



## **SCOPE OF WORK BASIC CONTRACT REGION 1 BRIDGE PRE-SCOPING**

### CONTRACT TYPE

- Specific Rate of Pay
- Cost Plus Fixed Fee
- Lump Sum

**CONTRACT DATE:** 10/13/2022  
**FEDERAL PROJECT NUMBER:** 267 R100-382  
**PROJECT LOCATION:** Region 1  
**PROJECT SUB ACCOUNT:** 25076

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

SECTION 1	GENERAL INFORMATION
SECTION 2	PROJECT INITIATION AND CONTINUING REQUIREMENTS
SECTION 3	PRECONSTRUCTION WORK TASK DESCRIPTIONS

Comments regarding this scope may be directed to:  
ENGINEERING SPECIALTY SERVICES  
Cardon Brandt, Contracting Officer  
303-757-9398



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## **SECTION 1 - GENERAL INFORMATION**

### **I. PROJECT BACKGROUND**

The Colorado Department of Transportation (CDOT) has decided to hire a consultant to investigate, gather, and report data and information to evaluate a group of structures that are in need of rehabilitation or replacement, and in need of investigation for further funding opportunities. The selected consultant will be responsible for gathering the information needed to complete the CDOT Form 128 (NEPA Determination/Project Certification) and to complete a basic cost estimate and design schedule for each structure. This is a data-gathering task to identify issues or project challenges that will need to be addressed under a future scope or scopes of work to take projects to advertisement. Appendix C includes the list of structures included in this scope of work.

The selected consultant will not be responsible for completing the work required to get such a project to advertisement under this contract.

#### **Anticipated Tasks Include:**

##### **Task 1 - Structure Prioritization and Strategic Approach**

In workshop collaboration with CDOT Region 1, Staff Bridge, and Bridge and Tunnel Enterprise (BTE), the consultant will take a holistic look at the structures list provided and determine the most cost effective and efficient method for addressing the rehabilitation/replacement needs of the structures with BTE and grant funding eligibility being a consideration during the process. The CDOT 10-Year Strategic Project Pipeline should also be considered during this structure prioritization to ensure that these efforts align with the Region's long term vision. This prioritization effort will be for all of the unfunded structures that have been identified as having poor decks in Region 1 (approximately 40 structures). The anticipated approach to this task will involve workshops with Region 1 senior and executive management, Staff Bridge, BTE, and any other relevant parties. Upon completion of the structure prioritization, a memo shall be produced to present the highest priority structures and the suggested strategy for how to move forward.

##### **Task 2 - Bridge Pre-Scoping Reports**

The consultant will prepare a separate pre-scoping report for each unfunded structure. The report will be a technical summary of the critical issues and treatment recommendations for each structure including a net present value analysis of rehabilitation versus replacement, where appropriate. The report for each structure shall contain a summary outlining the site conditions, including photos, and identifying which items noted on Form 128 are present or potentially present at the site. If the investigation identifies that additional work is required to complete the design, ROW and utility clearances, and Form 128, the scope required to complete these items shall be provided along with an assessment of the possible impacts to the project schedule and budget. The consultant will collaborate with CDOT Region 1, Staff Bridge, and Bridge and Tunnel Enterprise (BTE) to address these structures based on the information gained during the structure prioritization in Task 1. Bridges are to be addressed on a case-by-case basis and the consultant should coordinate with CDOT prior to starting the pre-scoping effort on a new structure. Structure fact sheets shall be completed for each unfunded structure and updates



shall be made to existing structure fact sheets where appropriate. Examples of a pre-scoping report and structure fact sheet from a previous effort are included in the attachments of the RFP documents.

### Task 3 - Grant Review and Writing

The consultant will review the grant funding requirements, selection criteria, and parameters, and review if the projects developed in the bridge pre-scoping reports meet the requirements of the grant and would be good candidates for submission. The consultant would prepare a short summary of the recommended strategy to develop a grant application for these projects. CDOT could use this recommendation to determine if they wish to pursue the grant and may request grant writing services from the consultant, as needed.

