

# SCOPE OF WORK

## NOVEMBER 2015

CONTRACT TYPE

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

CONTRACT DATE: TBD

PROJECT NUMBER: CR 100-257

PROJECT LOCATION: C-470 Kipling to I-70/US 6; SH 93 from Golden to Marshall Road in Boulder County; and from SH-93 to present Northwest Parkway Terminus in Broomfield (a.k.a. WestConnect Corridor)

PROJECT CODE: 21019

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

SECTION 1: PROJECT SPECIFIC INFORMATION

SECTION 2: PROJECT MANAGEMENT AND COORDINATION

SECTION 3: EXISTING FEATURES

SECTION 4: REFERENCE ITEMS NEEDED BY THE CONSULTANT

SECTION 5: GENERAL INFORMATION

SECTION 6: STUDY WORK TASK DESCRIPTIONS

APPENDICES

Comments regarding this scope may be directed to:

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(303)757-9480

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## SECTION 1 - PROJECT SPECIFIC INFORMATION

### 1. PROJECT BACKGROUND

The WestConnect Corridor is made up of nine segments on the western side of the Denver Metropolitan Area (described below). The areas adjacent to this corridor are experiencing high rates of population growth and development. The Study Area for the WestConnect PEL is defined as C-470 from Kipling to I-70/US 6, SH 93 from Golden to Marshall Road in Boulder County, and from SH-93 to the present Northwest Parkway terminus in Broomfield. Increased transportation demand throughout the region is anticipated. Within the Study Area, several Transportation Plans and Studies, MOU's and ongoing and planned private development plans exist.

To address the increased demand on the Study Area's transportation system the WestConnect Corridor Coalition (The Coalition) was established. The Coalition is made up of City, County, and State Agencies within the Study Area. The mission of the Coalition is to collaboratively design and effectuate solutions enhancing the public's welfare, safety, and mobility along the WestConnect Corridor and connecting feeder roadways.

The Coalition has partnered with CDOT to determine how these elements fit together and how the State Highway System needs to function in order to facilitate a healthy multimodal corridor in consideration of these potential and real improvements. Of the nine segments, two have been studied and are either constructed or soon to be constructed (Studied and Developed Segments), three of them already have defined transportation improvements based on jurisdictional preference and/or planned development (Studied Segments), and four segments remain (Gap Segments) without known or desired transportation improvements. This PEL is intended to study how these segments fit into the larger Corridor picture with respect to ongoing development and potential transportation improvements.



The following further describes the segments as they relate to the PEL:

“STUDIED AND DEVELOPED” Segments:

- Northwest Parkway (8.1 miles): This segment has been constructed and exists today as a controlled access tolled facility.
- C-470 (Segment 1) (13.8 miles): This segment has undergone the NEPA process, has identified construction funding, and is anticipated to be constructed in the near future.

“STUDIED” Segments:

- Interlocken Loop (3.0 miles) - This segment extends from the 96th Street and Northwest Parkway intersection to SH-128 and is currently a four-lane arterial with traffic signals at major intersections. This segment is under study by the City and County of Broomfield and the Northwest Parkway. No alternatives in this segment will be recommended or studied as part of the PEL Study, but the study should consider both a no-build and a fully-built conditions.
- Jefferson Parkway (10.5 miles) - This segment extends from SH-128 to SH-93 and is planned initially as a four-lane controlled access tolled facility. The Jefferson Parkway Public Highway Authority (JPPHA) is managing the project. Right-of-way has largely been acquired or is already owned by one of the member JPPHA jurisdictions (99.2%). JPPHA is initiating the 1601 process with CDOT regarding connections with SH-128, SH-72 and SH-93. As part of that process, JPPHA will perform traffic studies as determined by CDOT. No alternatives in this segment will be recommended or studied as part of the PEL study, but the study should consider both a no-build and a fully-built condition.
- Golden SH-93 and US-6 (5.8 miles) - This segment extends from approximately 56th Avenue to the C-470 Extension. SH-93 is a two-lane highway with traffic signals and turn lanes at major intersections. US-6 is a four-lane roadway with traffic signals and turn lanes at major intersections. This segment is covered by the Golden Plan and the CDOT/Golden MOU. Golden has initiated the 1601 Process for an interchange at US 6/19<sup>th</sup> Street and construction is expected to commence early 2016 and finish 18 months later. This segment will be modeled (along with US6/19<sup>th</sup> Street interchange) as an existing and proposed (fully-built) condition in this PEL Study, but no proposed improvements will be researched or proposed for this section. Golden will provide the PEL consultant a phased improvement plan based on the Golden Plan and the CDOT/Golden MOU. The consultant will analyze the individual projects, pieces and phasing in association with the other PEL alternatives.

“GAP” Segments:

- SH-93 between Jefferson Parkway and Marshall Road in Boulder (9.2 miles) - This segment extends from the southern end of the Jefferson Parkway north to the southern Boulder city limits. SH-93 is a two-lane highway with traffic signals and turn lanes at major intersections. The stakeholders have different interests and perspectives regarding improvements in this segment. Information about the transportation needs and problems will be collected by the consultant and a range of options will be developed for TWG and Steering Committee consideration.

- SH-93 Gap (4.1 miles) - This segment extends from the southern end of the proposed Jefferson Parkway to the northern Golden city limits. SH-93 is a two-lane highway with traffic signals and turn lanes at major intersections. This segment needs to be analyzed and develop/evaluate alternatives in order to accommodate desired traffic improvements to the north and south. This study should also consider how this segment should look if no improvements are made to the north and/or south.
- C-470 Extension (C-470 from just south of the I-70 Interchange to just north of the I-70/US6 Ramps (0.9 miles) – This is a transition section from a four-lane roadway to four-lane roadway at interstate standards. Alternatives will be developed and evaluated for this segment as part of the PEL Study.
- C-470 (Segment 2) C-470 from I-70 extension to Kipling Parkway (12.2 miles) - This four/six lane controlled access highway was built to interstate standards in 1985-1990 and is experiencing significant traffic problems, particularly the south end from Kipling to Morrison Road (interchange at US 285, congestion, safety, lane balance). Alternatives will be developed and evaluated for this segment as part of the PEL Study.

The selected consultant team (hereinafter referred to as the Consultant) shall evaluate the existing and future (2040) operating conditions and features of the WestConnect Corridor. In this study, the consultant shall produce a Planning and Environmental Linkage (PEL) Report with the goal of identifying existing conditions, anticipated problem areas, and develop and evaluate a range of multimodal improvements to reduce congestions and improve operations and safety of the highway within the study area. The roadway will be examined to determine transportation operational needs based on existing and future traffic analysis. These needs could include adding capacity, interchange modifications, safety improvements, intersection improvements, express toll lanes, climbing lanes, Intelligent Transportation Systems (ITS), frontage roads, shoulder widths, and other possible safety improvements. The operational needs should include multimodal considerations including bike and pedestrian facilities, bus/HOV/managed lanes, bus on shoulder, and Park & Ride Locations. A traffic analysis of the entire corridor will be conducted. Alternatives development in the PEL will be primarily focused on the Gap segments. This PEL will prioritize alternatives for potential projects throughout the Corridor. This may include priorities identified by Local Agencies in their existing plans.

