

# SCOPE OF WORK BASIC CONTRACT

SH-52 Planning and Environmental Linkage Study / Access Control Plan

## CONTRACT TYPE

Specific Rate of Pay

Cost Plus Fixed Fee

Lump Sum

CONTRACT DATE: TBD

PROJECT NUMBER: STA 052A-044

PROJECT LOCATION: SH-52 PEL/ACP: SH-119 to SH-79

PROJECT CODE: 21656

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

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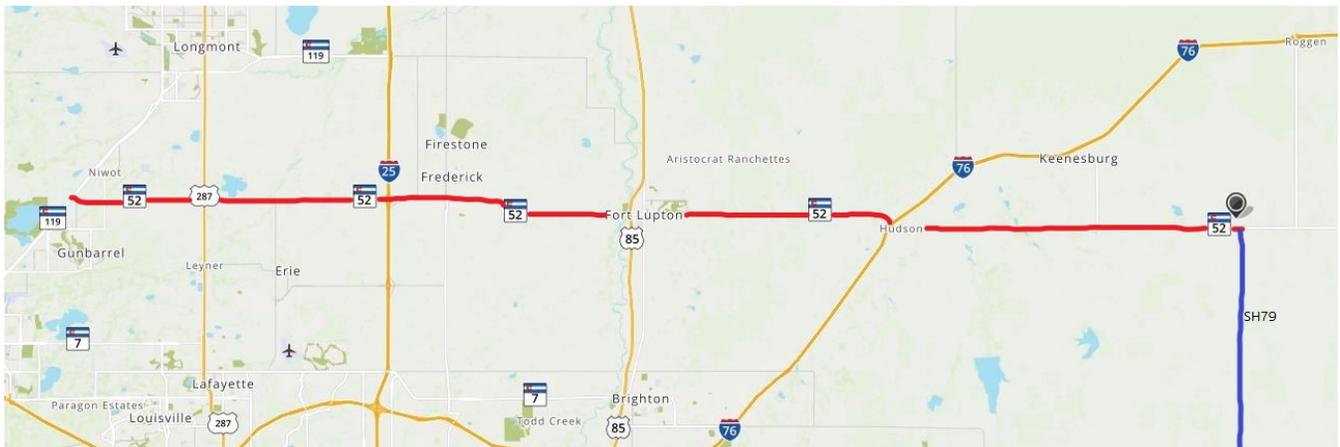
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# SECTION 1

## PROJECT SPECIFIC INFORMATION

### 1 PROJECT BACKGROUND

State Highway 52 (SH-52) has seen increasing impacts due to continued growth in traffic along the corridor. This east-west highway provides primarily two travel lanes between State Highway 119 (SH-119) north of Boulder and State Highway 79 (SH-79) east of Hudson (SH-52 Planning Environmental Linkage [PEL] Study Corridor - see figure below). The SH-52 PEL Study Corridor interchanges with I-25 in Weld County, US 85 in Weld County and I-76 in Weld County. This corridor also includes three at-grade railroad crossings. Colorado Department of Transportation (CDOT) data indicates the average daily traffic (ADT) at SH-119 is as high as 11,000, at US 287 is as high as 15,000, at the I-25 interchange is high as 19,000. However, at US 85 in Ft. Lupton, ADT is 13,000 vehicles. The average daily traffic (ADT) at the I-76 interchange in Hudson is 8,800. Like other corridors and roadways along the North Front Range, SH-52 also has increasing truck traffic impacts due to land development and the oil and gas industries.



In recent years, traffic congestion along SH-52 has increased dramatically. CDOT is interested in a comprehensive document that creates a long range plan with an emphasis on stakeholder involvement providing a long-term vision for the corridor and a prioritization of resources as they become available.

This PEL Study will be utilized in the transportation planning process, will consider environmental concerns and opportunities in the corridor, and will identify a range of conceptual projects to establish the vision. The goal is to identify the safety and operational needs along SH-52 and determine the short-term and long-term transportation needs of the corridor. The study will prioritize short- and long-term improvements through a cooperative process with the affected local agencies and public.

In conjunction with the PEL Study, this effort will include development of an Access Control Plan (ACP) for the entire corridor (SH-119 to SH-79).

CDOT will award one contract as a result of this RFP.

### 2 PROJECT GOALS

The objective of this project is to engage local agencies and develop a strategic vision for SH-52 from SH-119 to SH-79. CDOT anticipates active participation from and communication with the Towns of Keenesburg, Hudson, Fort Lupton, Fredrick, Erie,

the City of Dacono; Boulder and Weld Counties; the Upper Front Range Transportation Planning Region (UFRTPR) and the Denver Regional Council of Governments (DRCOG); CDOT Environmental Programs Branch; and the Federal Highway Administration (FHWA). Additionally, a SH-52 Coalition was formed by Weld County from the UFRTPR which includes representatives (generally elected officials) from most of the towns, cities, and counties adjacent to the SH-52 PEL Study Corridor. CDOT plans to work with the SH-52 Coalition as the main forum to communicate the progress and results of this study. Another means of information, input, and communication will be the SH-52 Technical Advisory Committee (TAC) which will be composed of staff representatives from each of the stakeholders along the corridor.

Primary objectives of the study are to:

- 1) Establish a corridor-wide common vision with supporting goals and objectives for the corridor
- 2) Identify existing studies and plans from each jurisdiction to avoid redundant work
- 3) Anticipate/understand existing and future demand, congestion, and safety issues along the corridor
- 4) Identify and assess any parallel routes to determine the impacts of development along SH-52 corridor
- 5) Identify physical constraints in the corridor such as floodplains, conservation easements, oil and gas needs, RR crossings and right-of-way which could impact improvement implementation
- 6) Utilize existing traffic models to avoid excessive modeling
- 7) Identify appropriate projects to address safety, operational, and mobility problems
- 8) Develop and prioritize list of improvements (including both near- and long-term improvements) based on an established purpose and need statement
- 9) Determine right-of-way impacts associated with proposed improvements and provide a map with clear ROW lines for local jurisdictions to use as guidance for set-aside during development of the corridor
- 10) Identify potential funding sources for proposed improvements
- 11) Maintain open communication with the SH-52 Coalition, local jurisdictions, other state and federal agencies, and the general public
- 12) Complete the study in accordance with the FHWA PEL process to ensure the PEL will assist with expediting NEPA for future projects; this includes:
  - a) CDOT outreach with the SH-52 Coalition, local agencies, and the public
  - b) Outreach to State and Federal Resource agencies
  - c) Documentation consistent with commonly accepted PEL standards so this study can be appended or referenced in a final NEPA document
  - d) Assist CDOT in completing the PEL questionnaire for submittal to FHWA (this questionnaire has been included in Reference B)
- 13) Develop and ratify an ACP that covers the entire corridor

In order to meet these objectives the Consultant shall:

- 1) Collect and consolidate relevant existing data
- 2) Document the existing corridor transportation conditions including highway through-lanes, right-of-way and access; arterial lanes and access; transit service levels; and bicycle/pedestrian facilities.