## **II. PROJECT GOALS**

The goals of this project include:

- Collaborate with CDOT Region 1, BTE, and Staff Bridge to holistically prioritize the list of bridges.
- Utilize efficiencies and strategic innovations to optimize the project scope and budget.
- Advance currently unfunded structures that are in need of rehabilitation or replacement towards AD by using data driven decisions, and identifying strategic grant and funding opportunities.

## **III. PROJECT FUNDING**

The current funding allocated for this project is \$2,575,000.

## **IV. WORK DURATION**

It is estimated that the time period for the work described in this scope is approximately 24 months.

## **V. WORK PRODUCT**

The work in the scope of services for this project will be contracted on an individual Task Order basis, as needed as determined by the Department. The Department reserves the right to, at its sole discretion, decide to not issue task orders for any part of the work contained in this scope of services. The Consultant's work products may include:

- A. Structure Pre-Scoping Reports
- B. Structure Fact Sheets
- C. Prioritization List and Memo
- D. Project Coordination
- E. Schedules
- F. Meeting Minutes
- G. Grant Application Strategies, as applicable

## **VI. WORK PRODUCT COMPLETION**

In general, all reports and submittals must be approved by CDOT prior to their content being utilized in follow-up work efforts.



**VII. CDOT CONTACT**

The Contract Administrator for this project is: Telecia McCline, Region 1 South Program Resident Engineer. Active day-to-day administration of the contract will be delegated to:

Name: Nyssa Beach  
Title: Resident Engineer  
Address: 18500 E. Colfax Avenue  
Aurora, Colorado 80011  
Telephone: (303) 746-8639  
Fax: (303) 398-6781

**VIII. NOTICE 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. Work may be required, night or day, on weekends, on holidays, 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

**IX. PROJECT COORDINATION**

- A. The routine working contact will be between the CDOT Project Manager (PM) and the Consultant Project Manager (CPM).
- B. Coordination of all contract activities will be by the Consultant Project Manager.
- C. The requirements of the Consultant Project Manager include:
  - Manage all sub-consultants and disciplines required to develop the Structure Pre-Scoping Reports and Structure Fact Sheets.
  - Meet with the Regional Program Engineers, Resident Engineers, and specialty group leaders prior to performing any Structure Pre-Scoping to obtain any existing knowledge pertinent to the projects and other region-specific information.
  - Provide copies of all project correspondence to the CDOT PM.

**X. ROUTINE REPORTING AND BILLING**

The consultant will provide the following on a routine basis:

- A. Periodic reports and billings
  - The periodic reports and billings as required by CDOT Procedural Directive 400.2 (Monitoring Consultant Contracts).
- B. Minutes of all meetings
  - The minutes will be completed and 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 party responsible for accomplishing it, and the proposed completion date. The action item section shall be included in the minutes in a



separate section. An escalation process will be required if timely responses are not being received from responsible parties on both sides.

C. Bridge pre-scoping work plan and monthly status

- The CPM shall provide a work plan, MS Project schedule, and project scope, budget, and schedule control procedures to CDOT to perform the work. A monthly review and update with the CDOT PM will be required.
- The consultant will be responsible for meeting all timeframes and deliverable items identified in their schedule and work plan that are within their scope. Items such as third-party review time and other critical path elements not within the consultant's control should be given a reasonable time in the schedule but will not be the consultant's responsibility.

**XI. PERSONNEL QUALIFICATIONS**

The consultant shall include a Colorado Registered Professional Engineer. The consultant will also need a comprehensive knowledge of CDOT manuals, guidelines, policies, and procedures. The Contract Administrator will approve all consultant personnel task-specific qualifications.

All tasks assigned to the Consultant must be conducted by a person on the consultant team that is qualified and has specific expertise in that task. 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. Design of any special project features must be directed, completed, and overseen by a professional engineer with significant experience in design of those special project features.

- 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:
  - BR - Bridge Design

**XII. PROJECT DESIGN DATA AND STANDARDS**

A. References

- Appendix A contains a list of technical references applicable to CDOT work. The consultant is responsible for ensuring compliance with the latest CDOT-adopted version of the listed references. Conflicts in criteria shall be resolved by the CDOT PM and/or Region Staff.

B. Specific Design Criteria

- Appendix B contains a list of project criteria. Note that the project design criteria will be developed by the consultant and coordinated with the CDOT PM prior to starting the design. The criteria 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 for discussion at a periodic progress meeting prior to reporting.



