11-833-A

AMENDATORY DESIGN SERVICES AGREEMENT

THIS AMENDATORY AGREEMENT is made between the **CITY AND COUNTY OF DENVER**, a municipal corporation of the State of Colorado (the "City") and **CH2M HILL, INC.,** a Delaware Corporation, doing business at 9191 S. Jamaica St., Englewood, CO 80112, United States (the "Design Consultant" or "Consultant"), jointly "the Parties".

RECITALS:

WHEREAS, the City and the Design Consultant entered into a contract October 12, 2011, (the "Agreement");

WHEREAS, the City and the Design Consultant desire to amend the Agreement to implement Phase II which will provide environmental documentation and conceptual engineering design services;

NOW THEREFORE, in consideration of the premises, and the mutual covenants and obligations herein contained, the parties agree as follows:

1. All references to "...Exhibit A" in the existing Agreement shall be amended to read: "Exhibit A and A-1, as applicable...". Scope of Work and Cost Estimate, Exhibit A-1, attached to this Amendatory Agreement is incorporated herein by reference.

2. All references to "...Exhibit B" in the existing Agreement shall be amended to read: "Exhibit B-1, as applicable...". The Key Personnel Rate Schedule, Exhibit B-1, attached to this Amendatory Agreement is incorporated herein by reference.

3. Paragraph 3.01 (b) of the Agreement, entitled **"Fee for Phase II basic services:"**, is hereby deleted in its entirety and replaced with:

> "(b) **Fee for Phase II basic services:** The City agrees to pay the Design Consultant, as full compensation for all Phase II basic services rendered hereunder, a fee not to exceed **ONE MILLION SEVEN HUNDRED FIFTY EIGHT THOUSAND FIVE HUNDRED SEVENTY ONE AND 00/100 DOLLARS ($1,758,571.00)**, in accordance with the billing rates and project budget stated in ***Exhibit A-1***."

4. Paragraph 3.02 of the Agreement, entitled "Reimbursable Expenses." is hereby deleted in its entirety and replaced with:

"3.02 Reimbursable Expenses. Except for those reimbursable expenses specifically identified in ***Exhibit A*** and A-1 or approved in writing by the City as reasonably related to or necessary for the Design Consultant's services, all other expenses shall be included in the Design Consultant's fee and will not be reimbursed hereunder. The maximum amount to be paid for all Phase I and II reimbursable expenses is **SEVENTY THOUSAND EIGHT HUNDRED SIXTY SIX AND 00/100 DOLLARS ($70,866.00)** unless an additional amount is approved by the Manager or his designee in writing, subject to the Maximum Contract Amount stated herein. Unless this Agreement is amended in writing according to its terms to increase the Maximum Contract Amount, any increase in the maximum amount of reimbursable expenses will reduce the Design Consultant's maximum fee amount accordingly."

5. Paragraph 3.03 of the Agreement, entitled "Additional Services." is hereby deleted in its entirety and replaced with:

"3.03. Additional Services. If pre-approved by the City's project manager, the Design Consultant performs additional services identified in ***Exhibit A-1***, the City agrees to pay the Design Consultant for such additional services in accordance with Section 2.08. No Additional Services are currently anticipated for Phase I. The maximum amount to be paid by the City for additional services under this contract for Phase II is **TWO HUNDRED NINETEEN THOUSAND TWO HUNDRED FORTY SIX AND 00/100 DOLLARS ($219,246.00)**

6. Paragraph 3.05 (a) of the Agreement, entitled "Maximum Contract Amount.", is hereby deleted in its entirety and replaced with:

"3.05 Maximum Contract Amount.

(a) Notwithstanding any other provision of the Agreement, the City's maximum payment obligation will not exceed **TWO MILLION FOUR HUNDRED EIGHTY SEVEN THOUSAND SIX HUNDRED SEVENTY AND 00/100 DOLLARS ($2,487,670.00)** (the "Maximum Contract Amount"). The City is not obligated to execute an Agreement or any amendments for any further services, including any services performed by Design Consultant beyond that specifically described in ***Exhibit A*** and ***Exhibit A-1.*** Any services performed beyond those set forth therein are performed at Design Consultant's risk and without authorization under the Agreement."

7. Paragraph 4.01 of the Agreement, entitled "Term.", is hereby deleted in its entirety

and replaced with:

> "4.01 Term. The term of this Agreement shall commence on October 12, 2011 and expire on December 31, 2012, unless sooner terminated, upon final completion of the Project."

8. Paragraph 5.10 of the Agreement, entitled "Contract Documents: Order of Precedence." is hereby deleted in its entirety and replaced with:

> "5.10 Contract Documents; Order of Precedence. This Agreement consists of Sections 1 through 5, which precede the signature page, and the following attachments, which are incorporated herein and made a part hereof by reference:
>
> | | |
> |---|---|
> | Exhibit A | Scope of Work |
> | Exhibit A-1 | Scope of Work and Cost Estimate |
> | Exhibit B | Key Personnel |
> | Exhibit B-1 | Key Personnel Rate Schedule |
> | Exhibit C | ACORD Certificate of Insurance |
>
> In the event of an irreconcilable conflict between a provision of Sections 1 through 5 and the listed attachments, or between provisions of any attachment, such that it is impossible to give effect to both, the order of precedence to determine which provision shall control to resolve such conflict, is as follows, in descending order:
>
> Sections 1 through 5
> Exhibit A
> Exhibit A-1
> Exhibit B
> Exhibit B-1
> Exhibit C"

9. As herein amended, the Agreement is affirmed and ratified in each and every particular.

[THE REMAINDER OF THIS PAGE INTENTIONALLY LEFT BLANK]

Contract Control Number: PWADM-201102842-01

Contractor Name: CH2M HILL INC

IN WITNESS WHEREOF, the parties have set their hands and affixed their seals at Denver, Colorado as of

SEAL

CITY AND COUNTY OF DENVER

ATTEST:

By_____

_____

APPROVED AS TO FORM:

DOUGLAS J. FRIEDNASH, Attorney
for the City and County of Denver

REGISTERED AND COUNTERSIGNED:

By_____

By_____

By_____

Contract Control Number: PWADM-201102842-01

Contractor Name: CH2M HILL INC

By: _____

Name: Bill Lang
(please print)

Title: Vice President Transportation
(please print)

ATTEST: [if required]

By: _____

Name: Danielle L. Yearsley
(please print)

Title: Transportation Operations Manager
(please print)

EXHIBIT A

SCOPE OF WORK AND COST ESTIMATE

CH2M HILL
9193 South Jamaica Street
Englewood, CO 80112-5946
P.O. Box 241325
Denver, CO 80224-9325
Tel 720.286.5137
Fax 720.286.9737

CH2MHILL

November 29, 2011

Tykus R. Holloway, PE, AICP
Denver Public Works – Policy and Planning
201 West Colfax Avenue, Dept 509
Denver, CO 80202

Subject: Scope and Fee
Phase II Peoria Street Railroad Grade Separation Project (Contract No. 201102842)

Dear Tykus,

Attached is the scope and cost estimate for the Phase II of the Peoria Railroad Grade Separation Project, which will take this project through the National Environmental Policy Act process and conceptual (20 percent) engineering. The total of $2,034,514 includes $1,977,817 in labor and $56,697 in reimbursable expenses. The disadvantaged business enterprise (DBE) percentage for this phase of the contact is 29 percent, just below our overall contract goal of 30 percent. Note that the cumulative DBE percentage including Phase I is 32 percent, which exceeds our goal.