- 3) Compile current corridor features including functional classifications, lane configurations, roadway and right-of-way widths, sidewalk/parkway features, building set-backs, traffic volumes (roadway and intersection counts), utilities, environmental factors/conditions, and safety concerns using CDOT Safety Assessment Reports.
- 4) Coordinate, validate and adjust the Statewide TransCad model using Land Use Plans as provided by the Local Agencies and current traffic counts as provided by the Local Agencies and CDOT to estimate future travel demands along the corridor.
- 5) Document the travel markets that use the SH-52 corridor; travel markets may be defined in terms of:
  - a) Origins and destinations
  - b) Land Use characteristics
  - c) Trip purpose
  - d) Trip Length
- 6) Estimate the present and future levels-of-service for corridor roadway segments identifying problem locations which operate or may operate in the future at unsatisfactory levels.
- 7) Meet with the SH-52 Coalition, local agencies, and the public to discuss their goals, concerns, and ideas concerning the SH-52 corridor.
- 8) Identify distinguishing traits, adjacent land use characteristics and roadway conditions along SH-52. Also identify the affected stakeholder's goals.
- 9) Prepare a list of transportation improvements planned for SH-52 and for other arterials that may cause secondary impacts to the corridor.
- 10) Assist CDOT and the stakeholders in arriving at a common corridor's transportation functions and the desired corridor environment vision.
- 11) Advise CDOT and stakeholders of environmental concerns discovered during the course of the study which could have a substantially negative impact on future common vision implementation.
- 12) Recommend appropriate cross sections and horizontal envelopes for each discrete segment of the corridor that will enable CDOT and the local agencies to preserve and enhance ROW to accommodate projected future needs.
- 13) Recommend a set of phased plan improvements to optimize operations and safety.
- 14) Provide an easy-to-read pictorial summary guide that helps evaluate the pros and cons of each alternative in a creative and meaningful way.
- 15) Develop and analyze conceptual costs of improvements.

The objective of this project is to work with stakeholders to analyze and develop a range of improvements to reduce congestion and improve operational performance and safety throughout the corridor. The project will assist CDOT, public agencies, and resource agencies in identifying issues of importance to each respective agency.

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.

### **3 PLANNED IMPROVEMENTS**

- SH-52 & SH-119 Interchange. (Plans on the Shelf)
- SH-52 & US-287 Intersection Improvements. (In Design)
- SH-52 & WCR 13 Intersection Improvements. (In Construction)
- SH-52 & WCR 37 Intersection Improvements. (In Design)
- SH-52 & I-76 Interchange Improvements. (In Design)
- SH-52 Resurfacing Phase I, MP 42 to 54.6. (In Design, outside project limits)

### **4 WORK DURATION**

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

### **5 CONSULTANT RESPONSIBILITY AND DUTIES**

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.

### **6 WORK PRODUCT**

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

- 1) Reports
  - a) Existing Conditions Report – Documentation of existing issues and constraints related to traffic operations and geometrics, including summary of roadway characteristics (lanes, access, etc.), traffic operations, substandard features (sight distance, shoulders, sidewalk width, etc.) if any, and traffic safety.
  - b) Property Ownership Report – Plan sheets with property lines and ownership information (as available from County assessor) shown on an aerial background as information for potential property impacts.
  - c) Environmental Scan Report – Documentation of existing environmental resources in the study area with identification of critical environmental issues, constraints and opportunities.
  - d) Logical Termini Memo – Documentation of recommendation for logical termini and proposed study area boundary for submittal to FHWA for approval.
  - e) Purpose and Need Statement – Written statement of project purpose and need.
  - f) Final Alternatives Report – Documentation of the development, screening, and analysis process, including evaluation criteria, decision matrices, and concerns, requirements, and estimated cost for the recommended alternative(s).
  - g) Traffic Analysis Report – Report of travel forecasting for the project (assumptions, methods, and results) and traffic operations for the recommended alternative(s).

- h) Planning Environmental Linkage Report – Technical summary of the engineering and environmental considerations, assumptions, analysis methodologies, and graphic displays of the recommended alternative(s).
  - i) Right-of-Way Map – Map with clear ROW lines associated with the recommended alternatives.
  - j) Access Control Plan – An ACP for the entire corridor, from SH-119 to SH-79.
- 2) Project Coordination
  - 3) Schedules
  - 4) Meeting Minutes

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.

## **7 WORK PRODUCT COMPLETION**

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

## **8 ADDITIONAL PROJECT INFORMATION**

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

- A. CDOT accident history data
- B. Traffic Data
- C. As-constructed roadway, structure, and existing ROW plans
- D. Pavement Design Records
- E. Other Manuals and Reports listed in Section 4.

## **9 SCOPE OF WORK ORGANIZATION**

This draft scope of work has been reviewed by the Department 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: Louis E. Keen, P.E., Region 4 South Greeley Resident Engineer. Active day-to-day administration of the contract will be done by:

- A. Name: Chad Hall, P.E.
- B. Title: Project Manager
- C. Address: 10601 West 10<sup>th</sup> Street, Greeley, CO 80634
- D. Telephone: (970) 350-2227

#### **2 PROJECT COORDINATION**

Coordination may be required with the following:

- A. Cities/Towns
  - a) Dacono
  - b) Erie
  - c) Fort Lupton
  - d) Frederick
  - e) Hudson
  - f) Keenesburg
- B. Counties
  - a) Boulder
  - b) Weld

Note: Entities listed above shall be referred to as Stakeholders

- C. SH-52 Coalition
- D. Railroads
  - a) Burlington Northern Santa Fe Railway (BNSF)
  - b) Union Pacific Railroad (UPRR)
- E. Bustang
- F. Upper Front Range Transportation Planning Region (UFR TPR)
- G. Denver Regional Council of Governments (DRCOG)
- H. Federal Highway Administration (FHWA)
- I. CDOT Environmental Programs Branch
- J. CDOT Region 4

K. Rob Martindale, CDOT Railroad Coordinator

L. Resource Agencies

- a) Colorado State Historic Preservation Office (SHPO)
- b) Colorado Parks and Wildlife (CPW)
- c) United States Army Corps of Engineers (USACE)
- d) United States Fish and Wildlife Service (USFWS)
- e) Environmental Protection Agency (EPA)
- f) Colorado Department of Public Health and Environment (CDPHE)
- g) Natural Resource Conservation Services (NRCS)

The consultant should anticipate that there will be additional coordination required as the project develops. Submittals to affected agencies will be coordinated with CDOT.