## **2. PROJECT GOALS**

The primary goal of this Planning and Environmental Linkage Study (PEL Study) is to develop both short term and long term alternatives and identify Proposed Actions for reducing congestion, improving operational performance and addressing future transportation needs along C-470 between Kipling and I-70 and along the US 6/ SH 93 corridor between Golden and Broomfield/Boulder. As part of the Study process, it will be necessary to identify public, environmental and resource concerns and opportunities in the corridor and to use this information to develop alternatives to address the capacity restrictions.

The Project will involve working with stakeholders and the Coalition to develop an agreed upon list of projects. CDOT anticipates participation in the study by various stakeholders identified in Section 2.2.

The Project will also include documenting the goals, objectives and visions of various jurisdictions for the corridor, and the study will be completed in accordance with the Federal Highway Administration (FHWA) Planning and Environmental Linkage (PEL) process. This will include:

- Public Outreach
- Outreach to Local, State and Federal Resource agencies
- Documentation consistent with commonly accepted PEL standards so information developed in this study can be appended or referenced in a later National Environmental Policy Act (NEPA) document.
- Assisting CDOT in completing the PEL questionnaire for submittal to FHWA. This questionnaire has been included in Appendix B, but the questionnaire to be completed shall be the most current version published on the FHWA web site as of six months after notice to proceed.
- Identification of existing and future problem areas in the corridor from an operational, mobility, maintenance, and safety perspective.
- Identification of the existence of any major environmental and/or resource agency concerns which could have a substantially negative impact on implementing improvements in the corridor.
- Assist CDOT, Public Agencies, and resource agencies in identifying issues within the Corridor.
- Identify possible future approvals, permits, and mitigation requirements for the various alternatives.
- Recommend alternatives for the highway and interchange network that address both the short-term and long-term needs and considers funding sources that can be implemented.
- Prepare a prioritized list of all proposed improvements with accompanying evaluation criteria and time lines.
- Identify next steps and implementation actions

In addition to the FHWA and PEL process goals, the Coalition has established these additional project specific goals:

- To consolidate and acknowledge jurisdictions plans and priorities
- Identify an agreed upon list of prioritized projects
- Engage the public in a meaningful way
- Identify alternative mobility opportunities in the study area
- Identify the full range of potential funding options and opportunities
- Streamline future processes and implementation

In order to meet these objectives the Study shall:

1. Recommend appropriate highway and interchange alternatives which will enable Colorado Department of Transportation (CDOT) and Local Agencies to preserve and enhance Right-Of-Way (ROW) to accommodate projected future needs.
2. Document the existing transportation system in the study area including highway through lanes, managed lanes, auxiliary lanes, interchanges, right-of-way; arterial lanes; access; transit; and bicycle/pedestrian facilities.
3. Document the travel markets that use the transportation system. Travel markets may be defined in terms of:
  - Geographic locations of the origins and destinations
  - Trip purpose
  - Length of trip
4. Estimate future travel demands in the study area using the Denver Regional Council of Government's (DRCOG) 2015 base year model and a validated and calibrated 2040 out year model which may be reconciled with local agency transportation network models.
5. Estimate the present and future levels of service (LOS) for roadway segments for the peak periods of travel in the study area to identify problem locations which operate or may operate in the future at unsatisfactory levels. Recently completed traffic studies and information from DRCOG and CDOT may be available and used to collect this information.
6. Compare future travel demands to existing highway capacity at select screen lines and identify the kinds of travel patterns that are inadequately served.
7. Indicate current highway and interchange network features including functional classifications, lane configurations, roadway and right-of-way widths, driveways, sidewalk/parkway features, traffic volumes (roadway and intersection counts), utilities, structures, irrigation ditches, environmental factors/conditions, and safety concerns as identified in existing CDOT Safety Assessment Reports if available.
8. Prepare a list of transportation improvements planned for the WestConnect Corridor and for other adjacent and connecting arterials that may cause secondary impacts to the corridor.
9. Advise agencies as to the existence of environmental concerns discovered during the course of the study which could have a substantially negative impact on immediate and future implementation.
10. Provide an easy-to-read pictorial summary guide that helps evaluate the pros and cons of each alternative in a creative and meaningful way.

### **3. CONSULTANT RESPONSIBILITIES AND DUTIES**

This scope of work was developed to provide guidance to the selected consultant in managing and conducting a PEL Study to provide an improved overview and understanding of the WestConnect Corridor. The Consultant shall evaluate the existing and future operating conditions and features within the Study Area. In this study, the consultant shall produce an Existing Conditions Assessment Report with the goal of identifying existing and anticipated problem areas and identifying both the conflicting and the congruent visions of each jurisdiction and CDOT for the corridor.

The consultant shall then produce a PEL Report for WestConnect Corridor with the goal of expressing a common vision for the corridor and provide recommending phasing that should be implemented.

The Consultant is responsible for conducting project coordination, agency coordination, public participation, feasibility study conceptual design and alternatives analysis, environmental and design data collection and analysis as described in the following sections. The traffic study area for this project is anticipated to include C-470 from Kipling to I-70/US 6 and then along US 6 and SH 93 to Boulder. This study area includes segments in Jefferson County as well as further reaching operational impacts in both Boulder and Broomfield Counties.

The Consultant is expected to gather, validate, and verify any other Study's traffic assumptions, analyses, and projections on facilities within and adjacent to the WestConnect Corridor PEL Study.

#### **4. WORK DURATION**

The time period for the work described in this scope is approximately 18 months.

#### **5. WORK PRODUCT**

The work in the scope of services for this project will be contracted on an individual Task Order basis, as needed and if needed as determined by CDOT. The Colorado Department of Transportation 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. Similarly, additional funding for this project may become available during its progress. The nature of the work that would be performed by the consultant is not expected to expand beyond the disciplines described in this Scope, but the number of required hours may increase. Schedule milestones and deliverable deadlines may also need to be adjusted. The Consultant work products may include:

- 1) Reports
  - Existing Conditions Assessment Report
  - PEL Study Report
- 2) Project Management and Quality Control Plan
- 3) Agency Coordination and Public Outreach Plan
- 4) Schedules
- 5) Monthly Progress Reports
- 6) Meeting Minutes
- 7) Other reports and documentation as described in following Work Product discussions related to specific Tasks.

The Consultant will produce documents and deliverables in a form that can be incorporated by reference, as appropriate, in subsequent NEPA document(s) as outlined in Appendix A to 23 CFR Part 450 – Linking the Transportation Planning and NEPA Processes.

Detailed work product requirements are described in the following sections. All work required to complete this Scope of Work requires the use of English Units.

## **6. WORK PRODUCT COMPLETION**

All submittals must be reviewed and determined acceptable by the CDOT Contract Administrator or designee.

## **7. SCOPE OF WORK ORGANIZATION**

This draft scope of work has been reviewed by the Colorado Department of Transportation (CDOT) and reflects a plan of approach based on the known goals. One factor determining the selection of a consultant is the ability of that consultant to analyze the project goals, evaluate the work elements, and formulate a work plan. This process may produce new approaches or modification to the project work elements. Because of that, all consultants should be aware that the Final Scope of Work for a project will be produced with input from the selected Consultant.