LABOR SUMMARY				EXPENSES SUMMARY	
FIRM	**LABOR ($)**	**DBE Goal**	**DBE Actual**	**TYPE**	**COST**
CH2M HILL	**$1,361,474**	n/a	n/a	Bulk Postage	$750
Apex	**$176,226**	5%	9%	Photocopies	$500
CDR	**$46,200**	n/a	n/a	Denver Post Advertising	$800
Goodbee	**$34,880**	5%	2%	Other Newspaper Advertising	$1,600
HC Peck	**$38,640**	5%	2%	Court Reporters	$3,000
Lund	**$26,246**	5%	1%	Local mileage	$6,330
Pinyon	**$230,897**	5%	12%	Parking	$3,600
Rocksol	**$63,254**	5%	3%	Miscellaneous	$3,000
				Sub Expenses and Markup	$37,117
Labor Total	**$1,977,817**	30%	29%	**Total Expenses**	**$56,697**

Three attachments are included: Exhibit A – Scope of Work and Cost Estimate, Exhibit B – Rate Schedule, and Exhibit C – Insurance Certificate. Exhibits B and C are identical to those submitted under Phase I of this contract.

Sincerely,
CH2M HILL, Inc.

Don Ulrich

Scope of Work

Phase II – Environmental Documentation and Conceptual Engineering

Peoria Street Railroad Grade Separation

Project Control No.: 201102842

Prepared for:

Department of Public Works, City and County of Denver

In cooperation with

City of Aurora and Regional Transportation District

Prepared by:

CH2MHILL, Inc.

9191 S. Jamaica Street
Englewood, Colorado 80112

NOVEMBER 29, 2011

Contents

Introduction

Background

The City and County of Denver (CCD) has contracted with CH2M HILL, Inc. for initial scoping and project initiation services for the Peoria Grade Separation Environmental Assessment (EA) and conceptual engineering. The initial contract (Agreement 201102842) between CH2M HILL, Inc. and the City and County of Denver (Phase I) was executed on October 15, 2011. The Phase I scope of work (Attachment A to the contract) contains information about the project setting, goals, milestones, coordination, and governance approach that are applicable as background to this Phase II scope of work (SOW) but are not repeated here. Tasks included in the Phase I SOW are summarized below:

- Project Initiation and Pre-Scoping
- Project Scoping, including completion of Public and Agency Scoping activities
- Project Management Activities through Phase I, including:
    - Project Management Plan, including Quality Management Plan, Public Involvement Plan, and Project Coordination Plan
    - Meetings
    - Invoicing and project management activities
- Elements of NEPA Studies and Conceptual Engineering, including:
    - Baseline environmental and engineering data collection to support scoping
    - Draft Purpose and Need
    - Survey

Organization of this Scope of Work

This SOW is presented under the following major tasks:

- Introduction
- Project Management and Communication
- NEPA Studies
- Agency and Public Involvement
- Conceptual Engineering

1.0 Project Management and Communication

Goals: Manage resources effectively and fulfill and exceed Project Sponsor expectations.

Project management (PM) and administration involves the daily activities needed to fulfill the goals of the project, including communication, progress reporting, quality assurance and DBE Mentoring. The Consultant's PM responsibilities are described below. As noted previously, Phase I of this contract included the initial project setup, including completion of the Project Management Plan (which includes the Quality Management Plan, Project Coordination Plan, and Public Involvement Plan). This SOW for Phase II is in compliance with the requirements of the Project Management Plan.

1.1 Team Communication and Coordination

Project coordination and communication will be provided through:

- Weekly PM meetings, including opportunity for over-the-shoulder reviews
- Monthly Project Leadership Team (PLT) meetings
- Multi-discipline workshops

Assumptions regarding the level of effort for each meeting are provided in Table 1-1. The number of meetings shown in Table 1-1 reflects those for this Phase II scope of work only. Additional meetings are included in the Phase I scope of work.

TABLE 1-1
Communication Meetings

Assumptions for Communication with Internal/External Team			
Goals: Avoid surprises and consequent delays and increased team productivity through common project knowledge among the disciplines			
Meeting	**Persons Attending**	**Number Through Phase II**	**Product**
Project Management Meetings	Project Sponsors Consultant PM and task leads Other discipline or agency staff as needed	39	Minutes
PLT Meetings	Project Sponsors Participating/Cooperating Agencies Consultant PM and task leads	10	Varies
Eagle P3 Coordination Meetings	Consultant PM and task leads Project Sponsors (optional)	10	Minutes
Workshops			
Scoping	Completed in Phase I	-	-
Project Delivery	Same as above	1	Internal Workshop regarding project delivery analysis
Screening Results	Same as above	1	Public Presentation of

Assumptions for Communication with Internal/External Team			
Goals: Avoid surprises and consequent delays and increased team productivity through common project knowledge among the disciplines			
Meeting	**Persons Attending**	**Number Through Phase II**	**Product**
			Alternatives Screening
Avoidance and Minimization	Same as above	1	Public Presentation of Impacts and Mitigation
NEPA Results	Same as above	1	Public Presentation of Completion of NEPA and Next Steps

1.1.1 Weekly Project Management Team Meetings

Due to the tight schedule constraints of this assignment, the Project Management Team (Project Sponsors and the Consultant) will meet weekly. Each meeting will have a tailored agenda, and meeting minutes will be prepared. These meetings will include interdisciplinary coordination as necessary. The meetings will be scheduled for one to two hours depending on the agenda. It is anticipated that over-the-shoulder reviews would occur as needed at weekly project management meetings. The meetings during the first six months of the project will be scheduled for two hours.

1.1.2 Monthly Project Leadership Team Meetings

The Project Leadership Team, described under Task 3, will meet no more than monthly, in coordination with milestones. The Project Leadership Team is an agency working group that includes the Project Sponsors and other cooperating and participating agencies.

1.1.3 Internal Workshops

At a minimum, the Consultant will host internal workshops at key decision milestones in the project. The workshops will be held prior to any external workshop (see Task 3) to confirm that the PLT is in agreement with all decisions prior to public presentation. Workshops with the planning staff and the design staff will be held for the purposes of improving communication among the disciplines. PLT members are welcome to attend these meetings as their schedules allow.

1.2 Progress Meetings and Reports

The Consultant shall be responsible for arranging and attending and/or conducting formal progress meetings to present the Monthly Progress Report. The Consultant shall prepare minutes of all meetings, with a complete typed copy furnished to the CCD Project Manager within five (5) working days after the meeting. When a definable task is identified and discussed in the meeting, that task shall be identified as an "Action Item" and assigned to a specific person to be responsible for its completion and a date as to when it will be completed. A running list of action items shall be prepared at each meeting. When an action item is complete it will be removed from the list. Any decisions made at these meetings shall also be documented in a "Decision Register" that shall be included in the Administrative Record.

1.2.1 Monthly Progress Reports and Invoices

The Consultant shall submit each month to the CCD Project Manager one color hard copy and one electronic copy of the Monthly Progress Report with its invoice.