## **SECTION 3**

### **EXISTING FEATURES**

#### **1 STRUCTURES**

See Field Log of Structures (The structure information now available through OTIS Highway Data Explorer. This information is no longer available as a hard copy of Bridge Field Log Book. (7/2014))

#### **2 UTILITIES**

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

#### **3 IRRIGATION DITCHES**

There is substantial irrigated agriculture along the corridor. The consultant should anticipate communication and coordination with various ditch companies throughout the project.

#### **4 RAILROADS**

Contact Rob Martindale, UPRR, and BNSF.

Note: The above is a list of the known features in the area. It should not be considered as complete. The Consultant should be alert to the existence of other possible conflicts.

## **SECTION 4**

### **REFERENCE ITEMS NEEDED BY THE CONSULTANT**

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

The consultant shall obtain and use the most recent CDOT adopted references including standards and specifications, manuals and software, electronic files of applicable standards, and all CDOT forms specified in this document or as directed by the CDOT/PM. A list of general reference material is provided in Appendix A.

#### **2 PREVIOUS STUDIES**

- A. Existing access management plan along a short stretch of SH-52 near Dacono and Frederick
- B. Design has been developed and shelved for the SH-119 and SH-52 interchange
- C. The US-85 PEL includes the interchange at SH-52

Note: There may be existing studies in addition to those listed above. The consultant should seek to accumulate all additional studies.

## **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. 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. CDOT Response and Direction

#### **2 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) as defined in Appendix B.

- B. Project Manager Requirements

Each Project Manager will provide the others with the following:

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

#### **3 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 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.
- D. General Reports and Submittals - In general, all reports and submittals must be approved by CDOT prior to their content being used in follow-up work effort.

#### **4 PERSONNEL QUALIFICATIONS**

The Consultant Project Manager (C/PM) must be approved by the CDOT Contract Administrator. Certain tasks must be done by a Licensed Professional Engineer (PE) or a Professional Land Surveyor (PLS) registered with the Colorado State Board of Registration for Professional Engineers and Land Surveyors, National Institute for Certification in Engineering Technology (NICET). Other certifications may be required.

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.

## **5 CDOT COMPUTER/SOFTWARE INFORMATION**

The consultant shall use 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 Operations	VISSIM and DYNASMART
I. Travel Demand Model	TransCAD
J. Traffic Signals	Synchro/Sim Traffic
K. Accident Analysis	DiExSys
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 Professional, Microsoft Word

## **6 COMPUTER DATA COMPATIBILITY**

The data format used by the Consultant to submit surveying and photogrammetric data shall be as determined by the CDOT/PM in coordination with the respective Region PLS. The data format for submitting design computer files shall be compatible with the latest version of the adopted CDOT program. The Consultant shall immediately notify the CDOT/PM if the firm is unable to produce the desired format for any reason and cease work until the problem is resolved.

## **7 PROJECT DESIGN DATA AND STANDARDS**

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 in coordination with the CDOT/PM.

## **SECTION 6**

### **PROJECT INITIATION AND CONTINUING REQUIREMENTS**

The consultant shall maintain the ability to perform all work tasks 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.

The following activities of communication, consensus building, project team reviews, conceptual design, data gathering, documentation, and formal public notice shall be planned by the Consultant and coordinated with the CDOT/PM. The time to accomplish the items below 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.

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

##### **A. Initial Project Meetings**

An initial project kick-off meeting will be coordinated by the Consultant and conducted by CDOT. At the meeting the project team (CDOT and Consultant) will review the Project Delivery 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 corridor. The Consultant shall develop an invitation list in coordination with CDOT, send notices with a draft agenda, and provide meeting minutes to all those invited.

The Consultant will facilitate a meeting among CDOT, stakeholders and Consultant team members to establish the project's purpose and need, identify critical success factors, goals, roles and responsibilities, operating guidelines, interpersonal behaviors, and other elements. The consultant will prepare a document codifying the Purpose and Need which will reflect cooperation with and participation from each local agency.

##### **B. Project Management Plan**

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.

##### **C. Resource Review**

Consultant shall review relevant standards and specifications and document environmental requirements applicable to the project. This task shall include two meetings, one with CDOT and one with each stakeholder representative to discuss the initial work efforts of the project.

##### **D. Project Study Area Boundary**

CDOT has determined a logical preliminary project termini. The consultant will perform the necessary research and data collection to verify the study area boundary and recommend an alternative termini if required. The consultant will coordinate with CDOT and stakeholder staffs for recommendation to FHWA for approval.

#### E. Project Schedule

The initial project schedule, to be prepared by the Consultant, will be reviewed with the CDOT Project Manager and project team, and refined to provide detail including public/stakeholder meetings as requested. Modifications shall be made for acceptance by CDOT. The schedule will be reviewed and discussed at regular intervals and updated as necessary.

#### F. Obtain Necessary Trespass Rights and Permits

Some activities may require work on land not controlled by CDOT. In such cases CDOT shall obtain the necessary written permission to enter the premises. CDOT Form 730 may be used for this purpose. The Consultant will assist CDOT with work efforts consisting of the following activities:

- a) Consultant shall develop ownership lists with names and telephone numbers of persons to contact for Right-of-Entry (ROE). Prepare initial mailing list from this effort.
- b) CDOT shall prepare ROEs for 1<sup>st</sup> tier properties for field work and other activities as they arise.
- c) CDOT shall track status of ROEs, when sent, when returned, approved or rejected, conditions, other interested parties and tenants, etc. The ROEs shall apply to CDOT and Consultant personnel.
- d) Consultant shall obtain permits, as required, for fieldwork activities.

#### G. Plan and Arrange Required Traffic Control

Consultant field activities that interfere with traffic operations within existing roadways will require control of traffic. The Consultant will plan and provide any required traffic control for the survey, testing, or the design process. Traffic control operations will be in accordance with the MUTCD. The proposed Method for Handling Traffic (MHT) must be submitted to the CDOT/PM. Also, certification of the Traffic Control Supervisor as a Worksite Traffic Supervisor by the American Traffic Safety Services Association (ATSSA) or as a TCS (Traffic Control Supervisor) by the Colorado Contractors Association (CCA) shall be required.

The Consultant will work directly with CDOT personnel to prepare and submit appropriate basic traffic control plans for work tasks which may be required and are within traveled roadway to CDOT for approval. Any work within any roadway right of way will require a permit and traffic control plan approved in advance by CDOT.