## SECTION 2 - PROJECT MANAGEMENT AND COORDINATION

### 1. CDOT CONTACT

The Contract Administrator for this project is: Ms. Jana Spiker, Region 1 West Program Resident Engineer. Active day-to-day administration of the contract will be done by:

- A. Name: Neil Ogden Title: Project Manager – (Region 1 - West Program)  
Address: 425A Corporate Circle, Golden, Colorado 80401 Telephone: (720) 497-6928

### 2. AGENCY COORDINATION AND PUBLIC OUTREACH

*Note: Entities listed in A and B above shall be referred to as Stakeholders.*

Coordination may be required with the following:

- A. Cities/Towns/Other
  - a) Boulder
  - b) Superior
  - c) Broomfield
  - d) Arvada
  - e) Golden
  - f) Lakewood
  - g) Littleton
  - h) Morrison
  - i) JPPHA
  - j) WestConnect Corridor Coalition
  - k) WestConnect Technical Working Group (TWG)

Additional entities may be identified during the progress of the study.

- B. Counties
  - a) Jefferson
  - b) Broomfield
  - c) Boulder
- C. Resource Agencies
  - a) Colorado Department of Public Health and Environment (CDPHE)
  - b) Colorado Parks and Wildlife (CPW)
  - c) Colorado State Historic Preservation Officer (SHPO)
  - d) US Army Corps of Engineers (USACE)
  - e) US Fish and Wildlife Service (USFWS)
  - f) Regional Transportation District (RTD)
  - g) Denver Regional Council of Governments (DRCOG)
  - h) Federal Highway Administration (FHWA)
  - i) Urban Drainage and Flood Control District (UDFCD)
  - j) CDOT Region 1
  - k) CDOT Division of Transit and Rail (Bustang)

- D. Private Partners
  - a) Motor Carrier Association
  - b) Greyhound

## **SECTION 3 - EXISTING FEATURES**

### **1. STRUCTURES**

See CDOT Field Log of Structures at: [www.codot.gov/library/bridge/miscbridgedocs/fieldlog](http://www.codot.gov/library/bridge/miscbridgedocs/fieldlog)

### **2 UTILITIES**

Contact Utility Notification Center of Colorado (UNCC) at 1-800-922-1987

### **3. IRRIGATION DITCHES**

To be determined.

### **4. RAILROADS**

Burlington Northern Santa Fe (BNSF) Railway  
Union Pacific (UP) Railroad

### **5. OTHER**

RTD Light Rail Transit  
ITS Features  
Park and Ride

## **SECTION 4 - REFERENCE ITEMS NEEDED BY THE CONSULTANT**

### **1. CURRENT CDOT MANUALS, SPECIFICATIONS, STANDARDS, ETC.**

The consultant shall obtain and utilize the most recent CDOT adopted references including standards and specifications, manuals and software or as directed by the CDOT Project Manager. A list of general reference material is provided in Appendix

CDOT has also developed guidance for PEL Studies. This guidance can be found at: <https://www.codot.gov/programs/environmental/planning-env-link-program/pel-handbook-december-2012/view>

### **2. PREVIOUS STUDIES**

Golden Plan and CDOT/Golden MOU  
System Level Feasibility Study of the Jefferson Parkway  
Interlocken Loop  
C-470 Corridor Revised Environmental Assessment  
Northwest Corridor EIS  
Northwest Corridor Transportation and Environmental Study  
WestConnect: The Western Beltway Connector Study  
C-470 Phase 1 Environmental Assessment  
Local transportation plans

## **SECTION 5 - GENERAL INFORMATION**

### **1. 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 on split shifts.

### **2. TIME LOST/DELAYS**

CDOT must review and concur in time lost claims 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 the following:

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

### **3. PROJECT COORDINATION**

- A. Routine Working Contact

The routine working contact will be between the CDOT Project Manager (CDOT/PM) and the Consultant Project Manager (C/PM).

- B. Project Manager Requirements

Each Project Manager will provide the other with the following:

- 1. A written synopsis or copy of their respective contacts (via email, telephone, or in person) with others.
- 2. Copies of pertinent written communications.

### **4. ROUTINE REPORTING AND BILLING**

The Consultant will provide the following on a routine basis:

- A. Coordination  
Coordination of all contract activities by the C/PM
- B. Periodic Reports and Billings  
The periodic reports and billings required by CDOT Procedural Directive 400.2(Monitoring Consultant Contracts).
- C. Minutes of all Meetings:  
The minutes will be completed and provided to the CDOT/PM within ten (10) 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.

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

## 5. 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 Registration for Professional Engineers and Land Surveyors. National Institute for Certification in Engineering Technology (NICET) or other certifications may be required for project inspectors and testers.

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

## 6. CDOT COMPUTER/SOFTWARE INFORMATION

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

- |                       |  |
|-----------------------|--|
| A. Earthwork          | InRoads  |
| B. Drafting/CADD      | InRoads and Microstation with CDOT's formatting configurations and standards |
| C. Survey             | CDOT Inroads TMOSS   |
| D. Geometry           | CDOT COGO (Coordinate Geometry)  |
| E. Bridge             | CDOT Staff Bridge software shall be used in either design or design check    |
| F. Estimating         | Transport (an AASHTO sponsored software)                                     |
| G. Specifications     | Microsoft Word   |
| H. Traffic            | Highway Capacity Software (HCS)  |
| I. Traffic Operations | Synchro 9, SimTraffic, HCS, Rodel, INRIX, COGNOS                             |
| J. Traffic Signals    | Synchro 9, HCS   |
| K. Traffic Model      | TransCAD (FOCUS) Model   |
| L. Hydraulics         | Hydrologic Engineering Center's River Analysis System (HEC-RAS)              |
| M. Pavement Design    | DARWin (AASHTO)  |
| N. Scheduling         | Microsoft Project  |
| O. GIS                | ESRI, ArcMap geodatabases (Projection: UTM NAD 83, Zone 13)                  |
| P. Noise Modeling     | TNM v2.5   |
| Q. Misc               | Microsoft Word, Excel, Power Point   |
| R. Reports            | Adobe Acrobat 7.0 Professional   |
| S. Doc. Management    | Projectwise SS4  |

## **7. COMPUTER DATA COMPATIBILITY**

CDOT presently utilizes a data format which Consultants shall be required to use for submitting survey, photogrammetry and the design data: Inroads

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 problem is resolved. Refer to Table 1, Submittals, for additional information regarding the InRoads and TMOSS formats and the acceptable transmittal media.

The consultant shall prepare a document describing the traffic modeling software proposed for use in the study.

## **8. PROJECT DESIGN DATA AND STANDARDS**

### **A. General:**

Appendix A is 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. Appendix B is a copy of the current FHWA PEL Questionnaire.

## **SECTION 6 - STUDY WORK TASK DESCRIPTIONS**

The Study will be conducted in accordance with the Statewide and Metropolitan Planning Regulation 23 CFR 450. The provisions linking planning and NEPA presented in Section .318 and Appendix A of 23 CFR 450 are to be followed. The findings of the PEL Study will establish the Purpose and Need, early action items and reasonable alternatives, logical termini and independent utility, and programming priorities/timeframes/funding to be used in updating transportation plans and transportation improvement programs (TIPs).

The Study will include development and evaluation of alternatives based on a consideration of Purpose and Need, geometric, traffic, planning and environmental factors, the location of communities and other developed areas, and public and agency input.

The Study will be developed and documented in a form that can be incorporated by reference, as appropriate, in subsequent NEPA document(s) as outlined in Appendix A to 23 CFR Part 450 – Linking the Transportation Planning and NEPA Processes. All final deliverables identified in this contract will be of such quality that they could be incorporated directly or by reference into these NEPA documents.