The purpose of the progress status meeting is for the presentation of the following:

- Financial and schedule information, including detail of DBE utilization
- Work accomplished over the past 30 days
- Work planned for the upcoming 30 days
- Estimates to complete for active work tasks
- Key issues needing resolution
- Areas needing specific CCD policy guidance
- Consultant Report Card (feedback on performance)
- Status of approved Change Orders
- Change Orders needed or impending

1.2.2 Invoice Documents

The consultant shall prepare its invoices in the format required by the CCD.

1.2.3 Deliverables

The following deliverables shall be prepared and submitted to CCD:

- Agendas for all formal meetings
- Meeting Minutes for all meetings
- Monthly Progress Reports and Invoices
- Quality Records, including design calculations, check prints, design checklists, design review comments, etc., upon request by CCD

2.0 NEPA Studies

2.1 Preliminary Studies

As part of the Phase I SOW, the Consultant conducted a field and records review of existing environmental conditions. This review information was incorporated into a summary of environmental considerations that outlines the resources to be considered in the NEPA analyses and the expected level of documentation (i.e., no analysis, short analysis and documentation, and complete analysis and documentation). The SOW follows the requirements for an Environmental Assessment (EA), although the process may be documented in a Categorical Exclusion. Based on CDOT and FHWA requirements for documented categorical exclusions, the technical analyses and documentation is similar through the impact analysis and mitigation, with the primary difference being that the EA approach requires additional document review by agencies and the public. Therefore, this SOW is tailored to a "streamlined" EA to allow flexibility if full EA documentation is determined to be necessary or recommended later in the process.

2.2 Purpose and Need

The preliminary purpose and need (P&N) developed with the PLT in Phase I of this contract will be refined to incorporate the comments collected at the Agency and Public Scoping meetings, plus any additional comments provided by the PLT.

The Purpose and Need Chapter of the EA will provide a brief but important overview of information that must be considered in defining a P&N statement for the project. The P&N statement defines the criteria under which transportation alternatives are initially evaluated. It should be narrowly defined enough to serve as an effective means to screen/evaluate alternatives. The Consultant shall include the following, and any other NEPA-required and appropriate materials, subject to the review and approval of CDOT and FHWA:

- Description of project location, length, termini, and a definition of the project study area.
- Description of the project context, including actions taken to date, other agencies involved, actions pending, schedules, etc.
- A summary of previous and current transportation studies community plans, and planning efforts relevant to the project
- A Statement of Purpose
- Definition of the Needs (description of transportation problems and summary of the data and analysis that supports the conclusion that there is a problem requiring action)

2.2.1 Deliverables

- Technical Memoranda for transportation data – e.g., traffic report, safety analysis
- Draft and Final P&N Statements

- Chapter 1 - Purpose and Need

2.3 Proposed Logical Termini/Study Area

The project logical termini will be documented in this scope of work, validating the study area boundary and logical termini used in scoping. The PLT will review and endorse the logical termini as one of the milestones in the chartering process.

2.3.1 Deliverables

Technical Memoranda describing and justifying the logical termini.

2.4 Affected Environment

Goal: Define the baseline from which impacts are measures and to provide the information needed to minimize and avoid impacts.

Prior to development of reasonable alternatives, the Consultant shall conduct initial environmental field research of the existing conditions following guidelines. The focus of this work will be finalized after Agency and Public Scoping. It is anticipated that many of the environmental resources will not need to be described in detail given the industrialized and urban character of the study area. For example, it is anticipated that the most focused analysis will be on Noise, Environmental Justice, Right-of-Way Acquisition and Relocations, Business Impacts, Hazardous Waste, and Visual Impacts.

Summaries of findings for each important resource will be documented under the Affected Environment Section of each environmental technical memo. The documented findings will be provided to CCD, Aurora, RTD, and CDOT as a Preliminary Data submission for review and approval.

2.4.1 Deliverables

- Technical Memoranda on Describing the Affected Environment of the Critical Environmental Resources

2.5 Alternatives Analysis

Section 2.2.4 discusses the initial alternatives development process. After the benefit of the information collected during Scoping, the Consultant shall work with CCD, the PLT and other stakeholders to refine the alternatives developed earlier to address the final P&N requirements. It is anticipated that from 6 to 8 Build Alternatives (or design options) will be developed for early screening. Alternatives analysis typically includes:

- Development and description of all reasonable alternatives for the proposed action
- Comparison and screening of all reasonable alternatives to eliminate unreasonable alternatives
- Comparison of alternatives to determine differences in impacts and achievement of meeting Purpose and Need

- Identification of the Preferred Alternative
- Issuance of a decision selecting the Preferred Alternative

The No Action Alternative shall also be defined. For the purpose of this scope, the East Corridor CRT and I-225 LRT are assumed to be part of the No Action Alternative.

2.5.1 Alternatives Development

Goal: To provide a reasonable range of alternatives for meeting the final P&N, which provide the project stakeholders and the public with a set of choices to compare project consequences.

The Consultant and the PLT shall develop a range of alternatives that may meet the project P&N. Alternatives development may include TSM/TDM options, vertical and horizontal alignment options, alternatives that avoid or minimize environmental impacts, or others. The alternatives shall be developed based on the P&N and related evaluation criteria, relying on data such as accident history, congestion effects of the proposed improvements on the existing transportation system, and right-of-way impacts. The alternatives must take into account the projected design year traffic volumes as developed for this SOW. Roadway plan sets will not be required until identification of the Preferred Alternative (see Section 4.8 regarding plan set requirements). Roll plots of the initial alternatives are sufficient.

2.5.2 Screening of Alternatives

Goal: To compare and screen alternatives to eliminate unreasonable alternatives and reduce the number of alternatives to a manageable number for more detailed analysis, resulting in the best solution for addressing the P&N of the project.

The Consultant shall work with the PLT to develop evaluation criteria prior to beginning of the screening process. The rationale for elimination shall be thoroughly discussed within the NEPA documentation for those alternatives that are eliminated from further consideration.

Two levels of screening shall be conducted:

- Preliminary Screening of initial alternatives to identify a Final List Alternatives
- Final Screening to identify a single Build Alternative

2.5.2.1 Example Evaluation Criteria

The criteria used for Conceptual and Final Screening will build from the input from the PLT and Public Scoping. However, the level of engineering for Final Screening will be greater resulting in more definitive results. Screening criteria similar to those presented in Table 2-1 are anticipated.

TABLE 2-1
Example Evaluation Criteria

Example Evaluation Criteria	
Goal: Develop criteria that support the purpose and need of the project, project goals, and community and agency values.	
Category	**Types of Questions to be Answered**
Safety/Design	• Is the solution feasible? • Does it safely accommodate all travel modes (car, truck, rail, bus, bicycle, pedestrian)? • Does it reduce or eliminate rail conflicts?
Mobility/Traffic Operations	• Does the solution improve traffic flow and travel reliability?
Local Impacts	• Does the option maintain access to businesses and community facilities?
Environmental Impacts	• Are there significant impacts that cannot be mitigated?
Cost	• Is the solution affordable within the project's $50 million budget?
Implementation	• Is the solution compatible with existing and future operations, such as the • Union Pacific Railroad and RTD East Rail Line? • Can it be constructed in coordination with RTD East Rail Line testing and operations?
Community and Agency Support	• Does the solution support community values? • Is the solution compatible with other agency plans, e.g., land use plans, rail operations

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 clearly allows the identification of effects on each environmental resource.