#### H. Progress Meetings

CDOT and the Consultant will meet at regular intervals to coordinate and track work efforts, progress and issues, and to work towards resolution of potential problems. The Consultant Project Manager shall provide a status report of the project schedule and budget at regular intervals no less than once per month. 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. Team meetings will be organized as follows:

- a) Project Team Meetings: Project Team consists of CDOT and Consultant Project Managers. Team will meet at least monthly to review status of and manage the overall project progress, schedule, and work plan. Team meetings will be used to conduct primary evaluations and decisions. Some of these meetings may be held via teleconference. The Consultant Project Manager will ensure only necessary personnel from the consultant team are present.
- b) Technical Team Meetings: Technical Team consists of CDOT, stakeholder technical staff and Consultant technical task leaders responsible for coordination of technical information as needed. Team will meet on a 6-week basis to review status and progress of project technical materials.

#### I. Public Involvement Coordination

CDOT will assist the Consultant in organizing all Stakeholder meetings and Public Meetings and a comprehensive public outreach plan. The Consultant is responsible for creating and providing all materials for these meetings. In addition to this, it is anticipated that numerous other contacts will need to be made with all of the public agency stakeholders, both at the staff level and the elected official level, to communicate and negotiate the stakeholders' concerns about specific problems and visions for the corridor. The Consultant shall provide the presentation aids, and help conduct the following meetings:

- a) General Public Meetings: The format of these meetings will be dictated by the project and goals for the meetings. These meetings may be used to establish/maintain communication with the public and gather information regarding local concerns. Two sets of general public meetings are anticipated with one of them dedicated to public comment prior to delivering the final report.
- b) Resource Agency Meetings (information and workshops): The format of these meetings will be dictated by the project and goals for the meetings. These meetings may be used to establish communications with the resource agencies, add to the "contact list", and gather information regarding resources of concern. The meetings may also take the form of a work session or workshop with the resource agencies. It is estimated that two meetings with each resource agency are anticipated. These may be individual meetings or meeting of grouped resource agencies, as appropriate. Some of these meetings may be held via teleconference.
- c) Community Resource Panel Meetings (information and workshops): These meetings will focus on groups directly affected by the project work to identify likely impacts and discuss possible mitigation or resolution techniques. It is estimated that two meetings each will be held with each of affected groups. The Community Resource Panel meetings will also be used to obtain feedback on communication tactics to ensure they are effective. Up to a total of six Community Resource Panel meetings are anticipated as noted above.
- d) Informal Stakeholder Briefings (one-on-one): These one-on-one meetings will be held with individual public agencies, property and business owners, or others directly affected by the project work to identify likely impacts and discuss possible mitigation or resolution techniques. Some meetings may occur in conjunction with regularly scheduled meetings of these groups. Up to twenty one-on-one meetings are anticipated for this project.

J. Additional Communication Aids

- a) Newsletter/Announcement/Mailings: Project announcements and newsletters will be published and distributed via mail or email to those on the contact list by the consultant. Up to four announcements are assumed during the project, distributed to a contact list assumed to contain up to 2,000 contacts.
- b) Website: The consultant will coordinate with CDOT to provide content and information for CDOT to post to a project specific website, initiated and maintained by CDOT. The website will post project information from the public meetings, press releases and other public information, and provide contact information to facilitate comments and questions to CDOT and consultant representatives.

K. Project Management: The Consultant will be required to follow the applicable portions of CDOT's Project Delivery Plan (PDP) including the following items:

- a) The Consultant will create and maintain an Action and Decision Item Log.
- b) The Consultant will create and maintain a Risk Assessment Log.
- c) The Consultant will create a project Communication Plan and update according to changes during the course of the project.
- d) The consultant will maintain a narrative scope of work, adjusting as necessary based on unforeseen circumstances.

L. The Consultant will coordinate the work tasks being accomplished by all subconsultants to ensure project work completion on schedule. The Consultant will provide the following on a routine basis:

- a) Coordination of contract activities.
- b) Periodic reports and billings.
- c) Minutes of all Meetings: The minutes will be completed and will be provided to the CDOT PM within five (5) working days after the meeting. When a definable task is discussed during a meeting, the minutes will identify the "Action Item," the agency responsible for accomplishing it, and the proposed completion date. The Consultant PM will ensure that action items developed during project meetings will be transferred to the Action Log.
- d) Coordination with subconsultant activities, processing of invoices, review of status reports and products.

## SECTION 7

### PEL 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 450.318 and Appendix A of 23 CFR 450 are to be followed. The findings of the PEL Study will help establish the Purpose and Need, subsequent phase study area 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).

Based on the initial traffic data collection, travel demand forecasting, and traffic operational analyses, the consultant will identify traffic problem areas and determine the effects to the surrounding roadway network and intersections. This analysis will consider traffic volumes, travel/access patterns, LOS, delays, travel times, and speeds in neighborhoods and other areas of anticipated traffic congestion. The Consultant will coordinate this work with other studies in the immediate area.

The Study will include development and evaluation of alternatives based on a consideration of Purpose and Need, safety, geometric, planning and environmental factors, the location of communities and other developed areas, traffic and public and agency input. PEL Study alternatives will initially be developed based on secondary source or available environmental and community data, and will be refined through agency and public input and other on-going studies. Environmental and community data will be updated for the refined corridors through photo interpretation and selected “ground-truthing”. The intent of the PEL Study analysis is not to identify impacts, but rather to identify potential roadblocks for those PEL Study alternatives which provide the best balance in meeting the Purpose and Need and avoiding/minimizing the potential to affect resources during subsequent study phases.

The Study will be developed and documented in a form that can be incorporated directly or by reference, as appropriate, in subsequent NEPA document(s) as outlined in Appendix X 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. The study process will comply with the requirements of the Moving Ahead for Progress in the 21st Century Act (P.L. 112-141), (MAP-21).

This section establishes the consultant’s individual task responsibility. The consultant shall maintain the ability to perform all work tasks in accordance with the forms and conditions contained herein, and the applicable CDOT standards. 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 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.