This section establishes the consultant's individual task responsibility. The consultant shall maintain the ability to perform all work tasks which are indicated below, 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 CDOT if clarification is required. See Section 2.01 for contact information.

A Project Management Plan shall be developed by the Consultant which satisfies the requirements of the project development. This plan must be approved by the Contract Administrator (see Section 2.01) before starting the work. The 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.

### **TASK 1 - PROJECT INITIATION AND CONTINUING REQUIREMENTS**

#### **A. Initial Project Meeting**

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 meeting may include an on-site inspection to familiarize the entire project team with the character and conditions of the area. The Consultant shall develop an invitation list in coordination with CDOT, send notices with a draft agenda, and provide meeting minutes to all those invited.

## B. Project Management Plan

The Consultant shall provide a Project Management Plan for management coordination and control to ensure successful and timely completion of this study. The Project Management Plan shall:

1. Include a detailed work plan, including schedule and cost breakdown for each sub-task described in this scope of services
2. Identify the method for tracking budget and schedule for the duration of the project
3. Establish key project contacts within the project team and other stakeholders
4. Establish the project milestones
5. Include a Quality Control Plan that describes the Quality Control Process to be used on the project

## C. Project Management Communication

1. The Consultant and the CDOT Project Manager shall meet at least monthly to review the cost, schedule status and progress of the work, as well as address unanticipated problems and potential solutions. Eighteen monthly progress meetings with the CDOT Project Manager and the Consultant will be held. The Consultant shall prepare status presentations at key milestones to update CDOT, Stakeholders, and Resource Agencies on the status and progress of the work. The project milestones include: Scoping, Purpose and Need Statement, Alternatives Development/Analysis, Proposed Action(s), Funding/Prioritization/Phasing, and PEL Report. The Consultant shall be responsible for preparing and keeping a record of meeting minutes. The Consultant should carefully anticipate the number of meetings that shall be necessary, as the cost of all meetings shall be included as part of the contract price. The Consultant shall prepare for and participate in these meetings, and shall provide documentation of the meetings such as agendas, presentation materials and meeting minutes.
2. The Consultant shall submit monthly cost and schedule reports to enable project monitoring. The contract budget and schedule shall be regarded as the baseline against which status and progress are measured and reported.
3. The Consultant shall submit working and final drafts on all work products in a timely manner to allow for adequate review and revision prior to final submittal schedules. The Consultant invoices shall be prepared to show cost against major milestone tasks.

## D. Consensus Building Process and Public Outreach

The Consultant will support the implementation of the on-going consensus building process, with the WestConnect Coalition facilitator serving as the consultant lead for the effort.

1. Key Stakeholder Interviews: Understanding ideas, perspectives and needs of the key stakeholders in the corridor is critical for broadly supported decisions. At the start of the project, as coordinated with and approved by the CDOT Project Manager and led by Coalition facilitator, interviews will be conducted with key stakeholders (identified in Section 2, Part B) to further understand their respective interests, goals, issues and desired outcomes for the PEL Study. An interview template will be prepared prior to conducting interviews.

An overall summary of interview issues will be prepared after the interviews take place and results will be part of both the public participation plan and the Innovation Brainstorming Workshop agenda. It is anticipated that up to 6 (six) Key Stakeholder Interviews will be held.

2. Innovation Brainstorming Workshop: An interactive Innovation Brainstorming Workshop will be held with design professionals, CDOT, and key stakeholders to explore Managed Lanes, Intelligent Transportation Systems (ITS), Active Traffic Management (ATM), Transportation Demand Management (TDM), transit, bicycle corridors, and short-term and long-term alternatives to forward into the alternative analysis. The Workshop will be led by the WestConnect facilitator, in coordination with the Consultant, who will prepare and facilitate the Innovation Brainstorming Workshop and lay the foundation for the workshop by identifying potential concepts for discussion, and key issues and concerns from the interviews. A summary of the Innovation Brainstorming Workshop will be produced and distributed.
3. The Agency Coordination and Public Outreach Plan shall at a minimum include:
  - Preliminary identification of critical issues and problems in need of resolution.
  - Recommend the proper level and means of involvement in the study by the public.
  - Identification of Resource Agencies with an interest in the corridor and the level of consultation required with each agency for successful completion of the study.
  - Identification of Stakeholders, Resource Agencies, community leaders, elected officials and key community groups and recommend level and means of involvement in the study by those identified.
  - Identification of planned community events near the highway and interchange complex that are scheduled during the study.
  - Description of participation methods, objectives, and where each fits into the schedule.
4. Technical Working Group (TWG) Coordination and Meetings: The TWG, composed of corridor and interchange complex communities' technical staff and resource agency representatives, will serve as the focal point for the stakeholder engagement process and is the primary mechanism to directly interact and engage the corridor communities and stakeholders. The Coalition facilitator will serve as the lead for the TWG meetings, in coordination with the Consultant. The project team will coordinate with the TWG to determine the proper level of involvement and engagement required for their respective elected officials and other associated stakeholder groups. It is anticipated that there will be eighteen (18) facilitated TWG meetings that will be the forum for addressing corridor-wide issues and making recommendations as a group. As coordinated with and approved by the CDOT Project Manager, segment-specific issues can be addressed through consultation with the affected jurisdictions/s as needed. Meeting agendas, associated materials and summaries will be prepared for each meeting by the Coalition facilitator. Community coordination and follow-up will occur for each meeting as needed. Operating guidelines and a TWG work plan will be established to define the group's goals and how it will function over the eighteen months.
5. Resource Agency Scoping Meetings: As coordinated with and approved by the CDOT Project Manager, individual meetings will take place (four (4) total) to coordinate and consult with CDPHE, SHPO, USACE, CPWUSFWS, and USFWS.

6. **Public Meetings:** Public meetings will be held at the beginning of the process to educate the public on the PEL process and to collect input about the vision for the highway and interchange complex and associated concerns, and later to present the range of short-term and long-term alternatives to the public and collect input for recommendations. It is anticipated that there will be four (4) meetings total. Community coordination and communication efforts will be carried out in conjunction with the meetings. The Consultant will prepare and organize public meetings including corridor wide public notifications such as press releases, post card mailing, social media, telephone Town Hall Meetings, or other methods.
7. **Outreach to Regional Partners and Small Groups:** The Coalition facilitator and consultant will coordinate closely with CDOT and the TWG to develop effective strategies for involving their respective constituencies and other key stakeholders groups. Various approaches may be used to engage and interact with the broader community including utilizing existing communication channels, such as planned events or pre-existing meetings when necessary. It is anticipated that up to four (4) separate meetings will be required to develop these strategies.
8. **On-going Outreach and Public Involvement Efforts:** The Coalition facilitator and consultant team will support CDOT staff by serving as a secondary project point of contact for the distribution of information to key stakeholders, agencies or the general public; to populate and manage the email/ mailing lists and the contact database; to create content for CDOT's project website if one is established; to support the creation and distribution of media advisories; and to advertise and communicate the public meetings.
9. **Policy Meetings:** WestConnect Coalition/Steering Committee, other public or elected officials will be led by the Coalition facilitator in coordination with the Consultant.

**TASK 1 WORK PRODUCT:** Project Management Plan, contract budget and schedule, Quality Control Plan, monthly progress report, and payment and review milestones; Agency Coordination and Public Outreach Plan, meeting agendas, presentation materials, and meeting minutes.

All of the deliverables discussed in this task will be submitted to the CDOT Project Manager or appropriate stakeholders once (1) for review and revisions will be made, as appropriate.