In the Alternatives Chapter of the EA, the Consultant shall fully describe the alternatives development and screening process, provide a full description of the preferred alternative, including graphics. Transportation data developed in Section 4.6 shall be used to aid in the selection of the preferred alternative.

2.5.3 Deliverables

- Alternatives Development and Screening Memorandum
- Narrative and supporting graphics
- Roll plots of the initial alternatives
- Conceptual costs
- Matrix evaluation of the conceptual alternatives
- Matrix and narrative evaluation of the Final Alternatives (to become Chapter 2 in the EA document)

- Chapter 2 - Alternatives Considered

2.6 Environmental Consequences – No Action and Preferred Alternative

Goal: To present the tradeoffs associated with the implementation of final alternatives, disclose the environmental impacts of the alternatives, and develop and define mitigation for the associated impacts.

This SOW assumes that detailed environmental consequences will be provided for the No Action and Preferred Alternatives. While the level of detail will vary among the environmental resources the following scope is assumed at this point in the project. Each resource will be evaluated for direct, indirect, and cumulative impacts. Mitigation will be prepared for direct and indirect impacts.

2.6.1 Noise Analysis and Abatement

The Consultant will evaluate potential noise impacts in accordance with CDOT Noise Analysis and Abatement Guidelines (March 23, 2011), the FHWA publication, Highway Traffic Noise Analysis and Abatement Policy and Guidance and updated FHWA noise regulations in 23 CFR 772 (July 13, 2010). The noise analysis procedures will be modified as necessary to characterize background noise from rail operations in the study area. The Consultant shall coordinate with CDOT, FHWA, and RTD to determine noise analysis requirements. The analysis generally consists of the following, each of which must be documented in the TM:

- Definition of relevant noise abatement criteria and identification of noise sensitive land uses.
- Determination of existing noise levels (by measurement and/or modeling)
- Prediction of future traffic noise levels for final alternatives that have passed the screening process, including the No Action Alternative, using FHWA's Traffic Noise Model (TNM v2.5) as required by EPB
- Classification of noise sources will be based on vehicle mix determined through traffic counts
- Determination of traffic noise impacts according to CDOT noise abatement criteria
- Identification and evaluation of feasibility and reasonableness of noise abatement measures
- Development of recommendations regarding noise abatement measures
- Assessment of construction related noise issues
- Preparation of TM documenting the above

If noise impacts are likely and/or public interest in noise impacts is high, the Consultant will prepare mapping and other reader-friendly information about noise. (See Section 3 for public

involvement activities, including listening sessions and miscellaneous meetings that could be dedicated to noise issues.)

2.6.1.1 Deliverables

- Draft Noise TM for CDOT Region 6 and Project Sponsors review
- Draft Noise TM for CDOT Environmental Programs Branch (EPB) and FHWA that addresses CDOT Region 6 comments
- Final Noise TM that addresses EPB comments
- Public education materials as appropriate

2.6.2 Air Quality (as applicable pending initial data collection and agency coordination)

The Consultant shall coordinate with CDOT air quality specialists to evaluate potential air quality impacts of the proposed project and to outline the appropriate methodology to address air quality concerns. It is anticipated that the Consultant will perform a technical air quality analysis for integration into the EA consistent with both FHWA and CDOT procedures; it will include the following:

- A discussion of existing conditions and attainment/maintenance status of the region in which the project is located
- A summary of the screening analysis or CO hot spot modeling results, if required
- A qualitative analysis of PM10 impacts according to current EPA/FHWA guidance (March 2006)
- A statement regarding project-level conformity, including a citation indicating the project is included in a conforming Regional Transportation Plan (RTP) and Transportation Improvement Program (TIP)
- A qualitative discussion regarding potential impacts from mobile source air toxics, according to current FHWA guidance (February 2006)

The project is located in a CO and PM10 maintenance areas and will require project-level conformity analysis for each. The project is located in a nonattainment area for 8-hour ozone, however, due to the regional nature of this pollutant, inclusion of the project in a conforming RTP and TIP will be demonstration that it meets conformity requirements. PM10 hot spot analyses will be qualitative according to current EPA guidance. Carbon monoxide hot-spot modeling will be required for up to three intersections. MOBILE6.2 emission factors will be obtained from the APCD.

No air quality modeling will be conducted. Existing data measured at nearby sites, however, will be summarized if available. The Consultant shall coordinate with the Region 6 air quality specialist, CDOT EPB, the APCD, and Adams County air quality staff in developing the analysis methodology and collecting required data. Two meetings are assumed.

2.6.2.1 Deliverables

- Draft TM on air quality for CDOT Region 6 review
- Draft TM on air quality for CDOT EPB review that addresses CDOT Region 6 comments
- Final TM that addresses CDOT EPB comments

2.6.3 Archaeology (as applicable pending initial data collection and agency coordination)

The Consultant shall perform the following data collection and analysis and provide an Archaeology Survey Report for incorporation into the EA:

- Conduct a file search with the Colorado Office of Archaeology and Historic Preservation (OAHP) and complete a review of historic maps and other appropriate archival sources to determine if the area was utilized historically and may contain significant archaeological sites or features.
- In consultation with CDOT EPB and the OAHP, define area of potential effects and survey methods.
- Conduct a Class III survey of the project corridor per the requirements of the OAHP Colorado Cultural Resource Survey Manual (revised 2006).
- Write a comprehensive survey report according to guidelines established by the Colorado Office of Archaeology and Historic Preservation.
- Coordinate the mitigation plan, if necessary, with the CDOT Staff Archaeologist.

2.6.3.1 Deliverables

- Prepare memorandum to document file search results and review of historic maps and archival sources used
- Prepare brief TM (no more than 3 pages) detailing survey methods
- Submit Draft Survey Report to CDOT Region 6
- Address CDOT Region 6 comments
- Submit draft report to CDOT Archaeologist
- Address CDOT Archaeologist comments on report
- Submit survey report to SHPO
- Address SHPO comments and finalize survey report

2.6.4 Paleontology (as applicable pending initial data collection and agency coordination)

The Consultant shall perform the following and provide a Paleontology Survey Technical Memorandum (TM) for incorporation into the EA. The TM shall prescribe to the following CDOT Paleontology Analysis and Documentation Procedures:

- Perform a literature survey and review geologic maps to identify geologic units encountered or expected to be encountered by the project.
- Conduct on-the-ground reconnaissance if literature and geologic review indicate areas with potential for paleontological remains.
- Conduct analysis to determine the scientific significance (research and/or educational value of the resource).
- Write the Paleontological Assessment TM following the requirements of the CDOT Paleontology Analysis and Documentation Procedures. The assessment report will be reviewed by the CDOT Staff Paleontologist for adequacy.
- Coordinate the mitigation plan, if necessary, with CDOT Staff Paleontologist.

2.6.4.1 Deliverables

- Draft TM documenting file search and map review for CDOT Staff Paleontologist
- If required, conduct ground survey and prepare Draft Paleontological Assessment TM per requirements of the CDOT Paleontology Analysis and Documentation Procedures for Region 6 review.
- Prepare revised TM for CDOT Paleontologist review that addresses CODT Region 6 comments.
- Final TM that addresses CDOT Paleontologist's comments
- Prepare mitigation plan, if necessary, with CDOT Staff Paleontologist.