## **SECTION 2- PROJECT INITIATION AND CONTINUING REQUIREMENTS**

This list establishes the consultant’s task responsibility. 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. 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. The Consultant should review this entire section to identify applicable material. Contact the Colorado Department of Transportation/Project Manager (CDOT/PM) if clarification is required (see Section 2.1, CDOT Contact).

The following activities of communication, consensus building, project team reviews, conceptual design, data gathering, documentation, and formal public notice should 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. The type and number of meetings, documents, etc., will depend on the category and characteristics of the project work. 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 2.1, CDOT Contact) before starting the work.

	<b>CDOT/Other</b>	<b>Consultant</b>
<p><b>I. INITIAL PROJECT MEETING</b></p> <p>An initial project kick-off meeting will be held, coordinated by the consultant, and conducted by CDOT. The meeting will review the Project Management Plan, project scope, schedule, key milestones, and project study area boundary. 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. Progress meetings are assumed to occur at the following frequency every other week for the first 3 months then monthly for the remainder of the project. Three (3) additional meetings will be included in the scope to be utilized at the CDOT’s PM discretion.</p>	<p>_____</p> <p style="text-align: center;"><u>  X  </u></p>	<p>_____</p> <p style="text-align: center;"><u>  X  </u></p>
<p><b>II. PROJECT MANAGEMENT PLAN</b></p> <p>The Consultant shall submit a plan for managing the project, including work assignments, project schedule, document quality assurance program, administrative record, document and agency reviews, and other project needs.</p>	<p>_____</p>	<p>_____</p> <p style="text-align: center;"><u>  X  </u></p>
<p><b>III. PROJECT SCHEDULE</b></p> <p>The initial project schedule, to be prepared by the Consultant, will be reviewed with the CDOT Project Manager and project team, and refined</p>	<p>_____</p>	<p>_____</p> <p style="text-align: center;"><u>  X  </u></p>



to provide detail as requested. Modifications shall be made for acceptance by CDOT. The schedule will be reviewed and discussed at regular intervals and updated as necessary.

**IV. PROGRESS MEETINGS**

    X                              X    

CDOT and the Consultant will meet at regular intervals to coordinate and track work efforts, progress, and issues, and to work towards the resolution of potential problems. The Consultant Project Manager shall provide a status report of the project schedule and budget at regular intervals. The Consultant Project Manager shall conduct the meetings, send meeting notices, agendas, and handout materials, and prepare and distribute meeting minutes. The minutes of each meeting shall track and report progress on action items identified during previous meetings.

**V. PROJECT MANAGEMENT**

    X                              X    

The Consultant will coordinate the work tasks being accomplished by all subconsultants to ensure project work is completed on schedule.

The Consultant will provide the following on a routine basis:

- Coordination of contract activities.
- Periodic reports and billings.
- 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.

- Coordination with subconsultant activities, processing of invoices, review of status reports and products.





## **SECTION 3 - PRE-CONSTRUCTION WORK TASK DESCRIPTIONS**

### **I. EXISTING STUDY**

Investigate if an existing study has been previously completed for the structure, and determine if it is still applicable or current. If available, include it in the report. Existing studies may be used as references for this Structure Pre-Scoping. Coordinate with the appropriate residencies on each bridge. Concurrently work collaboratively with CDOT to prioritize the structure list based on identified scope efficiency as well as the structures' potential for grant applicability.

### **II. SURVEY DATA RESEARCH/RIGHT-OF-WAY**

Research shall be done as per the CDOT Survey Manual and the CDOT Right-of-Way Manual. The following deliverables shall be provided:

- A. Provide current Tax Assessor parcel Ownership Maps
- B. Identify potentially affected landowners
- C. Obtain existing ROW Maps/Plans, if available

No Survey/ROW field site work is anticipated to be required.