**NOTE:** *For Tasks 2 and 3, the Agencies will assist the Consultant in the preparation of the different work products. For these tasks, the responsibilities of the Agencies and of the Consultant are defined.*

## **TASK 2 - EXISTING CONDITIONS ASSESSMENT REPORT**

### **A. Obtain Necessary Trespass Rights and Permits**

The consultant will apply for and obtain a CDOT Special Use Permits (Region 1) for any work done within CDOT Right of Way.

Some activities may require work on land not controlled by CDOT. In such cases the consultant shall prepare the necessary paperwork and coordinate with the property owner or municipal entity on in order to the necessary written permission to enter the premises. CDOT Form 730 may be used for this purpose. The Consultant shall obtain any other permits, as required, for fieldwork activities.

## B. Traffic Control

The Consultant shall be prepared to provide traffic control for any of their field activities or for any supplemental survey that CDOT may perform during the course of this project. Any Traffic Control Plans required for this work shall be submitted to CDOT for acceptance prior to the work.

## C. Traffic Data Collection and Existing LOS Calculation

1. The Consultant shall collect and consolidate crash data and traffic counts (including truck traffic) for the project limits and surrounding roadway network impacted by the project to be used for the safety and operational analyses. Crash data will be obtained by the consultant from the CDOT database, and requested by the consultant from local municipalities as required for the purposes of the study. Available traffic data shall be compiled from various State and municipal sources, or counted in the field as required for the purposes of the Study. For example, CDOT shall provide the consultant access to INRIX for travel speed data in some cases, origin and destination traffic data may need to be collected to evaluate an existing condition.
2. The Consultant shall calculate levels of service at relevant locations within the project boundaries. At a minimum, this will include the mainline of C-470 between Kipling St. and I-70 and of C-470 Extension, US 6 from I-70 to SH 58/SH 93, SH 93 from the SH 58/US 6 north the southern limits of the Boulder city limits, including all ramp terminals, merge/diverge points, and weave areas at all interchanges in the project limits. Additional locations to be evaluated will be determined by the Consultant in coordination with CDOT, with input from the project stakeholders. Daily vehicle classification counts will be collected at locations determined to be relevant to the Study. Intersection turning movement count locations and origin/destination data are to be determined by the Consultant in coordination with CDOT.
3. Document the existing and any planned transportation systems in the corridor including highway through and auxiliary lanes, interchanges, right-of-way and access; arterial lanes and access; high speed rail and transit types / service levels including station locations, routes and frequency, safety records and ridership and major concentrations of riders. The document shall also include bicycle and pedestrian facilities, planned and existing intermodal connection facilities and stations.
4. Document the existing travel markets that use the transportation system by using the DRCOG travel demand model (not field surveys) to establish:
  - a. Geographic locations of the origins and destinations
  - b. Trip purpose (Commuter/Non-commuter trips)
  - c. Local versus regional trips
  - d. Average Length of Trip

5. Summarize current roadway features including present lane configurations, roadway and right-of-way widths, adjacent land ownership characteristics, utility, and environmental concerns.

#### D. Travel Demand Forecasting

1. Summarize land use and modeling data as provided by the DRCOG travel demand model (Years 2015 and 2040) and Jefferson Parkway Public Highway Authority volume projections. The intent is not to change the population, land use, and employment distribution data in the DRCOG Model but to provide flexibility for CDOT and the Steering Committee to agree upon reasonable assumptions that may vary from the DRCOG model during the modeling process.
2. If it is determined necessary to perform any additional Travel Demand Forecasting (e.g. to account for changed planned land use or travel network conditions), the consultant shall develop a sub-area model specific to the project study area and will utilize one of the DRCOG models that is available for such purposes. This may include local agency transportation models, the adopted 2040 regional DRCOG model – FOCUS, DRCOG's previous 2035 model – COMPASS, along with a mesoscopic model and an appropriate traffic micro-simulation software. The consultant will provide justification for their proposed model selection to CDOT, DRCOG and FHWA. The use of the proposed model is subject to the approval of these three agencies. Previously projected transit utilization may be incorporated into the study without new transit modeling being performed. The primary product of this work will be the 2040 travel demand forecasts approved for study use by CDOT, DRCOG and FHWA. These forecasts will be used to develop 2040 traffic volumes on mainline highways, arterial roadways, and peak hour turning movements at signalized intersections and freeway ramp terminals.
3. The consultant shall be responsible for performing "reasonableness" checks on information developed and derived from use of the DRCOG model and local agency transportation network models. The Consultant shall use the approved DRCOG data sets and road network to ensure that the traffic analysis is compatible with the NEPA process.

#### E. Traffic Operations

1. Future travel demands shall be compared to existing corridor capacity at select screen lines and inadequately served travel patterns shall be identified.
2. Summarize future traffic (2040) operations along the corridor for both the AM and PM peak hours.
3. Traffic operational analysis will include an evaluation of the existing conditions as well as a 2040 analysis for the No-Action and a preferred set of alternatives.
4. Modeling shall be used to help understand the regional distribution of traffic, possible diversions for different design alternatives and to help determine the limits of the micro-simulation analysis. The specific model(s) to be used will be determined during the course of the study and must be acceptable to both CDOT and FHWA.
5. Perform a sketch plan sensitivity analysis for future traffic operations (beyond 2040) based on anticipated growth in traffic.

6. It is anticipated that Synchro and/or micro-simulation software will be used for evaluation of intersection operations.
7. It is anticipated that the Consultant will use a micro-simulation model to evaluate the traffic operations of the complete roadway system, particularly the freeways and report the agreed upon measures-of-effectiveness (MOE's) for the existing conditions, No-Action and the preferred set of alternatives. Site specific operational analysis (i.e. turning movement delays, weaving analysis, queue length determination, etc) may also be required at strategic locations within the project boundaries to help identify preferred short-term improvements that may provide operational benefits while remaining consistent with the long-term preferred alternative. Specific locations will be determined by the Consultant in coordination with CDOT. The Consultant is required to follow the guidelines provided in the FHWA Traffic Analysis Toolbox as a framework for methods for collecting traffic data, setting up and calibrating the micro-simulation models. The Consultant will also be required to coordinate with CDOT Traffic and FHWA at key milestones in the traffic modeling and approval process (i.e. model validation and calibration, MOE selections, etc) before additional work proceeds.
8. Based on the initial traffic data collection, travel demand forecasting, and traffic operational analyses, the consultant shall identify traffic problem areas and determine the effects to the surrounding roadway network, and intersections. This analysis shall consider network travel patterns that include traffic volumes, travel/access patterns, LOS, delays, travel times, and speeds in neighborhoods and other areas of anticipated traffic congestion. The Consultant shall coordinate this work with other studies in the immediate area, as appropriate.
9. The Consultant shall also analyze existing bicycle and pedestrian facilities for safety, adequacy, connectivity, and Americans with Disabilities Act Accessibility requirements and make recommendations for improvements accordance with CDOT Statewide Bicycle and Pedestrian Plan, if available, and the local bicycle and pedestrian master plans.
10. Emergency Response/Incident Management – consider the use of turnaround areas and shoulders.
11. Analyze the use of Park & Ride Facilities

#### F. Safety Assessment Report

1. The consultant shall obtain all available Safety Assessment Reports from CDOT which identify existing safety problems within the project limits to the extent that they are readily available. In the alternatives evaluation portion of the PEL Study, and any other sections that pertain to Safety, the consultant shall specifically identify how the "Build" alternatives propose to mitigate the existing safety problems based on the Safety Assessments and on crash data collected as part of this PEL.
2. If CDOT or the consultant deem that existing available traffic safety reports are outdated and need to be updated; the consultant shall prepare a traffic safety assessment report in accordance with CDOT standards. CDOT shall provide all data and statistical summaries necessary to complete the report.