2.6.5 Water Quality (as applicable pending initial data collection and agency coordination)

The Consultant, in coordination with the Region 6 environmental manager and water quality specialist, CCD, and Aurora water quality staff shall prepare a water quality analysis using FHWA Publication No. FHWA-PD-96-032, Evaluation and Management of Highway Runoff Water Quality, and CDOT Erosion Control and Stormwater Quality Guide, to be incorporated into the EA, and which shall consist of the following items:

- Introduction, including table of common highway pollutants, general watershed information, soils, regulatory background, and any information provided by agencies or the public during scoping.
- Water quality impacts of the project during and following construction, determined by considering the project location and design concepts in relation to existing water resources including aquifers, drainage ditches and other Waters of the U.S.
- Analysis of Municipally Separate Storm Sewer System (MS4) new development and redevelopment permit requirements for permanent water quality BMPs.
- Discussion of groundwater and drinking water wells as appropriate.
- Discussion of potential for streams or habitat to be modified.

- Analysis of permanent and temporary BMPs in accordance with CCD and Aurora MS4 Permit Requirements, and Urban Storm Drainage Criteria Manual, Volumes 1, 2 and 3A technical memorandum describing methodology, direct and cumulative analysis and mitigation measures, as necessary.

Note: Water quality monitoring is currently assumed not to be required.

2.6.5.1 Deliverables

- Draft water quality TM for CDOT Region 6 review
- Draft water quality TM for CDOT EPB review that addresses CDOT Region 6 comments
- Final water quality TM that addresses CDOT EPB comments
- Conceptual design of permanent water quality BMPs to be incorporated into Preferred Alternative conceptual design

2.6.6 Ecological Assessment (as applicable pending initial data collection and agency coordination)

The following activities shall be performed and documented by the Consultant for incorporation into the EA as necessary:

- Coordinate with CDOT Region 6 and EPB staff regarding survey requirements and methodologies.
- Conduct necessary field surveys and identify species present in accordance with FHWA TA 6640-8a. Assume one (1) field trip will be conducted.
- Identify impacts to fish, wildlife, and vegetation and recommend mitigation.
- Identify noxious weeds and plot occurrences on a map.
- Prepare a Noxious Weed Management Plan as stated in the Integrated Noxious Weed Management Plan, CDOT 2000, as appropriate and necessary.

2.6.6.1 Deliverables

- Draft ecological assessment TM for CDOT Region 6 review
- Draft ecological assessment TM for CDOT EPB review that addresses CDOT Region 6 comments
- Final ecological assessment TM that addresses CDOT EPB comments
- Draft Noxious Weeds map for Region 6 review
- Final Noxious Weeds map for EPB
- Draft Noxious Weed Management Plan for CDOT Region 6 review
- Draft Noxious Weed Management Plan for EPB review that addresses CDOT Region 6 comments

- Final Noxious Weed Management Plan that addresses CDOT EPB comments

2.6.7 Threatened and/or Endangered (T/E) Species (as applicable pending initial data collection and agency coordination)

The Consultant, in coordination with the Region 6 environmental manager and T/E specialist, shall write letters for CDOT Staff Biologist's signature to the Division of Wildlife, US Fish and Wildlife Service, and Colorado Natural Heritage Program requesting a Threatened and/or Endangered Species list. The following activities shall be performed and documented by the Consultant in coordination with the Region 6 specialist as necessary:

- Conduct a literature survey prior to conducting field surveys to identify the potential for existing T/E species and habitat and prepare a Threatened and/or Endangered Species biological assessment per requirements of Section 7 of the Endangered Species Act.
- Develop a T/E Mitigation Plan.
- Coordinate with USFWS and conduct surveys for threatened and endangered species in accordance with appropriate protocols, if required.
- Identify any impacts and develop a mitigation plan to conform to requirements of the Migratory Bird Treaty Act.

2.6.7.1 Deliverables (as applicable)

- Draft T/E TM for CDOT Region 6 review
- Draft T/E TM for EPB review that addresses CDOT Region 6 comments
- Final T/E TM that addresses CDOT EPB comments.

2.6.8 Wetlands (as applicable pending initial data collection and agency coordination)

The following activities shall be performed according to US Army Corps of Engineers Wetlands Delineation Manual and 23 CFR Part 771, Environmental Impact and Related Procedures and documented by the Consultant in coordination with the Region 6 environmental manager and wetland specialist as necessary:

Wetlands Determination/Delineation:

- Conduct a field evaluation of the final alternatives for the presence of wetlands as per the US Army Corps of Engineers (USACE) Wetlands Delineation Manual. GPS shall be used to map delineated wetlands.
- Delineate the boundaries and size of all jurisdictional wetlands and non-jurisdictional wetlands and Waters of the US within the proposed study corridor.
- Prepare wetlands maps that delineate the wetland boundaries within the corridor. GPS shall be used for this mapping.
- Coordinate the findings with CDOT EPB and the USACE.

The Consultant shall conduct a wetland assessment for the EA addressing the amount of permanent and temporary wetlands impacts and mitigation, including identification of wetland

mitigation sites. Mitigation sites must be evaluated for availability and suitability for wetland habitat.

2.6.8.1 Deliverables (if applicable)

- Draft wetland maps that delineate the wetland boundaries within the corridor for CDOT Region 6 review
- Draft wetland maps that delineate the wetland boundaries within the corridor for CDOT EPB review that addresses CDOT Region 6 comments
- Final wetland maps that delineate the wetland boundaries within the corridor for US Army Corps of Engineers review that addresses CDOT EPB comments
- Final wetland maps that address USACE comments
- Draft Wetland Findings Report for CDOT Region 6 review
- Draft Wetland Findings Report for CDOT EPB review that addresses CDOT Region 6 comments
- Draft Wetland Findings Report for FHWA that addresses CDOT EPB comments
- Final Wetland Findings Report that addresses FHWA comments

2.6.9 Historic Resources

The Consultant shall evaluate historic properties in accordance with the requirements of Section 106 of the National Historic Preservation Act. The process generally follows four steps:

- Initial consultation with Section 106 participants – identify consulting or interested parties; consult with recognized Native American tribes
- Identify historic properties – define the area of potential effects, conduct research and field surveys, determine eligibility of resources for the National Register of Historic Places using criteria outlined in 36 CFR 800.4. Prepare historic resources survey report and survey forms in accordance with OAHP standards.
- Assessment of effects – apply National Register criteria of effect to any properties determined eligible in Step 2
- Resolution of adverse effects – identify mitigation measures for any adverse effects to historic properties in coordination with consulting parties and the Advisory Council on Historic Preservation

The Consultant shall manage the Section 106 process using local staff for field work. The staff shall meet the Secretary of Interior Standards for historic and archaeological investigations, and all work produced, including reports and survey forms, shall be consistent with the Colorado Office of Archaeology and Historic Preservation Cultural Resource Survey Manual. The Section 106 consultations shall be managed by the Consultant Environmental Manager and shall include appropriate coordination with the Project Sponsors and CDOT Region 6 Historian.