### **III. BRIDGE DATA**

- A. Obtain staff bridge inspection data and reports, as-built plans (including roadway approaches), aerial photography, and existing mapping for all structures to be considered. CDOT will provide all required aerial photography and no new mapping will be conducted.
- B. Life-cycle cost analysis and cost-benefit analysis for rehabilitation and replacement shall be performed using the total and annual costs for each alternative. The analysis shall consider current year rehabilitation and replacement as well as deferred rehabilitation and replacement, and shall be converted to net present value for consistent comparison of alternatives. The analysis shall also consider risks associated with both current and deferred rehabilitation and replacement alternatives. Annual costs shall be computed by dividing the total cost for each structure by the corresponding estimated remaining life. For this project, the life of a new structure is assumed to be minimum 75 years and the life of a rehabilitated structure is assumed to be 75 years minus the current age of the structure, if the structure age is greater than 75 years currently then further coordination on the best life-analysis cost would be coordinated with CDOT Staff Bridge. The total cost for replacing a structure shall be the estimated construction cost in current dollars plus the current value of any foreseen maintenance costs, such as replacing the deck 50 years after initial construction or replacing expansion joints. The cost for rehabilitating a structure shall be the estimated construction cost in current dollars to upgrade the structure to remove any structural deficiencies (e.g. repair fatigue cracks), eliminate any factors causing the structure to be functional obsolete (e.g. widen to provide shoulders), and to raise the sufficiency rating to greater than 80. The consultant shall provide the assumed life of repairs and rehabilitation. Additional maintenance costs such as future deck rehabilitation required to reach the minimum



75-year design life shall also be included. The consultant shall also provide recommendations on methods, action, and frequency requirements for the rehabilitation of bridges such as joint replacement, waterproofing, patching, sealers, coating, etc. The initial analysis shall be delivered in Microsoft Excel using a 3% discount rate and allowing CDOT staff to easily adjust the discount rate, expected annual maintenance, expected useful life, and other critical variables.

- No additional bridge inspection will be required.
  - Additional meetings between the consultant and staff bridge may be required and are assumed to be 4 meetings.
- C. For each structure, complete CDOT Prescoping ABC (Accelerated Bridge Construction) rating (attachment B) spreadsheet in the ABC package evaluation. This package can be found at the following link:  
<https://www.codot.gov/business/designsupport/abc-documents>
- D. For each structure, develop a conceptual bridge plan area footprint, conceptual profile, conceptual horizontal alignment, conceptual span plan, and conceptual typical section.
- E. Assess the level of effort required for the structure selection report for use in preconstruction, scheduling, and estimating. A complete structure selection report will not be required.

#### **IV. SPECIFIC DESIGN CRITERIA**

Appendix B is a list of project criteria. Note that the project design criteria will be developed by the consultant and coordinated with the CDOT PM prior to starting the design. The criteria 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 PM for discussion at a periodic progress meeting prior to reporting.

#### **V. UTILITY SURVEY/IDENTIFICATION**

- A. Determine what utilities exist in the project vicinity, the general location of the utility with reference to the bridge, and the contact information for that utility, obtain any available plans from utility owners, and prepare keymaps using this information and data. Engineering locates or field TMOSS survey of utilities will not be required.
- B. Conduct a site visit to visually verify the location of all utilities which includes valves, meters, markers, signs, manhole covers, etc. within the study area.

#### **VI. HYDRAULIC SURVEY/IDENTIFICATION**

- A. Determine what hydraulic conditions exist in the project vicinity, the contact information for any relevant information or owners, and obtain FHAD, FIS Maps and studies, and FIRMs.
- B. Identify any existing conditions that impact the accepted floodplain.
- C. Determine LOMR/CLOMR requirements, if there are any.
- D. Determine the probable impacts of the project concerning floodplains and drainage.



- E. Determine freeboard requirements to provide needed assurance against overtopping
- F. Obtain overtopping records

**VII. RAILROAD**

Investigate railroad criteria and potential impacts such as:

- A. Obtain railroad ROW plans within 1 mile of the project.
- B. Identify if RR access roads are present.
- C. Identify if RR drainage structures are present.
- D. Obtain existing plans for horizontal/vertical clearances.
- E. Identify any existing horizontal/vertical clearance issues compared to current standards.
- F. Photo document crossing.
- G. Assist CDOT staff to obtain existing C&M agreements and easement agreements.
- H. Identify potential railroad impacts.
- I. Identify any relevant railroad facility criteria.
- J. Identify the salient items required to complete the railroad clearance.

