant Impact (FONSI) Environmental Impact Statement		<u>  X  </u>	<u>  N/A  </u>
B.7.a.(2)	Draft EIS	<u>  N/A  </u>	<u>  N/A  </u>	<u>      </u>
B.7.d.(3)	Certified Transcript of Meeting		<u>  N/A  </u>	<u>  N/A  </u>
B.7.e.	Final EIS Design Report Process	<u>  N/A  </u>	<u>  N/A  </u>	<u>      </u>
B.8.b.	Preliminary Design Report	<u>  X  </u>	<u>  X  </u>	<u>      </u>
B.8.e.	Final Design Report	<u>  X  </u>	<u>  X  </u>	<u>      </u>
B.9.a.	<input type="checkbox"/> 401 Permit	<u>  X  </u>	<u>  X  </u>	<u>      </u>
B.9.b.	<input type="checkbox"/> 402 Permit	<u>  X  </u>	<u>  X  </u>	<u>      </u>
B.9.c.	<input type="checkbox"/> 404 Permit	<u>  X  </u>	<u>  X  </u>	<u>      </u>
B.9.d.	<input type="checkbox"/> Wildlife Certification		<u>  X  </u>	<u>      </u>
B.9.e.	<input type="checkbox"/> NPDES Storm Water Permit		<u>  X  </u>	<u>      </u>

C. Preliminary Design:

C.1.	Electronic Survey	<u>  X  </u>	<u>      </u>	<u>      </u>
C.2.g.	Traffic Data & Recommendations		<u>  N/A  </u>	<u>  N/A  </u>
C.3.a.(4)	Soils Investigation Report	<u>  X  </u>	<u>  X  </u>	<u>      </u>
C.3.e.	Pavement Design Report		<u>  X  </u>	<u>      </u>
C.3.f.	Existing Bridge Condition Report		<u>  N/A  </u>	<u>      </u>
C.3.g.(6)	Foundation Investigation Report		<u>      </u>	<u>  X  </u>
C.3.g.(7)	Engineering Geology Plan Sheet(s)		<u>      </u>	<u>  X  </u>
C.4.c.	Preliminary Hydraulics Report		<u>      </u>	<u>  X  </u>
C.5.c.	Utility Relocation Recommendations		<u>      </u>	<u>  X  </u>
C.5.d.	Ditch Structure Plans	<u>  N/A  </u>	<u>      </u>	<u>      </u>

Part 2 Right-of-Way:

C.7.a.	Titlework	<u>      </u>	<u>  X  </u>	<u>      </u>
C.7.b.	Preliminary Ownership Map (include in the FIR plan set)		<u>      </u>	<u>  N/A  </u>
C.8.c.	Structural Selection Report		<u>  X  </u>	<u>  X  </u>
C.8.d.	Foundation Investigation Request		<u>  X  </u>	<u>      </u>
C.10.c	Preliminary Cost Estimate (CDOT run Transport)		<u>  X  </u>	<u>  X  </u>
C.10.d.	FIR Plan Set		<u>  X  </u>	<u>      </u>
C.11.e.	List of Deviations from Standard Design Criteria		<u>      </u>	<u>  X  </u>
C.12.	Corrected FIR Plan Set		<u>  X  </u>	<u>  X  </u>

D. Final Design:

D.4.d.	Final Hydraulics Report	_____	<u>  X  </u>
D.5.a.	ROW Authorization Plans	_____	<u>  X  </u>
D.5.b.	Final Utility Plan Set	_____	<u>  X  </u>
D.5.c.(4)	Final Railroad Plan Set	_____	<u>  N/A  </u>
D.5.c.(5)	PUC Exhibit	_____	<u>  N/A  </u>

Right-of-Way:

D.6.b.(4)	Area Calculations	_____	<u>  X  </u>
D.6.b.(5)	Authorization Plans	_____	<u>  X  </u>
D.6.b.(6)	Legal Descriptions	_____	<u>  X  </u>

Materials:

D.7.c.	Stabilization Plan	_____	<u>  X  </u>
--------	--------------------	-------	--------------

Traffic Engineering:

D.8.a.	Signing/Pavement Marking Plans	_____	<u>  X  </u>
D.8.b.	Signal Warrants	<u>  X  </u>	_____
D.8.b.	Signalized Intersection Plans and Specifications	_____	<u>  X  </u>
D.8.c.	Traffic Control Plan _____	<u>  X  </u>	_____

Roadside Planning:

D.9.a.(6)	Landscaping Plans & Specs.	_____	<u>  X  </u>
D.9.a.(7)	Certification of plant Availability	_____	<u>  X  </u>
D.9.b.	Sprinkler System Plans & Specs.	<u>  N/A  </u>	_____
D.9.b.	Bikepath Plans & Specs. _____	<u>  X  </u>	_____
D.9.b.	Sound Barrier Plans & Specs.	<u>  N/A  </u>	_____
D.9.b.	Truck Escape Ramp Plans & Specs.	<u>  N/A  </u>	_____
D.9.b.	Rest Area Plans & Specs. <u>  N/A  </u>	_____	_____
D.9.c.	Lighting Plans _____	<u>  N/A  </u>	_____
D.11.c.	Structure Final Review Plans and Special Provisions	_____	<u>  X  </u>
D.12.	Construction Phasing Plan _____	<u>  X  </u>	_____
D.13.d.	FOR Plan Sheets and Special Provisions	_____	<u>  X  </u>
D.13.e.	FOR Cost Estimate (CDOT runs Transport)	<u>  X  </u>	<u>  X  </u>
D.15.a.	FOR Revised Plans and Special Provisions	<u>  X  </u>	<u>  X  </u>
D.15.c.	Final Review Revisions	<u>  X  </u>	<u>  X  </u>

Construction Plan Package:

D.15.d.(1)	Roadway Design Data Submittal	_____	<u>  X  </u>
D.15.d.(2)	Major Structure Design Final Submittal	_____	_____
D.15.e.	Record Plan Sets	_____	<u>  X  </u>

**SECTION 9  
CONTRACT CONCLUSION**

**9.02 Contract Completion.**

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

- X Project Schedule
- X Project Progress Meeting Minutes
- X Traffic Control Plan(s)
- X All Documents Found In Research
- X All Permission to Enter Forms
- X Monumented & Surveyed Ground Control
- X Legally Deposited Control Survey Diagram(s)
- X Digital Inroads TMOSS Terrain and Topography Survey Data
- X Ownership Map
- X Original Field Notes
- X Survey Report (Including monument recovery forms)
- X Monumented and Sealed ROW Plans
- X Legally Deposited Survey Plans
- X Legal Descriptions (Signed and Sealed)
- X Final Record Set of Plans, Specifications, and Estimate
- X Construction Staking Data
- X Completion of review of contract submittals

**PROJECT SCOPE OF WORK  
ATTACHMENTS**

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



## EXHIBIT A

### References

#### REFERENCES

- A. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) PUBLICATIONS (using latest approved versions):
1. A Policy on Design Standards-Interstate System
  2. A Policy on Geometric Design of Highways and Streets
  3. Guide for Design of Pavement Structures
  4. Standard Specifications for Highway Bridges
  5. Guide for the Design of High Occupancy Vehicle and Public Transfer Facilities
  6. Guide for Development on New Bicycle Facilities
  7. Standard Specifications for Transportation Materials and Methods of Sampling and Testing - Part I, Specifications and Part II, Tests
  8. Highway Design and Operational Practices Related to Highway Safety
  9. Roadside Design Guide
- B. COLORADO DIVISION OF HIGHWAYS PUBLICATIONS (using latest approved versions):
1. Action Plan
  2. CDOT Design Guide (all volumes)
  3. CDOT Bridge Design Guide
  4. CDOT Bridge Detailing Manual
  5. Bridge Rating Manual
  6. Project Development Manual
  7. Wetlands and Water Quality
  8. Field Log of Structures