# **1 EXISTING CONDITIONS REPORT**

## **A. Evaluation of Existing Roadway Conditions**

- a) Acquire available construction As-Built files, records, and information for the following:
  - i) Accident records
  - ii) Freeway and street geometry
  - iii) Drainage and floodplain conditions
  - iv) Structure conditions
  - v) Lighting
  - vi) Traffic signals
  - vii) Pedestrian and bike facilities
  - viii) Transit (bus stop) facilities
  - ix) School walking surveys?
- b) Base Mapping: Design will be based on available base mapping provided by CDOT. The Consultant will obtain available aerial photography and digital topographic mapping for the study area from available sources and compile information for use with conceptual design tasks and identification of potential issues.
- c) Property Ownership Summary Report: Property lines and ownership will be assembled from assessor's information. A set of property owner maps will be prepared based on County Assessor tax records that identify ownerships within the study area. The existing right of way lines and the property boundary lines within the study area will be ascertained from information available at County Assessors' offices and the Clerk and Records' offices. No title research is included in this Scope of Services. The property lines will be referenced into the existing aerial photography and the plan sheets.
- d) Existing Environmental Conditions: Conduct an environmental scan and list of critical environmental issues within the corridor that include the following tasks:
  - i) Map environmental resources and prepare a list of environmental issues. Include, at a minimum:
    - (1) Floodways and 100-year flood plain boundaries
    - (2) Likely locations of wetlands
    - (3) Known Archaeological and Paleontological sites
    - (4) Mines
    - (5) Hazardous waste sites
    - (6) Community or public wells
    - (7) Historical buildings, sites, and districts
    - (8) Rivers and lakes (identifying any designated wild and scenic rivers)
    - (9) State and national forests
    - (10) Wildlife reserves
    - (11) Critical wildlife habitat

- (12) Threatened and endangered species (locations or likely presence)
  - (13) Public parks, trails and recreation facilities
  - (14) Prime agricultural land
  - (15) Barrier effect
  - (16) Pedestrian and bicycle access or demand
  - (17) Noise
  - (18) Air Quality
  - (19) Neighborhood/business displacement
- ii) Identify those areas expected to require further analysis for NEPA purposes.
  - iii) Prepare an environmental scan report for CDOT, resource agency, and public review.
  - iv) Identify and describe any features that may require context sensitivity.
- e) Existing Environmental Conditions: Expected produces from the existing conditions report:
- i) An environmental scan map of key socioeconomic and environmental resources
  - ii) A list of environmental issues within the corridor, and identification of areas that require further analysis.
  - iii) A report summarizing the results of the research of land uses and other characteristics of the region. The report should include:
    - (1) Community profile, including population, growth trends, and employment trends, for use in future forecasts
    - (2) Current land uses
    - (3) Planned land uses incorporating all of the stakeholders' comprehensive plans, urban renewal plans, TOD plans, etc.
    - (4) Historical and cultural features including but not limited to buildings, structures, ditches, and site
    - (5) Potential adverse cumulative effects within the regional setting

An Environmental Scan Report will examine and document existing environmental resource conditions in the study area. The Environmental Scan document will summarize findings of the environmental data collection and critical environmental issues, including maps, figures and tables as appropriate.

#### B. Traffic Study

- a) Traffic data collection
  - i) The Consultant shall obtain current traffic counts for the project limits including the parallel routes as identified in this scope and surrounding roadway network impacted by the project to evaluate the existing traffic operations. Available traffic data shall be compiled from various state and municipal sources including CDOT automated traffic recorder locations.
  - ii) The Consultant shall conduct a traffic count program to facilitate level of service evaluation at relevant strategic major arterial intersections. Major arterial intersection locations to be evaluated are to be determined by the Consultant in coordination with CDOT and stakeholders. Daily vehicle classification counts will be collected at relevant strategic locations throughout the corridor, and AM and PM peak hour turning

- movement counts will be collected at relevant strategic local intersections on two consecutive weekdays. Classification count and intersection turning movement count locations are to be determined by the Consultant in coordination with CDOT, and stakeholders.
- iii) To assist in the evaluation of potential traffic impacts, up to eight 48-hour speed/volume counts may be conducted within the study area during the alternatives development and analysis tasks.
  - iv) The Consultant shall use information from the Corridor Existing Condition Traffic Analysis Report prepared by CDOT R4 Traffic.
  - v) The Study shall include alternate routes, accident history and analysis, and congestion, effects of improvement on the existing interstate and highway system, effects on the adjacent improvements, economic development impact, and local commitment to improving local roadways.
- b) Travel demand forecasting
- i) Travel demand modeling shall begin at the same time as data collection. The consultant will use the adopted 2045 Statewide regional travel demand model. As necessary, the consultant will develop a sub-area model specific to the SH-52 corridor.
  - ii) The consultant shall be responsible for performing "reasonableness" checks on information developed and derived from use of the Statewide model. The primary product of this work will be 2045 travel demand forecasts approved for study use by UFRTPR and DRCOG. These forecasts will be used to project traffic volumes and turning movements on SH-52 and, to the extent necessary to understand the local system, other major roadways within the study area. The Consultant shall ensure that the traffic analysis is compatible with the NEPA process.
- c) Traffic operations
- i) Traffic operational analysis will include an evaluation of the existing conditions as well as a No-Action and a preferred set of alternatives. If necessary, the consultant may use the Mesoscopic/Microscopic model of choice such as TransModeler. This model should 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.
  - ii) It is anticipated that Synchro will be used for evaluation of intersection operations and to serve as a basis for the development of a system wide micro-simulation model. The Consultant shall use a micro-simulation model to evaluate the traffic operations of the complete roadway system and report the agreed upon measures-of-effectiveness (MOE's) for the existing conditions, No-Action and 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 corridor to help identify interim improvements that may provide operational benefits while remaining consistent with the preferred set of alternatives. Specific locations will be determined by the Consultant in coordination with CDOT and stakeholders. The Consultant shall follow the guidelines provided in the FHWA Traffic Analysis Tools for methods for collecting traffic data, setting up and calibrating the micro-simulation models. The Consultant shall coordinate with DRCOG, UFR TPR, CDOT R4 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.
  - iii) In addition, the alternatives shall include the evaluation of multimodal inclusion and maximum capacity corridor build-out. The data from these analyses shall be used to aid in the selection of preferred alternatives.

d) Roadway Inventory

- i) The Consultant shall complete a general inventory of existing roadway features within the study area, including shoulder and median, guardrail, fencing, lighting, pavement condition, and access locations. Substandard features will be noted including sight distance, clear zone, turn lane lengths, sidewalk widths, and tapers. Major drainage features and area master plans will be described.

e) Pedestrian and Bicycle Facilities

- i) The Consultant shall analyze existing bicycle and pedestrian facilities within the study area for safety, adequacy, connectivity, and Americans with Disabilities Act Accessibility requirements and make recommendations for improvements accordance with the local Bicycle and Pedestrian Master Plans. The consultant shall also identify and map bicycle and pedestrian demand paths where no facilities currently exist along the SH-52 corridor.

C. Safety Assessment

- a) The consultant shall obtain all available Safety Assessment Reports from CDOT which identify existing safety problems within the project limits, available on the CDOT website. 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. 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.