**VIII. DITCHES**

Investigate irrigation ditch criteria and potential impacts:

- A. Identify ditches within 1 mile of the project.
- B. Identify ownership of ditches within 1 mile of the project
- C. Identify if ditch access roads are present.
- D. Identify if ditch structures are present.
- E. Obtain existing ditch plans.
- F. Photo document ditches.
- G. Assist CDOT staff to obtain existing C&M agreements and easement agreements.
- H. Identify potential ditch impacts.
- I. Identify any relevant ditch facility criteria
- J. Identify the salient items required to complete the ditch clearance.

**IX. ENVIRONMENTAL OVERVIEW**

For each structure, identify which of the following resources are present, not present, or potentially present, whether they are likely to be impacted, and the next steps resulting in CDOT being able to produce a scope regarding what analysis is required for the Form 128 clearance. This task does not involve actual fieldwork, impact assessment, mitigation planning, or agency coordination. Instead, this is a reconnaissance effort to enable CDOT to understand the potential challenges of replacing or rehabilitating certain bridges in the region. The expertise of the consultant will be heavily relied upon to concisely estimate the magnitude of potential impact based on conceptual design and alert CDOT to analyses, clearance, and permitting likely required to complete NEPA documentation and bring the project to advertisement. CDOT will coordinate directly with EPB and the consultant is not expected to coordinate environmental activities with EPB.



- A. NEPA Documentation
  - Based on the presence or absence of environmental resources as well as the potential for them to impact. Recommend the appropriate level of NEPA documentation that is anticipated.
- B. Air Quality
  - Document what air quality analysis will be required in NEPA if capacity improvements are included or N/A if the project is not adding capacity.
- C. Noise
  - Based on the conceptual design, determine whether or not the vertical alignment will be changed by more than five (5) feet, or if the horizontal alignment will be shifted by more than half the distance to the nearest noise receptor, as defined in the CDOT Noise Policy of 2011.
- D. Archaeology, History, or Historical Bridge
  - Check with CDOT Historian to determine if a historic bridge survey has been completed for the structure. Conduct Compass database search and identify other archaeological and historic properties and/or resources in proximity to the structure. Identify the salient items required to complete clearance.
- E. Paleontology
  - Not applicable as this is not a resource that is likely to affect the level of NEPA documentation required.
- F. Ecological Assessment
  - Research readily available data on potential biological resources, including but not limited to wildlife, threatened and endangered species, riparian habitats, and wetlands. Utilize site visits to identify biological resources present.
  - Determine state and federal agencies involved.
  - Identify the salient items for additional work required to obtain final clearance, if applicable.
- G. Permanent Water Quality
  - Determine whether or not the project impacts more than 1 acre of land.
  - If there will be more than one acre of disturbance, estimate permanent Water Quality requirements including an assessment of ROW needed to meet the requirements.
  - Identify PWQ ponds, and ownership, within the impacted vicinity of the project.
- H. 4(f)/6(f) Activity
  - Determine and evaluate if 4(f)/6(f) properties exist adjacent to the project site based on the Compass database for historic Section 4(f) properties; existing and planned public recreation Section 4(f) properties based on local agencies' plans; and Section 6(f) properties by review of CDOT's database of Land and Water Conservation Fund properties. Identify the salient items for additional work required to obtain final clearance, if applicable.
- I. Hazardous Materials
  - Identify possible hazardous waste sites, and potential nearby hazmat areas, located in the proximity of the study area based on a review of aerial photography, existing land uses, and site visits.
  - Identify the salient items for additional work required to obtain final clearance, if applicable.



**X. TRAFFIC**

- A. Determine the potential impacts on traffic during construction such as volumes, lane closure strategy, available detours, and acceptable design speed. Evaluate the effects of these factors on construction cost and time.
- B. Determine the potential impacts on existing intersections, signals, and access. Estimate a conservative profile, if necessary.
- C. Incorporate or accommodate operational improvement. Analysis of improvements is not needed for this project. Prepare the cost and issues of desired improvements. Identify the possibility of operational improvements benefiting the bridge construction.
- D. Conduct a review of construction requirements per the CDOT Region 6 Lane Closure Policy, as well as any local traffic control requirements. Evaluate the Construction Phasing to determine if additional laneage/width needs to be added to the bridge to accommodate construction traffic control.