3. The consultant maybe directed to complete a new Safety Assessment report including an evaluation of the existing conditions as well as a 2040 analysis for the No-Action and a preferred set of alternatives using predictive crash models.

#### G. Conduct an Environmental Overview of the Corridor

The analysis for this environmental overview shall build from and be consistent with the other environmental studies completed or nearing completion in the project area. The primary study area for this PEL project are the “Gap Segments” within the WestConnect Corridor. However, the Environmental Overview limits may be reduced, or expanded, depending upon the alternatives actually being studied. The use of GIS techniques is highly encouraged.

The following environmental resources are considered “red-flag” resources and technical memos will be required as part of the PEL Study. This list is not all-inclusive and is subject to change based on meetings with project stakeholders. Modifications to the list may be necessary depending on the results of the Innovation Brainstorming Workshop. A scoping meeting with CDOT Region 1, HQ, and Coalition members will be required to define the levels of environmental analysis for each resource area.

- **Land Use**
- **Air Quality**
- **Bicycle Facilities**
- **Floodways and 100-year floodplain boundaries**
- **Parks/, Open Spaces, Trails, Recreational Resources/4(f) and 6(f)**
- **Historic Resources**
- **Hazardous Substances (including oil/gas wells)**
- **Wetlands and Other Waters of the US**
- **Wildlife Movement**
- **Threatened and Endangered Species**
- **Rest Areas**
- **Water Quality**
- **Noise**
- **Wells**
- **Archeological and Paleological**

- H. Reference the list of issues that resulted from contacts with stakeholders and general knowledge of the corridor to identify a list of key needs in the corridor.
- I. Prepare a preliminary list of existing and anticipated deficiencies in the corridor. The list should describe the existing or anticipated deficiencies in the transportation system and the growth or changing needs in the corridor along with an estimate as to the timeframe in which deficiencies will occur.

Agency Data Requests - The Consultant may request that Agencies provide the Consultant with existing local land use and transportation plans, traffic counts, roadway striping plans (illustrating lane/roadway/right-of-way widths), on-street parking inventory/utilization, digital photographs of different roadway segments, information on sidewalk and parkway features, and building set-back, when available.

The Agencies may identify different segments along WestConnect Corridor for detailed analysis and provide the Consultant with Level of Service (*LOS*) and travel time information for these study segments, if available. The Agencies may assist the Consultant in obtaining any other data which may be necessary in completing the existing conditions report. The Consultant will request that Agencies appoint one individual as their designated liaison to CDOT and the Consultant in order to better facilitate communication.

Consultant Responsibilities - The Consultant shall prepare an Existing Conditions Assessment Report which includes all elements as described above.

**TASK 2 WORK PRODUCT:** Existing Conditions Assessment Report which presents the findings from the Responsibilities described above in a clear and concise manner. A summary of comments and key issues received at Public-Stakeholder meetings will be included. Environmental Resource Technical Memos describing the existing conditions in the corridor. In addition a separate stand-alone traffic report that could be used for future Interchange Access Requests will be required.

All of the deliverables discussed in this task will be submitted to CDOT twice (2) for review and revisions will be made, as appropriate.

### **TASK 3 - DEVELOP A STATEMENT OF PURPOSE AND NEED AND IDENTIFY GOALS FOR THE TRANSPORTATION SYSTEM**

Develop an Executive Summary containing the following:

- A. Identify existing and expected deficiencies in the transportation system serving the corridor area and compile a list of system deficiencies. Where possible, locate the deficiencies on a base map for use at the public meetings.
- B. Prepare a draft or general Mission Statement and key issues to be discussed at a stakeholder meeting and at public meetings.
- C. Produce a written statement of purpose and need. This statement should be an "umbrella" statement for the corridor, based in identification of needs and deficiencies. The statement should reflect the context sensitivity of the corridor's communities to help reach their transportation goals by encouraging the consideration of land use, transportation, environmental and infrastructure needs in an integrated manner.
- D. Identify goals and visions for the highway and interchange complex.
- E. Determine logical termini for the study area.

**TASK 3 WORK PRODUCT:** An executive summary which presents the findings from the task described above in a clear and concise manner. A summary of comments and key issues received at Public-Stakeholder meetings.

All of the deliverables discussed in this task will be submitted to CDOT twice (2) for review and revisions will be made, as appropriate. The Consultant assumes that FHWA, CDOT EPB, CDOT Regions 1 and stakeholder review will happen concurrently; and FHWA review will occur consequently, unless they agree to the same review schedule.

#### **TASK 4 - PLANNING ENVIRONMENTAL LINKAGE (PEL) STUDY**

A PEL Study shall be prepared with the following objectives.

- A. Express a common vision between CDOT and the stakeholders as to the future operational functionality of the corridor.
- B. In addition to the No-Action Alternative, the Consultant shall Develop up to a set of up to three (3) short-term and three (3) long-term alternatives which:
  - Meets the Purpose and Need identified in Task 3.
  - Balances regional mobility with local connectivity needs and access management.
  - Enhances corridor aesthetics and safety
  - Considers unconventional and innovative approaches including managed lanes, ITS, ATM and TDM as part of the solution
  - For highway expansion or other modal use of CDOT right-of-way, an analysis should be conducted to identify alternatives for the most appropriate use of the existing right-of-way. A determination then has to be made if this represents the maximum right-of-way capacity or if additional right-of-way should be acquired

Alternatives Development – Basic concepts for alternatives will be developed through the project’s Technical Working Group, Stakeholders, Project Managers and the Consultant. It is CDOT’s intention to lead the basic roadway engineering for the alternatives that will be screened. This basic roadway engineering will generally be to a conceptual level of design; however, more detail may be needed in some areas to support screening. The Consultant shall be prepared to participate in the basic roadway engineering task as directed by CDOT, and provide basic engineering in other design disciplines up to and including performing the full range of basic engineering for specific alternatives. The consultant shall be prepared to perform survey work in specific areas and to the level needed to support design work. Details of the Consultant’s level of involvement will be determined at the time the Task Order for this work is written.

For the Proposed Action(s), a cross section study will be developed. This will be done by CDOT and the Consultant as directed by CDOT. This information shall be sufficient to determine general cut and fill limits, toe of slope locations, right-of-way needs and easement requirements, earthwork requirements, structural requirements, and water quality facilities.

The conceptual design for the roadway alignments, interchange configurations, roadway templates, lane additions, pedestrian facilities, bicycle facilities, and major structures (bridges, grade separations, retaining walls, etc.) included in the Proposed Action(s) will be completed to approximately five (5)% design so that planning-level cost estimates can be established by CDOT, in coordination with the Consultant as needed. This may also include short term improvements as identified in the analysis.

For a limited number of early action projects the consultant shall be prepared to perform a full range of engineering design services up to and including final design.