D. Existing Transportation Conditions Report

- a) This report will include a summary of:
  - i) Description of roadway characteristics and multi-modal transportation /traffic operations along SH-52 within the study area.
  - ii) Description of any substandard features, sight distance, speed zones, auxiliary lane lengths, curb/gutter, shoulders, sidewalk.
  - iii) Number of lanes and access locations including any auxiliary lanes.
  - iv) Traffic and operational analysis including crossroads and other roads and streets as required to assess their ability to effectively collect and distribute traffic. Operational analysis will consider adjacent intersections and improvements.
  - v) Summary of existing traffic safety reports or, if deemed necessary by CDOT or the consultant, an updated traffic safety assessment report in accordance with CDOT standards.

## **2 DEVELOP A STATEMENT OF PURPOSE AND NEED AND IDENTIFY GOALS FOR THE CORRIDOR**

Develop an Executive Summary containing the following:

- A. Identify the visions CDOT and each jurisdiction have for the future of the corridor and points of disagreement and congruence.
- B. Refer to data identified in the Existing Transportation Conditions Report regarding existing and expected deficiencies in the transportation system serving the study area to compile a list of system deficiencies. Where possible, locate the deficiencies on a base map for use at the public meetings.
- C. Reference the list of issues that resulted from contacts with stakeholders, the public, local elected offices and staff in addition to general knowledge of the corridor to identify a list of key needs in the corridor.
- D. Prepare a preliminary list of existing and anticipated deficiencies at the corridor. The list should describe the existing or anticipated deficiencies in the transportation system and the growth or changing land use needs in the study area. Prepare visual displays summarizing data compiled to date. Include key factors including the preliminary list of deficiencies already identified.
- E. Produce a written statement of Purpose and Need. This statement shall be based on identification of current and anticipated needs and system deficiencies. The Purpose and Need statement will provide the basis for alternative evaluation, and shall be developed in cooperation with all project stakeholders.
- F. Identify goals for the corridor.

## **3 ALTERNATIVES REPORT**

- A. Alternatives Analysis
  - a) Develop Preliminary Evaluation Criteria
    - i) Prior to development of project alternatives, the Consultant will work with CDOT and the Stakeholders to develop preliminary evaluation criteria and submit the criteria to FHWA for review. Established criteria will be used to evaluate the list of potential alternatives. These criteria will be based in part on the Purpose and Need statement developed in conjunction with the Stakeholders.
  - b) Develop Alternatives
    - i) The Consultant shall develop an agreed number of alternatives from a universe of options and meaningful implementation phases, which will satisfy the operational requirements and goals of the project. The alternatives shall address the project goals and objectives, account for potential impacts and any necessary roadway improvements and interchanges and the arterial system within the study area. Each alternative will include a discussion of individual component routes within that alternative, their capacities, land use impacts and multi-modal traffic impacts including current and future local access points on the arterial and highway system in the study area to maintain local planning consistency.
    - ii) The Consultant shall then identify the reasonable alternatives that could be applied for the corridor.
    - iii) The Consultant shall investigate corridor configurations that satisfy the project's goals and objectives. The alternative analysis will also consider the type of improvements to be used. Conceptual layouts will be developed for each with all major structures both in plan and general profile views.

- iv) The Consultant will evaluate the potential concerns and critical issues of each alternative and the degree that each accomplishes the goals and objectives of the study. The appropriateness of each alternative will be reviewed and evaluated by stakeholders, CDOT, FHWA, and other jurisdictions as appropriate.
- v) The Consultant shall complete an initial concept level design of the alternatives decided upon by the stakeholders, CDOT, FHWA, and other jurisdictions as appropriate. The design parameters, such as design speed, maximum grades, and typical section will be determined at the beginning and used on each alternative. The Consultant shall prepare the conceptual design for each improvements configuration including alignments, general construction phasing requirements, and major structural requirements so that a conceptual cost estimate can be developed. The cost estimate is to include design costs, ROW identification and acquisition, and construction costs.

c) Screen Alternatives

- i) The Consultant shall use a NEPA-appropriate screening process on the universe of alternatives to identify the feasible and significantly different alternatives, which will be later subject to a more detailed NEPA environmental assessment. The purpose of this screening is to eliminate infeasible alternatives or alternatives that do not meet the Purpose and Need. The Consultant shall develop NEPA-appropriate evaluation criteria and submit them for review and approval by CDOT and FHWA prior to beginning the screening process. The rationale for elimination shall be thoroughly discussed within the PEL documentation for alternatives that are eliminated from further consideration.
- ii) The No-Action Alternative must be defined and carried through the entire evaluation and assessment process. For each alternative that passes the screening process, the Consultant shall incorporate conceptual design to a level that identifies the potential concerns and critical issues for each environmental area listed below. Unless otherwise indicated, the Consultant is responsible for all of the following activities on each of the alternatives that pass the screening process:
  - iii) A preliminary screening process will be used on the universe of alternatives to identify a limited number of feasible and significantly different alternatives, which will be subject to more detailed evaluation in the "Test Alternatives Analysis." The purpose of this screening is to eliminate the infeasible or unsuitable alternatives. All feasible and significantly different options shall be carried forward into more detailed analysis. These feasible and significantly different screened alternatives are to be presented in the first public workshop, and the public's opinion on what issues should be addressed during the detailed analysis of these alternatives is to be solicited. The criteria used in the preliminary screening shall be developed jointly with stakeholders, CDOT, FHWA, and other jurisdictions.
- iv) The Consultant shall perform a decision alternative analysis for each improvement type. The decision alternative analysis shall use a decision matrix of compiled (data collection phase) information, with criteria developed and approved by stakeholders, CDOT, FHWA, and other jurisdictions as appropriate. The decision matrix criteria shall include design components, cost (financial analysis), social-economic, and environmental concerns, and shall rely heavily on the Purpose and Need statement developed in coordination with stakeholders. The consultant will compile the decision alternative matrix showing the differences between each alternative improvement location in a clear fashion (to be understood by the public).
- v) Potential considerations in the assessment process include environmental (air, noise, water quality, open space, etc.), historic and archaeological impacts, cost, engineering feasibility, transportation impacts, transit impacts, design year level of service and other performance measures, socioeconomic impacts and community acceptability, consistency with and/or impact on adopted plans, and urban design issues and opportunities.

d) Preliminary Sketches

- i) The Consultant shall develop preliminary sketch concepts of structures and landscape/streetscape improvements for the SH-52 corridor, as necessary for presentation to stakeholders and the general public. The Consultant shall develop plan and elevation drawings of improvement, urban design features, planting masses, and plan access and development potential of adjacent areas.