## EXHIBITT A

### References, Continued

9. Cost Data Book
10. Drainage Design Manual
11. CDOT Quality Manual (when updated)
12. CDOT Survey Manual
13. Field Materials Manual
14. CDOT Design Guide, Computer Aided Drafting (CAD)
15. Erosion Control and Storm water Quality Guide
16. Standard Plans, M & S Standards (also available on the Internet)
17. Standard Specifications for Road and Bridge Construction and CDOT Supplemental Specifications
18. Item Description and Abbreviations (with code numbers)" compiled by Cost Estimate Unit, CDOT (also available on the Internet)
19. CDOT Right-of-Way Manual, Chapter 2, Plans and Descriptions Procedures and General Information
20. The State Highway Access Code
21. Utility Manual
23. Inroads TMOSS Generic Format
24. Field Inroads TMOSS Topography Coding Flip Chart
25. Topography Modeling Survey System (TMOSS) User Manual (Chapter 9 of Survey Manual)
26. CDOT Inroads/MicroStation configuration

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

- |            |                                   |
|------------|-----------------------------------|
| No. 400.2  | Monitoring Consultant Contracts   |
| No. 501.2  | Cooperative Storm Drainage System |
| No. 514.1  | Field Inspection Review (FIR)     |
| No. 516.1  | Final Office Review (FOR)         |
| No. 1304.1 | Right-of-Way Plan Revisions       |
| No. 1305.1 | Land Surveys                      |

## EXHIBIT A

### References, Continued

No. 1601	Interchange Approval Process
No. 1700.3	Plans, Specifications and Estimates (PS & E) and Authorization to Advertise for Bids under Certification Acceptance (CA)
No. 1700.7	Plans and Specifications for Structure Plans under CA
No. 1700.8	Plans and Specifications for Traffic Engineering Plans under Certifications Acceptance
No. 1905.1	Preparation of Plans and Specifications for Structures prepared by Staff Bridge Branch

#### D. FEDERAL PUBLICATIONS (using latest approved versions):

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

#### E. AREA:

1. Manual for Railway Engineering

**EXHIBIT B**

EXHIBIT B  
Specific Design Criteria

SPECIFIC DESIGN CRITERIA

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

I. ROADWAY

1. 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.

2. GEOMETRIC AND STRUCTURE STANDARDS:

- a. Horizontal Curvature
  - (1) Applicable Superelevation Standards:
  - (2) Minimum radius of Curvature:
  - (3) Use of Spirals:
- b. Vertical Alignment:
  - (1) Maximum gradient - CDOT Design Guide:
  - (2) Length - CDOT Design Guide:
- c. Sight Distance:
  - (1) Stopping:
  - (2) Passing:
  - (3) Decision:
- d. Superelevation  
Applicable Standard:
- e. Frontage Roads  
Separation Width:
- f. Access  
CDOT Design Guide and the latest Colorado State Highway Access Code
- g. Airway - Highway Clearances  
CDOT Design Guide
- h. Bridges and Grade Separation Structures  
Clearances to Structures and Obstructions, CDOT Design Guide
- i. Curbs and Gutters  
Type:

EXHIBIT B  
Specific Design Criteria

3. GEOMETRIC CROSS SECTION
  - a. Travel Lane:
    - (1) Width:
    - (2) Crown Slope:
  - b. Shoulder:
    - (1) Width:
    - (2) Slope:
    - (3) Paved/Non-paved:
  - c. Side Ditches:
    - (1) CDOT Design Guide
  - d. Side Slopes
    - (1) Cut-Less than 3:1
    - (2) CDOT Design Guide
  - e. Median:
    - (1) Width:
    - (2) Treatment:
4. INTERSECTIONS AT GRADE:
  - a. Type:
  - b. Special Considerations:
5. TRAFFIC INTERCHANGES:
  - a. Type:
  - b. Ramp Type:
  - c. Special Considerations:
6. CDOT Design Guide
7. ROADSIDE DEVELOPMENT:
  - a. Specifications for Revegetating Disturbed Areas to be provided by CDOT.
8. LIGHTING:
  - a. Type:

**EXHIBIT C**

EXHIBIT C  
DEFINITIONS

DEFINITIONS

<b>AASHTO-</b>	American Association of State Highway & Transportation Officials
<b>ADT-</b>	Average two-way 24-hour Traffic in Number of Vehicles
<b>AREA-</b>	American Railway Engineering Association
<b>ATSSA-</b>	American Traffic Safety Services Association
<b>AT&amp;SF-</b>	Atchison, Topeka & Santa Fe Railway Company
<b>BAMS-</b>	Bid Analysis and management Systems (now called Transport)
<b>BLM-</b>	Bureau of Land Management
<b>BNRR-</b>	Burlington Northern Railroad
<b>CA-</b>	Contract Administrator. The CDOT Manager responsible for the satisfactory completion of the contract by the consultant.
<b>CAP-</b>	CDOT's Action Plan
<b>CBC-</b>	Concrete Box Culvert
<b>CDOT-</b>	Colorado Department of Transportation
<b>CDOT/PM-</b>	Colorado Department of Transportation Project Manager - The CDOT Engineer responsible for the day to day direction and CDOT - Consultant coordination of the design effort
<b>CDOT/STR-</b>	Colorado Department of Transportation Structure Reviewer-The CDOT Engineer responsible for reviewing and coordinating major structural design.
<b>CEA-</b>	Council on Environmental Quality
<b>COG-</b>	Council of Governments
<b>COGO-</b>	CoOrdinate Geometry Output
<b>CONSULTANT-</b>	Consultant for this project
<b>CONTRACT ADMINISTRATOR-</b>	Typically a Region Engineer or Branch Head, or 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.

EXHIBIT C  
DEFINITIONS

<b>C/PM-</b>	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.
<b>DEIS-</b>	Draft Environmental Impact Statement
<b>DHV-</b>	Future Design Hourly Volume (two-way unless specified otherwise)
<b>DOR-</b>	Region Office Review
<b>EA-</b>	Environmental Assessment
<b>EIS-</b>	Environmental Impact Statement
<b>ESAL-</b>	Equivalent Single Axle Load
<b>ESE-</b>	Economic, Social and Environmental
<b>FEIS-</b>	Final Environmental Impact Statement
<b>FEMA-</b>	Federal Emergency Management Agency
<b>FHPM-</b>	Federal-Aid Highway Policy Guide
<b>FHWA-</b>	Federal Highway Administration
<b>FIR-</b>	Field Inspection Review
<b>FONSI-</b>	Finding of No Significant Impact
<b>FOR-</b>	Final Office Review
<b>GPS-</b>	Global Positioning System
<b>MAJOR STRUCTURES-</b>	Bridges and culverts with a total length greater than twenty feet (for walls 100 feet and maximum exposed height at any section of over five feet). This length is measured along the centerline of roadway for bridges and culverts, and is the horizontal distance along the top of wall for retaining walls. Overhead structures (sign bridges, cantilevers and butterflies extending over traffic) are also major structures.

EXHIBIT C  
DEFINITIONS

**MPO-** Metropolitan Planning Organization Denver Regional Council of Governments Pikes Peak Area Council of Governments Grand Junction MPO Pueblo MPO North Front Range Council of Governments

**NEPA-** National Environment Policy Act

**NGS-** National Geodetic Survey

**NICET-** National Institute for Certification in Technology

**NOAA-** National Oceanic and Atmospheric Administration

**PAPER SIZES-** See Computer-Aided Drafting manual (CDOT); Table 6-13 and Table 8-1

**PE-** Professional Engineer registered in Colorado

**PM-** Program Manager

**PLS-** Professional Land Surveyor registered in Colorado

**PRT-** Project Review Team

**PS & E-** Plans, Specifications and Estimate

**PROJECT-** The work defined by this scope

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

**ROWPR-** Right-of-Way Plan Review

**RTD-** Regional Transportation Director

**T/E** Species-Threatened and/or Endangered Species

**SH-** State Highway Numbers

**Inroads TMOSS-** Terrain MOdeling Survey System

**TOPOGRAPHY-** In the context of CDOT plans, topography normally refers to any physical, locatable element on the land surface including surface features used for design.

**UD & FCD-** Urban Drainage and Flood Control Region

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