**XI. MAINTENANCE**

- A. Coordinate with CDOT Maintenance personnel to obtain maintenance records. CDOT Maintenance contact information will be provided to the Consultant PM by the CDOT PM at the beginning of the project.
- B. Interview CDOT Maintenance personnel and seek input on historic bridge performance, recurring maintenance issues, etc.

**XII. THIRD-PARTY REQUIREMENTS**

For each bridge, identify the following information:

- A. Provide a list of local agency contacts.
- B. Provide a list of permits required.
- C. Adjacent local agency projects that may be occurring.
- D. Obtain copies of any existing agreements for the highway facility located within the study area: City Agreements, County Agreements, and State Agreements.
- E. Review Corridor Vision Plans (CDOT and/or Local) to determine the vision for ultimate build-out requirements and if there may be a desire by Locals to participate in structure enhancements such as widening, sidewalk, or architectural enhancements.
- F. Meet with the local agency as necessary, assuming 2 meetings per local agency.
- G. Assess need for a potential IGA.

**XIII. SITE VISIT**

Conduct a field visit for each bridge with CDOT PM, RE, and specialty units (including CDOT Maintenance). This visit will include CDOT's environmental representative and will also serve as the scoping meeting with that individual.

- A. This meeting should be scheduled to ease participation for specialty units and specific Resident Engineers.
- B. Follow CDOT scoping guidelines per the CDOT Project Development Manual
- C. Identify unique features and impacts
- D. Identify environmental issues
- E. Identify other impacts affecting design and construction (railroad coordination, hydraulic analysis, etc)
- F. Obtain photos
- G. Identify historical issues or concerns from CDOT maintenance and the local agencies.



**XIV. COST ESTIMATE**

Prepare a cost estimate for each structure:

- A. Design, including all specialty design
- B. Right-of-Way
- C. Utilities
- D. Construction (assess potential need for VE study)

**XV. SCHEDULE**

Prepare the overall design and construction schedule for each structure, independently, to show overall time by the structure.

- A. Each structure schedule will have key salient activities as identified in “Controlling the Critical Path”.
- B. Roll all individual schedules into one overall schedule based on prioritization provided by CDOT PM.

**XVI. PROJECT DELIVERY SELECTION MATRIX**

For each structure, complete the Project Delivery Selection Matrix: <https://www.codot.gov/business/alternativedelivery/pdsm>

**XVII. FINAL REPORT**

The Final Report will be a proposed summary of the engineering and environmental considerations, assumptions, critical issues, and recommendations for each structure (rehabilitation vs. replacement). The report shall include all the information as described in Section 3 – Preconstruction Work Task Description. It is required that the consultant prepare a separate Structure Pre-Scoping Report for each structure. Included with each structure pre-scoping report, the consultant shall provide a short memorandum in the form of a checklist to summarize environmental concerns.

A draft for the report shall be submitted with sufficient time for review and comment prior to submission of the final report. The report will be revised as necessary based on the review comments received.

**XVIII. DELIVERABLES (*in order of anticipated delivery*)**

- A. Prepare a separate Structure Pre-Scoping Report for each structure. Proposed summary of critical issues and recommendations for each structure (rehabilitation vs. replacement).
- B. Structure Fact Sheets for each unfunded structure that may be used to present to CDOT Executive Management with key information included such as location, description, needs, benefits, and more.
- C. Document control of final reports, all meeting minutes, and all other documentation.
- D. Existing study analysis documentation.
- E. Provide aerial mapping with annotation for each structure. The aerial should have the following information:
  - ROW lines – References to the supporting documentation.
  - Utilities – References to keymaps, ownership, and contact information.