e) Before and After Views

- i) The consultant shall develop a perspective view of each configuration type in a "before" and "after" illustration of existing features and proposed design, as necessary for presentation to stakeholders and the public as required.

f) Test Alternatives Analysis

- i) Following the development of a short-list of alternatives, the Consultant shall perform a comprehensive test of each of the short-listed alternatives. This test shall use a decision process, which includes a compilation of all appropriate criteria. In addition to the socioeconomic and environmental concerns, the decision criteria shall include design standards. The criteria will be compiled in coordination with other activities. Following that, a decision matrix shall be created which combines a list of the alternatives under consideration with the results of the test with each criterion. The alternatives shall then be further developed with initial design and financial analysis.

g) Initial Design of Alternatives

- i) Once the alternatives have been tested, general profile and cross section studies will be developed for critical areas to analyze the designated alternatives. This information shall be sufficient to determine general cut and fill limits, right-of-way and easement requirements, earthwork and structural requirements. Design parameters such as design speeds, maximum grades, typical sections, intersection and pedestrian routing will be determined at the beginning of the study.
- ii) The conceptual designs for the roadways, general construction phasing, and major structures will be completed sufficiently so that preliminary cost estimates can be developed and the satisfaction of pertinent design criteria can be demonstrated. Necessary variances will be identified.
- iii) The following shall be available following completion of the design:
  - (1) Plan and profile of roadways
  - (2) Typical sections of roadways
  - (3) Preliminary footprint of interchanges
  - (4) Preliminary hydraulic recommendations
  - (5) Preliminary right-of-way requirements

h) Financial Analysis of Alternatives

- i) Cost Estimate: A total cost estimate will be developed in whole or phases of improvement if feasible. Preliminary and final engineering, ROW, construction engineering, construction, and maintenance for the design life will be analyzed.

B. Feasible Alternatives Recommendation

- a) A "Final Alternatives Report" will be submitted that documents the analysis process. This shall include the final staging plan, socioeconomic and environmental concerns, utility conflicts, drainage, and right-of-way

requirements, and total cost for the recommended alternatives. The Consultant is responsible for ensuring that the recommended alternative(s) complies with applicable standards and criteria. Where appropriate, required variances will be identified.

- b) A draft for the report shall be submitted for review and comment prior to the submittal of the final report.
- c) The travel forecasting for the project (assumptions, methods, and results) and traffic operations for existing conditions and the recommended alternative(s) will be summarized in a Traffic Analysis Report.

C. Interim Improvements Operational Analysis

- a) The Consultant shall complete the tasks listed in the Alternatives Analysis section on the previous pages in order to provide feasible alternatives to recommend and prioritize operational improvements for the existing improvement that may be implemented in phases that do not preclude the ultimate configuration.

#### 4 **PLANNING ENVIRONMENTAL LINKAGES (PEL) STUDY REPORT**

The PEL Report will be a technical summary of the engineering and environmental considerations, assumptions, analysis methodologies and graphic displays of the final recommended improvements. A draft report will be prepared for CDOT review and approval prior to distribution to the Technical Team. Specific variances will also be identified to clearly define the limitations and specific considerations of alternatives. The report will be revised as necessary based on the review comments received and a Final PEL Report completed.

The consultant will complete the FHWA PEL Questionnaire for documentation of the PEL Study and use with future NEPA for the recommended improvements. A draft questionnaire will be prepared for CDOT and FHWA review. The questionnaire will be revised as necessary based on the review comments received and a Final PEL Questionnaire completed.

## **SECTION 8**

### **ACCESS CONTROL PLAN WORK TASK DESCRIPTIONS**

A formal Access Control Plan (ACP) shall be prepared with the following objectives:

- 1) Identify current functional classification of the highway.
- 2) In coordination with PEL effort, identify existing and project traffic volumes.
- 3) Identify non-conforming access points and make recommendation to relocate, alter, or close such crossings.
- 4) Develop strip maps illustrating the recommended future condition of each access point along the SH-52 corridor.
- 5) Abide by all regulations related to an Access Control Plan, including public and stakeholder involvement.
- 6) Develop and obtain signatures from stakeholders along the corridor to formalize the agreement.

## **SECTION 9**

### **CONTRACT CONCLUSION (CHECKLIST)**

#### **1 SUPPLEMENTAL WORK**

It is anticipated that this contract may be supplemented for additional study and/or design efforts above any assumed quantities noted in the current contract scope. Additional efforts will require CDOT approval prior to beginning any work efforts.

#### **2 CONTRACT COMPLETION**

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

- A. Periodic Reports
- B. Billings
- C. Meeting Minutes
- D. Project Management Plan
- E. Project Schedule
- F. Existing Transportation Conditions Report
- G. Property Ownership Report
- H. Traffic Model
- I. Environmental Scan Report
- J. Logical Termini Memo
- K. Purpose and Need Statement
- L. Planning Environmental Linkage (PEL) Report
- M. Final Alternatives Report
- N. Traffic Analysis Report
- O. Preliminary Sketches
- P. Before and After Views
- Q. Conceptual Design Plans
- R. Cost estimate
- S. Funding Package
- T. Correspondence with Agencies, Entities, and Public
- U. Summary of Public Meetings (including notice, handouts, graphics, comments received)
- V. Access Control Plan and Associated Executed IGA

## APPENDICES

- A. REFERENCES
- B. DEFINITIONS
- C. PEL QUESTIONNAIRE

Comments regarding this scope may be directed to:

David Wells  
CDOT Agreements Office,  
(303)757-9400

**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. Standard Plans, M & S Standards
- O. Standard Specifications for Road and Bridge Construction and CDOT Supplemental Specifications
- P. Item Description and Abbreviations (with code number) compiled by Engineering Estimates and Marked Analysis Unit, CDOT
- Q. Right-of-Way Manual, Chapter 2, Plans and Descriptions Procedures and General Information
- R. The State Highway Access Code
- S. Utility Manual

- T. TMOSS Generic Format
- U. Field TMOSS Topography Coding
- V. Topography Modeling Survey System User Manual
- W. Interactive Graphics System Symbol Table

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 Certifications Acceptance (CA)
- K. No. 1700.5 Local Entity/State Contracts and Local Entity/Consultant Contracts and Local Entity/R.R. Contracts under C.A
- L. No. 1700.6 Railroad/Highway Contracts (Under Certification Acceptance)
- 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 **TRANSPORATION RESEARCH BOARD:**