- C. The Consultant shall establish meaningful project phases and connect them with potential funding packages. Given the variability in the amount and timing of funding, the Consultant will identify and prioritize projects for a range of funding scenarios to ensure that the corridor is getting maximum benefit for the available dollar. As a part of this, the Consultant will investigate various state and federal funding mechanisms such as RAMP, FASTER, surface treatment, enhancement, STP metro, etc., that can be used in part or combination to develop larger project packages. Other options such as BIDs, TIFs, and new federal programs such as livable communities, will also be reviewed for applicability on the corridor.
- D. Alternatives Screening – The Consultant shall utilize a NEPA-appropriate screening process. A two-step or three step screening process through which the level of analysis detail becomes greater as the number of alternatives reduces shall be considered. Several basic measures shall be used to judge alternatives. This evaluation is intended to illuminate the issues and provide a coherent discussion prior to selecting a preferred corridor strategy. The Consultant will work with CDOT and stakeholders to develop evaluation criteria and will submit the criteria to FHWA for review. The following measures shall be included:
- Operational Effectiveness – This analysis should quantify how each alternative addresses deficiencies and needs as identified in Tasks 2 and 3. The analysis should also identify negative upstream, downstream and any other roadway network consequences of proposed improvements. For estimating purposes, it is anticipated that up to three (3) short-term alternatives and three (3) long-term alternatives will be analyzed under the AM and PM peak hour to determine how well each alternative addresses the deficiencies and needs as identified in Tasks 2 and 3.
  - Land Use Consequences - This analysis should quantify how the alternatives will affect accessibility and mobility in the corridor. Resultant land use implications should then be assessed and compared to adopted comprehensive plans and zoning. Any inconsistencies between the proposed transportation investment and levels or types of development in local plans should be clearly identified and understood by all decision-makers. It should be noted that land use planning is not the purview of CDOT. Consequently, CDOT staff can only assist by providing information useful to those agencies with jurisdiction over land use and development policies, planning and decision-making.
  - Economic Feasibility – This analysis should compare the alternatives in terms of whether the benefits are commensurate with the costs. It also should consider the availability of funds for construction and operation as well as equity – the distribution of costs and benefits.

- Environmental Feasibility - Impacts of each alternative on important environmental resources and feasibility regarding environmental issues and regulations. Conceptual avoidance and minimization measures should be developed following the identification of impacts and concerns.

Following screening, the Proposed Action, or Actions, will be documented and the conceptual design will be refined as needed to avoid impacts and/or provide mitigation.

- E. Provide an easy-to-read pictorial summary guide that helps evaluate the pros and cons of each alternative in a creative and meaningful way.
- F. Recommend ROW needs along the corridor expressed as typical sections and as part of any proposed interchange reconstruction concept. The recommended ROW for the Proposed Action(s) will be identified (including physical environmental mitigation like stormwater controls. These elements will combine to allow for corridor preservation by the local communities.
- G. Prepare a PEL Study report that includes an Executive Summary and the following chapters: Purpose and Need Statement, Proposed Action(s), No-Action Alternative, Other Alternatives Considered and Alternative Screening, Affected Environment and Environmental Consequences, Agency Coordination and Public Involvement, and Next Steps. In addition to the PEL Study report, technical reports as listed under Section 6, Task 2, Paragraph G will be updated to include environmental consequences, public and agency comments, and potential mitigation measures. The level of detail in each technical report will be determined through a scoping meeting with CDOT R1 in coordination with the TWG. The reports shall be provided in a software format that can also be read on an electronic device.
- H. Develop a report that captures the list of prioritized projects agreed upon by the TWG and Steering Committee.
- I. The Consultant shall incorporate Value Engineering principles into this PEL Study as determined to be beneficial and appropriate by the Consultant and CDOT Project Managers during the initial stages of the project. A range of VE actions shall be considered, including performing a full formal VE Study, with the production of a VE Report. The final Scope of Work may be modified to more completely describe the Consultants VE tasks.

Consultant Responsibilities - The consultant shall coordinate with CDOT and other relevant stakeholders, and prepare a Planning and Environmental Linkage Report which will describe the findings, alternatives and visions developed in Task 4. Included in the report will be responses to the FHWA PEL Questionnaire as included in Appendix B.

**TASK 4 WORK PRODUCT:** PEL Study Report which presents the findings from the Responsibilities described above in a clear and concise manner; Environmental Resource Technical Memos/Reports; a summary of comments and key issues received as a result on the implementation of the Public Participation Work Plan (as per Task 1); and if determined to be appropriate to include in this project.

## **5. TECHNICAL AND PEER REVIEW**

All study reports and design work products will be reviewed by CDOT, Stakeholders, and Resource Agencies.

## **6. PROJECT SCHEDULE**

The contract period shall be Eighteen (18) months from the date of execution of the contract.

## **7. CONTRACT COMPLETION**

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

- A. Project Schedule
- B. All work products as described above
- C. Project Progress Meeting Minutes
- D. All documents found In Research
- E. All Permission to Enter forms
- F. Photography Products
- G. Ownership Map
- H. Original Field Notes
- I. Completion of review and consultant revision of contract submittals

## APPENDIX A – REFERENCES

1. **AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) PUBLICATIONS** (using latest approved versions):
  - A. A Policy on Design Standards-Interstate System
  - B. A Policy on Geometric Design of Highways and Streets
  - C. Guide for Design of Pavement Structures
  - D. Standard Specifications for Highway Bridges
  - E. Guide for the Design of High Occupancy Vehicle and Public Transfer Facilities
  - F. Guide for the Development of Bicycle Facilities
  - G. Standard Specifications for Transportation Materials and Methods of Sampling and Testing – Part 1, Specifications and Part II, Tests
  - H. Highway Design and Operational Practices Related to Highway Safety
  - I. Roadside Design Guide
  
2. **COLORADO DEPARTMENT OF TRANSPORTATION PUBLICATIONS** (using latest approved versions):
  - A. CDOT Design Guide (all volumes)
  - B. CDOT Bridge Design Guide
  - C. CDOT Bridge Detailing Manual
  - D. Bridge Rating Manual
  - E. Project Development Manual
  - F. Erosion Control and Storm Water Quality Guide
  - G. Field Log of Structures
  - H. Cost Data Book
  - I. Drainage Design Manual
  - J. CDOT Quality Manual
  - K. CDOT Survey Manual
  - L. CDOT Field Materials Manual
  - M. CDOT Design Guide, Computer Aided Drafting (CAD)
  - N. Erosion Control and Storm water Quality Guide
  - O. Standard Plans, M & S Standards
  - P. Standard Specifications for Road and Bridge Construction and CDOT Supplemental Specifications
  - Q. Item Description and Abbreviations (with code number) compiled by Engineering Estimates and Marked Analysis Unit, CDOT
  - R. Right-of-Way Manual, Chapter 2, Plans and Descriptions Procedures and General Information
  - S. The State Highway Access Code

- T. Utility Manual
- U. TMOSS Generic Format
- V. Field TMOSS Topography Coding
- W. Topography Modeling Survey System User Manual
- X. Interactive Graphics System Symbol Table
- Y. Corridor Optimization Guidelines
- Z. C470 EA/FONSI