- RR – Ownership with references to C&M agreements or easement agreements.
  - Environmental resources, habitats, or hazmat is shown with reference to the supporting documentation and references.
- F. Criteria table with references
  - G. Cost estimate for each structure (assumed costs for rehabilitation and replacement as well the viability of rehabilitation, i.e. risks associated with rehabilitation.)
  - H. Microsoft Excel spreadsheet, Microsoft Power BI, or other CDOT approved visual report for each structure, including net present value analysis.
  - I. Design and Construction schedule for each structure (Recommended priority list)
  - J. Form 128 Requirements (top/bottom)
  - K. Photography of site visit. Photos shall be of sufficient quantity and quality to clearly depict the structure and all salient features and shall be annotated to provide location orientation/view direction, and relevance.
  - L. Complete CDOT Prescoping ABC rating spreadsheet
  - M. Complete the Project Delivery Selection Matrix.
  - N. Conceptual plan and profile structure layout (Open Roads Designer (ORD) files used for conceptual design)
  - O. Grant applications and supporting documentation



## **APPENDIX A - REFERENCES**

### **American Association of State Highway and Transportation Officials (AASHTO) Publications**

1. LRFD Bridge Design Specifications, 9th Edition with latest interims
2. Roadside Design Guide
3. A Policy on Geometric Design of Highway and Streets

### **Colorado Department of Transportation Publications**

1. CDOT Design Guide (all volumes)
2. Project Development Manual
3. Erosion Control and Stormwater Quality Guide
4. Field Log of Structures
5. Drainage Design Manual
6. CDOT Survey Manual
7. CDOT Design Guide, Computer-Aided Drafting (CAD)
8. Erosion Control and Stormwater Quality Guide
9. Right-of-Way Manual, Chapter 2, Plans and Descriptions Procedures and General Information
10. Utility Manual
11. CDOT Bridge Design Manual
12. CDOT NEPA Manual
13. CDOT Noise Guidance





## **APPENDIX B - SPECIFIC DESIGN CRITERIA**

The following criteria will be developed by the consultant and coordinated with the CDOT project manager for documentation in the Structure Pre-Scoping Report.

1. Basic Design
  - a. The basis for design will be the data in CDOT Form 463, Design Data. A copy of the latest applicable design Data form will be furnished to the consultant.
2. Geometric and Structure Standards
  - a. Design Speed
  - b. Horizontal Alignment and Curvature
    - i. Applicable superelevation standards
    - ii. The minimum radius of curvature
    - iii. Use of spirals
  - c. Vertical Alignment
    - i. Maximum gradient – CDOT Design Guide
    - ii. Length – CDOT Design Guide
  - d. Sight Distance
    - i. Stopping
    - ii. Passing
    - iii. Decision
  - e. Superelevation, Applicable Standard
  - f. Frontage Roads, Separation Width
  - g. CDOT Access Code
  - h. Airway – Highway Clearances Design Guide
  - i. Bridges and Grade Separation Structures, Clearances to Structures and Obstructions, CDOT Design Guide
  - j. Curb and Gutters, Type
3. Geometric Cross Section
  - a. Travel Lane
    - i. Width
    - ii. Cross Slope
  - b. Shoulder
    - i. Width
    - ii. Slope
    - iii. Paved/Nonpaved
  - c. Side Ditches
    - i. CDOT Design Guide
  - d. Side Slopes
    - i. Cut-Less than 3:1
    - ii. CDOT Design Guide
    - iii. Clear zone
  - e. Median
    - i. Width
    - ii. Treatment
4. Traffic Interchanges



- a. Type
  - b. Ramp Type
  - c. Special Considerations
5. Miscellaneous Design Considerations
- a. Fence Type
  - b. FEMA Category
  - c. Design Flood Frequency



## APPENDIX C - LIST OF STRUCTURES

### 25706 - R1 Bridge Bundle Pre-Scoping Candidate Bridges

\*Structures on this list may be added to, removed, or replaced with other Region 1 priority structures if determined necessary during the early-contract collaborative prioritization review.