2.6.9.1 Deliverables

- Draft and final invitations to consulting parties
- Draft and final Area of Potential Effects map
- Draft Historic Resources Survey Report (HRSR) for Region 6 and/or EPB Historian review, including detailed survey forms for identified historic properties
- Draft Historic Resources Survey Report (HRSR) for SHPO review that addresses CDOT staff Historian comments
- Final HRSR addressing comments from SHPO

If needed:

- Draft Historic Effects Report for Region 6 and/or EPB historian review
- Draft Historic Effects Report for SHPO review that addresses CDOT staff Historian comments
- Final Historic Effects Report addressing comments from SHPO
- Draft Memorandum of Agreement (MOA) for Region 6 review
- Draft Memorandum of Agreement (MOA) for CDOT staff Historian review that addresses Region 6 comments
- Draft Memorandum of Agreement (MOA) for SHPO review that addresses CDOT staff Historian comments

2.6.10 Floodplain and Drainage Assessment (as applicable pending initial data collection and agency coordination)

The following activities shall be performed in accordance with 23 CFR 650, Subpart A, Executive Order 11988, Floodplain Management, and DOT Order 5650.2 and documented by the Consultant in conjunction with any previously completed Urban Drainage and Flood Control District (UDFCD) studies, Denver Master Drainage Plan, and applicable Aurora and RTD drainage plans:

- Coordinate with FEMA, Local Floodplain Administrator, and CDOT Hydraulic Engineer regarding methodology for floodplain modeling.
- Determine the probable encroachments of each final alternative with respect to floodplains and drainage.
- Identify adverse effects on the project area with respect to floodplains and drainage for each alternative (including during construction and relative to actual operating conditions).
- Develop possible mitigating actions for the adverse impacts in accordance with 23 CFR 650A and coordinate with roadway designers to incorporate avoidance or minimization measures into conceptual design.

- Analyze potential encroachments to floodplains in accordance with CDOT Project Development Manual procedures

2.6.10.1 Deliverables

- Draft Floodplain Assessment TM for Region 6 review
- Draft Floodplain Assessment TM for CDOT EPB staff that addresses Region 6 comments
- Final Floodplain Assessment TM that addresses CDOT EPB comments
- Mapping of existing floodplains and areas of encroachment, if any

2.6.11 Right-of-Way (ROW)

The following activities shall be performed in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 100-17) and documented by the Consultant in accordance with Title 23, CFR 710:

Gather Data

- Perform a field inspection of each final screened alternative. Ascertain number of parcels, types of improvements, and possible problem areas (i.e., mobile homes, historical sites, etc.). Estimate family sizes for residential relocations.
- Using local entity surveys, courthouse records, railroad right-of-way maps, real estate listings and other available sources, compile information on neighborhood characteristics, price ranges for land and improvements, housing availability, minority percentages, utility easement usage agreements, etc.
- Compile a ROW acquisition and relocation cost estimate for each final alternative.
- Prepare a conceptual relocation plan.
- Identify potential problem areas.
- Prepare a property ownership map based on tax records, which identifies ownerships for each final alternative.
- Prepare land use mapping, which identifies jurisdictional boundaries and land usage along each final alternative. The parcel use categories shall utilize appropriate categories including:
    - Land in public ownership: specific use and responsible agency/jurisdiction.
    - Commercial: retail, wholesale, industrial, other commercial.
    - Residential: single or multi-family
    - Vacant
    - Mixed Uses
    - Other (specify)

ROW Review

- Collect parcel data for lands adjacent to the proposed project

- Identify and discuss any residential, commercial, or public properties where right-of-way acquisition may be required
- Assess need for relocations; assess the availability of replacement properties
- Evaluate impacts of relocations and acquisitions on community values (access to jobs, educational facilities, religious institutions, social and cultural facilities, etc)
- Coordinate with CDOT and/or CCD/Aurora right-of-way staff to coordinate any early outreach to affected properly owners
- Prepare a ROW report, which summarizes the findings and includes:
- An estimate of the number of partial and total acquisitions required for each final alternative.
- Estimate of the types (demographics) of households displaced
- Number, type, and size of businesses to be displaced
- Assessment of relocation sites, likelihood of relocation, and impacts on remaining properties
- Summary of outreach conducted with affected property owners

The Consultant shall prepare a table identifying and listing all potentially affected properties including, at a minimum, ownership names, property and mailing addresses, estimated areas of impacts, and indicating which final alternatives impact each property. This table shall be submitted to Region 6 Right of Way and may be included in the EA.

ROW information produced for the project's engineering studies will require additional details that may also be used to supplement the early ROW information generated in support of the EA.

2.6.11.1 Deliverables

- Draft ROW Report
- Final ROW Report addressing CDOT comments
- ROW Tracking Table

2.6.12 Land Use

The Consultant shall prepare land use information including maps of existing and future land uses and anticipated Transit Oriented Development within the influence of the project, including:

- Describe existing and future land uses in the project area, including discussion of development trends (e.g., Fitzsimons build out and City of Aurora's Peoria-Smith Station Area Plan) Current land use data from CCD GIS database and data available from City of Aurora will be included and supplemented if needed.
- Determine Preferred Alternative's consistency with local land use plans and goals.

2.6.12.1 Deliverables

- Narrative and maps describing existing and proposed land use and TOD activity to be included in the EA
- Note: Reference East Corridor EIS, I-225 Environmental Evaluation, CDOT I-70 East DEIS assessment of land use and cumulative effects for the project area

2.6.13 Section 4(f)/6(f) Evaluation (as applicable pending initial data collection and agency coordination)

Section 4(f)/Section 6(f) evaluation will be conducted if these resources are present in the project area. Section 4(f) resources include publicly owned parks, recreation areas, and wildlife refuges, and historic properties. Section 6(f) properties are those developed with funding from the Land and Water Conservation Fund Act. Activities shall include:

- Determine if resources are present and confirm with local parks and through the Section 106 process. (Since wildlife resources are not present in the project area, coordination with USFWS and DOW is not anticipated.)
- Determine if transportation facilities will require use of Section 4(f) or Section 6(f) properties
- Determine and evaluate project impacts on 4(f)/6(f) properties using preliminary design information, and the necessary commitments for mitigation measures. Prepare an analysis of avoidance, minimization, or mitigation alternatives considered for indirect or direct impacts to 4(f)/6(f) properties.
- Prepare 4(f)/6(f) evaluation, if required.

2.6.13.1 Deliverables (if applicable)

- Coordination letters for agencies with jurisdiction
- Draft 4(f)/6(f) Evaluation for Region 6 review
- Draft 4(f)/6(f) Evaluation for CDOT EPB staff that addresses Region 6 comments
- Draft 4(f)/6(f) Evaluation that addresses CDOT EPB comments
- Draft 4(f)/6(f) for FHWA Legal review
- Final 4(f)/6(f) evaluation

2.6.14 Hazardous Materials

The Consultant shall prepare a Modified Phase I Environmental Site Assessment (MESA) following ASTM.E. 1527-05 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process and the Environmental Protection Agency (EPA) 40 CFR Part 312. Standards and Practices for All Appropriate Inquiries. The MESA is prepared exclusively for the purposes of the EA and not for property acquisition. Findings and conclusions will be specific and give an opinion regarding the necessity for additional assessment or investigation. Information includes where and what monitoring during construction may be appropriate, and what remediation or monitoring actions may be

prompted by site acquisition. The MESA will be complete enough to justify these recommendations.

No warranty, expressed or implied, is made. Consultant is not responsible for any claims, damages, or liabilities associated with the interpretation of these findings or reuse of the analysis, associated site data, or recommendations without the express written authorization of Consultant. This is a technical report and is not a legal representation or interpretation of environmental laws, rules, regulations, or policies of local, state, or Federal governmental agencies.