**3. CDOT PROCEDURAL DIRECTIVES (using latest approved versions):**

- A. No. 400.2 Monitoring Consultant Contracts
- B. No. 501.2 Cooperative Storm Drainage System
- C. No. 514.1 Field Inspection Review (FIR)
- D. No. 516.1 Final Office Review (FOR)
- E. No. 1217a Survey Request
- F. No. 1304.1 Right-of-Way Plan Revisions
- G. No. 1305.1 Land Surveys
- H. No. 1601 Interchange Approval Process
- I. No. 1700.1 Certification Acceptance (CA) Procedures for Location and Design Approval
- J. No. 1700.3 Plans, Specifications and Estimates (PS&E) and Authorization to Advertise for Bids under CA
- K. No. 1700.5 Local Entity/State Contracts and Local Entity/Consultant Contracts and Local Entity/R.R. (Contracts under CA)
- L. No. 1700.6 Railroad/Highway (Contracts under CA)
- M. No. 1905.1 Preparation of Plans and Specifications for Structures prepared by Staff Bridge Branch

**4. FEDERAL PUBLICATIONS (using latest approved versions):**

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

I. ADAAG Americans With Disabilities Act Accessibility Guidelines

**5. TRANSPORTATION RESEARCH BOARD:**

A. Access Management Manual

B. NCHRP Report 672 - Roundabouts: An Informational Guide

## APPENDIX B - PEL QUESTIONNAIRE

This questionnaire is intended to act as a summary of the Planning process and ease the transition from planning to a National Environmental Policy Act (NEPA) analysis. Often, there is no overlap in personnel between the planning and NEPA phases of a project, so consequently much (or all) of the history of decisions made in the planning phase is lost. Different planning processes take projects through analysis at different levels of detail. NEPA project teams may not be aware of relevant planning information and may re-do work that has already been done. This questionnaire is consistent with the 23 CFR 450 (Planning regulations) and other FHWA policy on Planning and Environmental Linkage (PEL) process.

The Planning and Environmental Linkages study (PEL Study) is used in this questionnaire as a generic term to mean any type of planning study conducted at the corridor or subarea level which is more focused than studies at the regional or system planning levels. Many states may use other terminology to define studies of this type and those are considered to have the same meaning as a PEL study.

At the inception of the PEL study, the study team should decide how the work may later be incorporated into subsequent NEPA efforts. A key consideration is whether the PEL study will meet standards established by NEPA regulations and guidance. One example is the use of terminology consistent with NEPA vocabulary (e.g. purpose and need, alternatives, affected environment, environmental consequences).

*Instructions: These questions should be used as a guide throughout the planning process, not just answered near completion of the process. When a PEL study is started, this questionnaire will be given to the project team. Some of the basic questions to consider are: "What did you do?," "What didn't you do?," and "Why?". When the team submits a PEL study to FHWA for review, the completed questionnaire will be included with the submittal. FHWA will use this questionnaire to assist it in determining if the study meets the requirements of 23 CFR §§ 450.212 or 450.318. The questionnaire should be included in the planning document as an executive summary, chapter, or appendix.*

### 1. BACKGROUND:

- A. Who is the sponsor of the PEL study? (state DOT, Local Agency, Other)
- B. What is the name of the PEL study document and other identifying project information (e.g. sub-account or STIP numbers, long-range plan, or transportation improvement program years)?
- C. Who was included on the study team (Name and title of agency representatives, consultants, etc.)?
- D. Provide a description of the existing transportation facility within the corridor, including project limits, modes, functional classification, number of lanes, shoulder width, access control and type of surrounding environment (urban vs. rural, residential vs. commercial, etc.)
- E. Provide a brief chronology of the planning activities (PEL study) including the year(s) the studies were completed.
- F. Are there recent, current, or near future planning studies or projects in the vicinity? What is the relationship of this project to those studies/projects?

## **2. METHODOLOGY USED:**

- A. What was the scope of the PEL study and the reason for completing it?
- B. Did you use NEPA-like language? Why or why not?
- C. What were the actual terms used and how did you define them? (Provide examples or list)
- D. How do you see these terms being used in NEPA documents?
- E. What were the key steps and coordination points in the PEL decision-making process? Who were the decision-makers and who else participated in those key steps? For example, for the corridor vision, the decision was made by state DOT and the local agency, with buy-in from FHWA, the USACE, and USFWS and other resource/regulatory agencies.
- F. How should the PEL information be presented in NEPA?

## **3. AGENCY COORDINATION:**

- A. Provide a synopsis of coordination with Federal, tribal, state and local environmental, regulatory and resource agencies. Describe their level of participation and how you coordinated with them.
- B. What transportation agencies (e.g. for adjacent jurisdictions) did you coordinate with or were involved during the PEL study?
- C. What steps will need to be taken with each agency during NEPA scoping?

## **4. PUBLIC COORDINATION:**

- A. Provide a synopsis of your coordination efforts with the public and stakeholders.

## **5. PURPOSE AND NEED FOR THE PEL STUDY:**

- A. What was the scope of the PEL study and the reason for completing it?
- B. Provide the purpose and need statement, or the corridor vision and transportation goals and objectives to realize that vision.
- C. What steps will need to be taken during the NEPA process to make this a project-level purpose and need statement?

**6. RANGE OF ALTERNATIVES:** Planning teams need to be cautious during the alternative screen process; alternative screening should focus on purpose and need/corridor vision, fatal flaw analysis, and possibly mode selection. This may help minimize problems during discussions with resource agencies. Alternatives that have fatal flaws or do not meet the purpose and need/corridor vision will not be considered reasonable alternatives, even if they reduce impacts to a particular resource. Detail the range of alternatives considered, screening criteria, and screening process, including:

- A. What types of alternatives were looked at? (Provide a one or two sentence summary and reference document.)
- B. How did you select the screening criteria and screening process?

- C. For alternative(s) that were screened out, briefly summarize the reasons for eliminating the alternative(s). (During the initial screenings, this generally will focus on fatal flaws.)
- D. Which alternatives should be brought forward into NEPA and why?
- E. Did the public, stakeholders, and agencies have an opportunity to comment during this process?
- F. Were there unresolved issues with the public, stakeholders, and/or agencies?

**7. PLANNING ASSUMPTIONS AND ANALYTICAL METHODS:**

- A. What is the forecast year used in the PEL study?
- B. What method was used for forecasting traffic volumes?
- C. Are the planning assumptions and the corridor vision/purpose and need statement consistent with each other and with the long-range transportation plan? Are the assumptions still valid?
- D. What were the future year policy and/or data assumptions used in the transportation planning process related to land use, economic development, transportation costs, and network expansion?

**8. ENVIRONMENTAL RESOURCES** (wetlands, cultural, etc.) reviewed. For each resource or group of resources reviewed, provide the following:

- A. In the PEL study, at what level of detail was the resource reviewed and what was the method of review?
- B. Is this resource present in the area and what is the existing environmental condition for this resource?
- C. What are the issues that need to be considered during NEPA, including potential resource impacts and potential mitigation requirements (if known)?
- D. How will the planning data provided need to be supplemented during NEPA?

9. List environmental resources you are aware of that were not reviewed in the PEL study and why. Indicate whether or not they will need to be reviewed in NEPA and explain why.

10. Were cumulative impacts considered in the PEL study? If yes, provide the information or reference where the analysis can be found.

11. Describe any mitigation strategies discussed at the planning level that should be analyzed during NEPA.

12. What needs to be done during NEPA to make information from the PEL study available to the agencies and the public? Are there PEL study products which can be used or provided to agencies or the public during the NEPA scoping process?

13. Are there any other issues a future project team should be aware of?

- A. Examples: Controversy, utility problems, access or ROW issues, encroachments into ROW, problematic land owners and/or groups, contact information for stakeholders, special or unique resources in the area, etc.