No.	Structure ID	County	City	FACILITY CARRIED	FEATURE INTERSECTED	Year Built	BTE Eligible?
1	E-16-HS	BROOMFIELD	Broomfield	SH 121 ML SBND	US 287 ML, RR SPUR	1972	Yes
2	E-16-DY	DENVER	Denver	I 70 ML	TENNYSON STREET	1966	No
3	F-20-BJ	ARAPAHOE	non-city	I 70 ML	Drainage ditch	1965	No
4	F-20-BK	ARAPAHOE	non-city	I 70 ML EBND	MIDDLE BIJOU CREEK	1965	No
5	F-20-BB	ARAPAHOE	non-city	I 70 ML WBND	US 40 ML	1965	Yes
6	F-20-BA	ARAPAHOE	non-city	I 70 ML EBND	US 40 ML	1965	Yes
7	F-20-BL	ARAPAHOE	non-city	I 70 ML WBND	EAST BIJOU CREEK	1965	No
8	F-20-BM	ARAPAHOE	non-city	I 70 ML EBND	EAST BIJOU CREEK	1965	No
9	F-17-AA	ARAPAHOE	Greenwood	SH 177 ML	LITTLE DRY CREEK	1965	Yes
10	F-20-C	ARAPAHOE	non-city	I 70 SERVICE RD	RATTLESNAKE CREEK SR	1931	Yes
11	F-20-F	ARAPAHOE	non-city	US 40 ML	EAST BIJOU CREEK	1966	Yes
12	F-16-BC	ARAPAHOE	Sheridan	SH 88 ML	BEAR CREEK	1966	Yes
13	F-16-HJ	JEFFERSON	non-city	I 70 ML EBND	WEST 20TH AVE	1968	No
14	F-16-GS	JEFFERSON	non-city	I 70 ML EBND	COUNTY RD 93	1969	No
15	F-16-GT	JEFFERSON	non-city	I 70 ML WBND	COUNTY RD 93	1969	No
16	F-16-HM	JEFFERSON	non-city	I 70 ML WBND	OLD GOLDEN ROAD	1968	No
17	F-16-HL	JEFFERSON	non-city	I 70 ML EBND	OLD GOLDEN ROAD	1968	No
18	F-16-HK	JEFFERSON	non-city	I 70 ML WBND	WEST 20TH AVE	1968	Yes
19	F-15-D	CLEAR CREEK	non-city	I 70 FRONTAGE RD	CLEAR CREEK SR	1936	Yes
20	F-15-Q	JEFFERSON	non-city	US 40 ML	BEAVER BROOK	1937	Yes
21	G-17-AC	DOUGLAS	Castle Rock	CR107 (Liggett RD)	I 25 ML	1964	Yes
22	G-17-AG	DOUGLAS	Castle Rock	HAPPY CANYON RD	I 25 ML	1965	Yes
23	F-19-F	ARAPAHOE	non-city	US 36 ML	DRAW	1931	Yes
24	F-19-AJ	ARAPAHOE	non-city	I 70 STRASBURG SPU	UP RR	1962	Yes
25	F-22-A	WASHINGTON	non-city	US 36 ML	Beaver Creek	1935	No
26	F-17-I	ARAPAHOE	Centennial	SH 83 ML	PINEY CREEK	1967	No
27	F-16-GG	DENVER	Denver	PERRY STREET	US 6 ML	1964	Yes



28	F-16-HO	JEFFERSON	non-city	I 70 ML EBND	MOSS STREET, W 7TH AVE	1969	Yes
29	F-16-HN	JEFFERSON	non-city	I 70 ML WBND	MOSS STREET, W 7TH AVE	1969	No
30	F-16-AT	JEFFERSON	non-city	I 70 ML WBND	US 6 ML	1969	No
31	F-16-AS	JEFFERSON	non-city	I 70 ML EBND	US 6 ML AND RAMP	1969	No
32	F-13-J	CLEAR CREEK	non-city	I 70 ML WBND	COUNTY ROAD	1972	No
33	F-13-L	CLEAR CREEK	non-city	I 70 ML EBND	COUNTY ROAD	1972	No
34	E-16-DP	JEFFERSON	non-city	SH 391 ML	CLEAR CREEK	1969	Yes
35	E-16-DI	JEFFERSON	Wheat Ridge	I 70 ML	SH 95 ML	1966	No
36	F-19-AF	ADAMS	Bennett	COUNTY ROAD	I 70 ML	1959	Yes
37	F-16-HS	JEFFERSON	non-city	I 70 WB RAMP	US 6 ML	1969	No
38	F-16-IL	DENVER	Denver	US 85 ML SBND	SOUTH PLATTE RIVER	1972	No