Work will include a limited site reconnaissance ("windshield survey") and standard ASTM search radius. The appropriate search radius will be defined based on the final alternatives footprint. No sampling is anticipated as part of this SOW. The site reconnaissance and historical document review will identify sites with potential concerns that could affect project design, right-of-way acquisition, construction, and the decision for the preferred alternative and that are not readily apparent in the agency database review. The MESA TM will include the following:

- General project description including the project footprint and any ROW to be acquired.
    - Brief description of the environmental setting, such as topography, geology, and groundwater hydrology including estimated depth to groundwater and shallow groundwater flow direction
    - A map that summarizes the important features of the project and locations of sites with recognized environmental conditions and those of concern that may affect the project. Indicate if sites are up or downgradient of the corridor.
    - A general discussion of asbestos containing materials and heavy metal-based paint will be included - notably for the demolition of structures.
    - A listing of potential hazardous sites of concern from existing state databases (e.g., UST, LUST, hazardous waste generators)
    - Interpretation of aerial photographs and search of local records for clandestine drug lab enforcements as appropriate.
- Outline mitigation process for contaminated properties in accordance with CDOT practices shown in Exhibit 1-4.

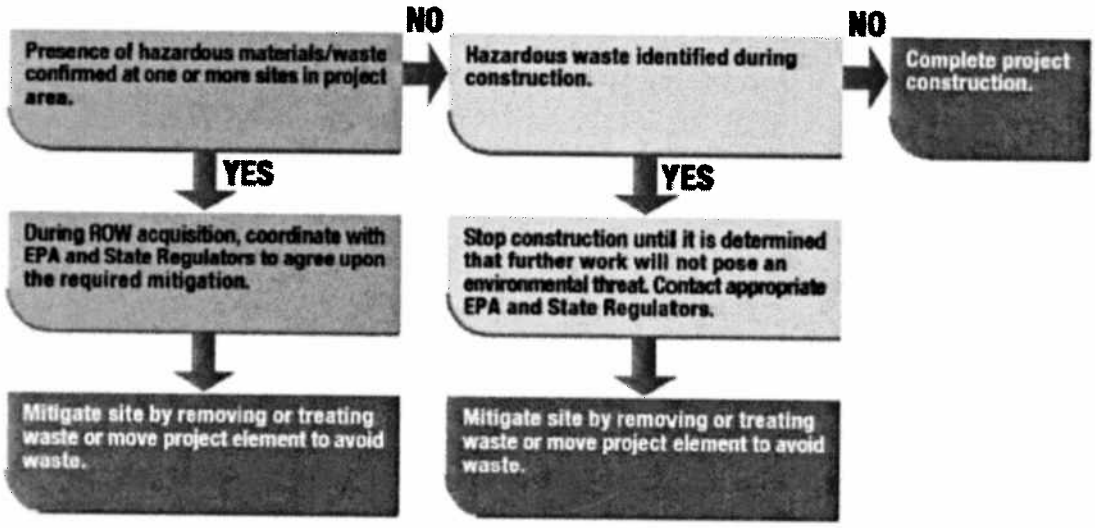

EXHIBIT 1-4: MITIGATION PROCESS FOR CDOT PROJECTS

2.6.14.1 Deliverables

- Draft MESA report for CDOT Region 6 and CCD/Aurora/RTD review.
- Draft MESA report for CDOT EPB Hazardous Materials specialist that addresses Region 6 and CCD comments.
- Final MESA that addresses CDOT staff Hazardous Materials specialist comments.

2.6.15 Construction Requirements

Impacts of construction on specific resources will be addressed in appropriate resource sections of the EA (e.g., erosion control in water resources). However, due to the confined project area and concerns about construction duration, methods, and overall community disruption, the EA will contain a separate section on construction requirements and impacts. The Consultant shall analyze/investigate the following and report its impact in the EA on each of the final alternatives:

- General construction impacts (of a temporary nature including construction phasing, detours, and maintaining access)
- Identification of potential locations to material sources.
- Possible construction access and ingress/egress issues with adjacent business.
- Overlap of construction contracts – there will be overlap and coordination required with other construction projects on the alignment.
- Discussion of other construction activities in study area (notably, Eagle P3 project) and any impacts to those projects or the Peoria project as a result of concurrent construction activities
- Potential haul roads to be used during construction.
- Potential staging areas

If Alternative Delivery such as Design-Build model, is considered, the mitigation strategies defined as part of the EA will be detailed as Performance vs. Prescriptive approaches.

2.6.15.1 Deliverables

- Narrative on construction methods and durations
- Narrative on construction impacts
- Construction mitigation strategies

2.6.16 Visual/Aesthetic Considerations

The Consultant shall prepare a visual assessment and impact analysis TM that details the visual context of the Peoria Street corridor within the study area. This TM will outline the aesthetic influences and provide the visual context for the project area. The TM will discuss the existing visual environment and other projects that are influencing or have the potential to change the visual character of the corridor.

The Consultant shall conduct a visual/aesthetic assessment using FHWA's Visual Impact Assessment for Highway Projects Manual (FHWA-HI-88-054). The visual assessment shall be documented in a Visual Assessment TM and will include:

- Existing visual resources and aesthetics (overall visual qualities of this project area).
- Common viewpoints (description of viewer characteristics)
- Graphics – maps and photographs of existing conditions
- Documentation of the visual impacts of the final alternatives, including:
- Map of key viewpoints and visualizations of changes in views
- Relationship of impacts to potential viewers of and from the project
- Mitigation measures
- Aesthetic guidelines if appropriate

2.6.16.1 Deliverables

- Draft Visual Assessment TM, including graphics and visualizations/renderings
- Final Visual Assessment TM

2.6.17 Economics

The Consultant shall develop an economic profile of the study area using available sources, including CCD and City of Aurora economic development offices, and outreach to business organizations and individual businesses operating in the corridor. Given the potential for impacts to businesses, special attention will be given to understanding business operations through targeted outreach to affected businesses (see Section 3.2.2.3) and ROW analysis (see Section 2.6.11).

2.6.17.1 Deliverables

- Invitations to businesses to participate in focused meetings (at times convenient for business owners)
- Atlases showing direct effects to businesses, including access, parking and other factors affecting economic viability of businesses
- Draft Economic TM, including compilation of business outreach (surveys, interviews, meeting minutes, etc) and summary and cross-reference of ROW TM.
- Final Economic TM incorporating comments from the PLT

2.6.18 Prime & Unique Farmlands (Not applicable)

Area is within an urban exclusion area. No analysis or deliverables required.

2.6.19 Social Considerations

The Consultant shall prepare a community assessment, focusing on adjacent/nearby neighborhoods of Morris Heights in Aurora and Montbello in Denver. Regional access to

community facilities, such as emergency services and major employment centers (e.g., Fitzsimons), will also be investigated. Information will be collected from readily available sources such as the US Census, local governments, previous environmental impact evaluations, DRCOG, local community organizations, and field review. Impacts to community cohesion, safety and security, neighborhoods, and accessibility of facilities and services will be evaluated.