- A. Access Management Manual

**APPENDIX B**  
**DEFINITIONS**

- 1) AASHTO- American Association of State Highway & Transportation Officials
- 2) ADT- Average two-way 24-hour Traffic in Number of Vehicles
- 3) AREA- American Railway Engineering Association
- 4) ATSSA- American Traffic Safety Services Association
- 5) ADAAG- Americans with Disabilities Accessibility Act Guidelines
- 6) BAMS- Bid Analysis and Management Systems
- 7) BLM- Bureau of Land Management
- 8) BNSFRR- Burlington Northern Santa Fe Railroad
- 9) CA- Contract Administrator. The CDOT Manager responsible for the satisfactory completion of the contract by the consultant. Typically a Region Engineer or Branch Head. The contract administration is usually delegated to a CDOT Project Manager.
- 10) CAP- CDOT's Action Plan
- 11) CDOT- Colorado Department of Transportation
- 12) CDOT/PM- Colorado Department of Transportation Project Manager – The CDOT Engineer responsible for the day to day direction and CDOT Consultant coordination of the design effort.
- 13) CDOT/STR- Colorado Department of Transportation Structure Reviewer – The CDOT Engineer responsible for reviewing and coordinating major structural design
- 14) CDPHE- Colorado Department of Public Health and Environment
- 15) CEQ- Council on Environmental Quality
- 16) COG- Council of Governments
- 17) COGO- Coordinate Geometry Output
- 18) CONSULTANT- Consultant for this project
- 19) C/PM- Consultant Project Manager – The Consultant Engineer responsible for combining the various inputs in the process of completing the project plans and managing the Consultant design effort.
- 20) DEIS- Draft Environmental Impact Statement
- 21) DHV- Future Design Hourly Volume (two-way unless specified otherwise)
- 22) EA- Environmental Assessment
- 23) EIS- Environmental Impact Statement
- 24) ESAL- Equivalent Single Axle Load
- 25) ESE- Economic, Social and Environmental
- 26) FEIS- Final Environmental Impact Statement
- 27) FEMA- Federal Emergency Management Agency
- 28) FHPG- Federal Aid Highway Policy Guide
- 29) FHWA- Federal Highway Administration

- 30) FIPI- Finding In Public Interest
- 31) FIR- Field Inspection Review
- 32) FONSI- Finding of No Significant Impact
- 33) FOR- Final Office Review
- 34) GPS- Global Positioning System
- 35) MAJOR STRUCTURES- Bridges and culverts with a total clear span length greater than twenty feet. This length is measured along the centerline of roadway for bridges and culverts, from abutment face to abutment face, Retaining structures are measured along the horizontal distance along the top of the wall. Structures with exposed heights at any section over five feet and total lengths greater than a hundred feet as well as overhead structures including (bridge signs, cantilevers and butterflies extending over traffic) are also considered major structures.
- 36) MPO- Metropolitan Planning Organization (i.e. Denver Regional Council of Governments)
- 37) MS4- Municipal Separate Storm Sewer System
- 38) NEPA- National Environment Policy Act
- 39) NGS- National Geodetic Survey
- 40) NICET- National Institute for Certification in Technology
- 41) NOAA- National Oceanic and Atmospheric Administration
- 42) PAPER SIZES- See Computer-Aided Drafting Manual (CDOT); Table 6-13 and Table 8-1
- 43) PE- Professional Engineer registered in Colorado
- 44) PEL Planning and Environmental Linkages Study
- 45) PM- Program Manager
- 46) PLS- Professional Land Surveyor registered in Colorado
- 47) PRT- Project Review Team
- 48) PS&E- Plans, Specifications and Estimate
- 49) PROJECT- The work defined by this scope
- 50) ROR- Region Office Review
- 51) ROW- Right-of-Way: A general term denoting land, property, or interest therein, usually in a strip acquired for or devoted to a highway
- 52) ROWPR- Right-of-Way Plan Review
- 53) RTD- Regional Transportation Director
- 54) T/E- Threatened and/or Endangered Species
- 55) SH- State Highway Numbers
- 56) TMOSS- Terrain Modeling Survey System
- 57) TOPOGRAPHY- In the context of CDOT plans, topography normally refers to existing cultural or man-made details.
- 58) TPR Transportation Planning Region
- 59) UD & FCD- Urban Drainage and Flood Control District
- 60) UFRTPR Upper Front Range Transportation Planning Region

- 61) UPRR            Union Pacific Railroad
- 62) USCOE-        United States Army Corp of Engineers

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

**APPENDIX C**  
**PEL QUESTIONNAIRE**

This questionnaire is intended to act as a summary of the Planning process and ease the transition from the planning study to a NEPA analysis. Often, there is no overlap in personnel between the planning and NEPA phases of a project, and much (or all) of the history of decisions, etc., is lost. Different planning processes take projects through analysis at different levels of detail. Without knowing how far, or in how much detail a planning study went, NEPA project teams often re-do work that has already been done. 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 cannot be considered viable alternatives, even if they reduce impacts to a particular resource. This questionnaire is consistent with the 23 CFR 450 (Planning regulations) and other FHWA policy on Planning and Environmental Linkage process.

*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 (i.e. corridor 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 the study to FHWA for review, the completed questionnaire will be included with the submittal. FHWA will use this questionnaire to assist in determining if an effective PEL process has been applied before NEPA processes are authorized to begin. The questionnaire should be included in the planning document as an executive summary, chapter, or appendix.*

1) Background:

- a) What is the name of the PEL document and other identifying project information (e.g. sub-account or STIP numbers)?
- b) Provide a brief chronology of the planning activities (PEL study) including the year(s) the studies were conducted.
- c) Provide a description of the existing transportation corridor, including project limits, modes, number of lanes, shoulder, access control and surrounding environment (urban vs. rural, residential vs. commercial, etc.)
- d) Who was the sponsor of the PEL study? (CDOT, Local Agency, Other)
- e) Who was included on the study team (Name and title of agency representatives, consultants, etc.)?
- 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) Did you use NEPA-like language? Why or why not?
- b) What were the actual terms used and how did you define them? (Provide examples or list)
- c) How do you see these terms being used in NEPA documents?
- d) 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 CDOT and the local agency, with buy-in from FHWA, the Corps, and USFWS.
- e) How should the PEL information below 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 in 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) Corridor Vision/Purpose and Need:
  - a) What was the scope of the PEL study and the reason for doing it?
  - b) Provide the corridor vision, objectives, or purpose and need statement.
  - 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 considered, screening criteria and screening process:
  - 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 the long-range transportation plan?
  - 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) 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 data provided need to be supplemented during NEPA?
  - e) List resources 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.
  - f) Were cumulative impacts considered in the PEL study? If yes, provide the information or reference where it can be found.
  - g) Describe any mitigation strategies discussed at the planning level that should be analyzed during NEPA.

- h) 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?
- i) Are there any other issues a future project team should be aware of? (Examples: 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. )