2.6.19.1 Deliverables

- Draft Social and Community Impacts TM, documenting methods, data, mapping, and outreach efforts of community impact assessment, for PLT review
- Final Social and Community Impacts TM incorporating PLT comments

2.6.20 Environmental Justice

The Consultant shall identify and discuss disproportionately high and adverse human health, social, and environmental effects on minority and low-income populations consistent with Executive Order 12898, Department of Transportation Order 5610.2 on Environmental Justice, and FHWA Order 6640.23, 1998, and EPA, FHWA and CDOT guidance. The Consultant will also review and incorporate as appropriate local policies and guidance for outreach and impact assessment for minority and low-income populations.

The Consultant shall collect the necessary data to identify existing low income and minority populations, adverse effects, disproportionately high and adverse effects of each proposed alternative, and mitigation measures that would avoid or reduce the impacts of each final alternative according CDOT Title VI and Environmental Justice Guidelines. Positive effects, if any, will also be identified. The analysis will reference other resources as appropriate (e.g. – noise, air and water pollution, aesthetics, community cohesion, relocation impacts, etc.)

The Consultant shall make efforts to reach out to local communities to ensure meaningful opportunities for public participation as defined in the Public Involvement Plan developed in Phase I of this contract and referenced in Section 3.2 of this SOW. The Consultant shall document the degree to which affected low income or minority populations have been involved in the decision-making process related to the alternatives' selection, impact analysis, and mitigation development. The Consultant must be mindful that the necessary Environmental Justice evaluation may require more labor-intensive activities to obtain sufficient input from low-income and/or minority populations. The Consultant shall document all outreach efforts for low-income and minority communities.

2.6.20.1 Deliverables

- Mapping of low-income and minority populations in study area
- Evaluation of individual businesses in the corridor owned by, serving, or employing minority or low-income persons
- Draft Environmental Justice TM, documenting methods, data, mapping, and outreach efforts of community impact assessment, for PLT review
- Draft Environmental Justice TM incorporating PLT review comments for CDOT EPB and FHWA review

- Final Environmental Justice TM incorporating EPB and FHWA comments

2.6.21 Cumulative Impacts

Consistent with Council on Environmental Quality (CEQ) regulations, Cumulative Effects Handbook. (January 1997), the Consultant will assess the cumulative effects of the No Action and Preferred Alternatives, as applicable to the Peoria Grade Separation Project. The analysis shall consider incremental impacts of each alternative in conjunction with all past, present, and reasonably foreseeable actions, no matter what entity (federal, non-federal, or private) is taking or has taken the action; but the analysis should only focus on meaningful effects. The scope of the analysis will be developed in consultation with FHWA and CDOT but, in general, temporal and spatial boundaries shall be based on the natural boundaries of resources of concern and the period of time that the proposed action's impacts will persist. Additional guidance related to cumulative impacts is contained in a January 31, 2003 memorandum from FHWA entitled "Information: Interim Guidance: Questions and Answers Regarding Indirect and Cumulative Impact Considerations in the NEPA Process." To the extent appropriate, the cumulative impacts analysis will incorporate the RTD's regional cumulative effects analysis and the analyses presented in the East Corridor and I-225 environmental documents.

2.6.21.1 Deliverables

- Discussion of cumulative impacts in EA document

2.7 Mitigation

Mitigation measures shall be documented in tabular form for each impact identified in Task 2.6 above. These mitigations shall be refined in the second environmental workshop (see Task 3) to benefit from the interdisciplinary expertise of engineers, planners and scientists. Prior to incorporation into the EA and decision document, the mitigation measures will be reviewed by the PLT. The final mitigation measures will be developed based on public and agency comments and PLT final approval. Mitigations will be worded carefully so that commitments flow through project development regardless of delivery method.

To fulfill the intent of NEPA, one environmental Avoidance and Minimization Workshop will be conducted during evaluation of the final alternatives (See Task 2). The intent of the workshops will be to 1) reduce impacts, 2) document efforts to reduce impacts, and 3) improve an understanding of the alternatives among the team. The results of the Avoidance and Minimization workshops shall be presented in Chapter 2, Alternatives Considered, and referenced under the Mitigation subheading for each resource in Chapter 4.

2.8 Environmental Documentation

In this task the Consultant shall assemble/produce the EA for public review, and also prepare the minor sections of the document not described in earlier tasks. The document preparation process is to be configured to allow the PLT the opportunity to comment on the earlier deliverables (Purpose and Need, Alternatives Considered, and Affected Environment and Environmental Consequences and so forth).

2.8.1 Prepare Administrative Review EA Document (2 Drafts)

The Consultant shall utilize a team of 4 or 5 NEPA writers to prepare a first Administrative Review EA document for the Project Sponsor Review. The Administrative Draft will draw on content from the Tech Memos and other deliverables prepared by the resource specialists as described earlier. The Consultant shall conduct an independent senior review of the EA document prior to submittal to PLT for first review. The frequency and sequencing of other reviews will be in accordance with the Coordination Plan. For the purpose of this SOW, the following reviews are anticipated:

- PLT Review
- CDOT Region 6/EPB concurrent review
- FHWA review

Review by FHWA Legal and Headquarters is not expected, as the project is not expected to be an EIS or include a Section 4(f) evaluation. All reviews shall use EPB's comment matrix, and reviewing parties will complete matrices, including categorization of comments. The CCD project manager will review and resolve conflicting comments prior to providing comments to Consultant. If requested, the Consultant can assist with consolidating and resolving conflicting comments. The Consultant will lead comment resolution meetings for each review draft to ensure comments are adequately addressed at each stage. Subsequent review copies of documents will include responses to and resolution of comments provided.

The Consultant shall submit documentation of quality procedures and comments and responses from each review draft. Additional drafts and reviews (such as FHWA Legal and HQ reviews, if required) will be budgeted separately.

2.8.2 Prepare and Submit Final EA Document

The Consultant shall prepare the Final EA based on comments received from FHWA on the Second Administrative EA, as described above. One additional meeting with the PLT is assumed to be necessary to review FHWA comments.

2.8.3 Prepare and File Notice of Availability/Notice of Completion

The Consultant shall assemble an EA distribution list using contact information obtained during the public involvement process and standard distribution practices. The notice of availability will be published in local newspapers and distributed through postcards or newsletters to interested parties. It also marks the beginning of the public comment period.

2.8.4 Filing and Notification of NEPA Public Hearing

The Consultant shall prepare a draft Notice of Public Hearing. It is assumed that this notice will be prepared and reviewed via e-mail, and no additional meetings are necessary. Once approved by the PLT, the Consultant will coordinate distribution of the notice based on the PLT direction (newspaper, postcards, email, website, etc). Other details of the public hearing are addressed in Section 3.2.2.1.

2.8.5 Decision Document

The Consultant will prepare a decision document identifying the preferred alternative, addressing any public and agency comments received on the EA, and detailing mitigation measures that will be incorporated into the project.

- Address public and agency comments received during 30-day public comment period
- Prepare a draft decision document. The scope assumes no more than 300 comments are received from agency or public review. Three reviews are assumed: PLT, EPB, and FHWA.
- Conduct comment resolution meeting to resolve comments received on each version of the draft decision document and response to comments.
- Prepare a final decision document for signature incorporating final revisions.

2.8.6 Deliverables

The following deliverables would be prepared and submitted to CCD:

- Administrative EA
- Second Administrative EA
- Final EA
- Notice of Availability and public hearing
- Distribution List
- Decision document for PLT review
- Decision document for EPB review
- Decision document for FHWA review
- Final decision document
- Administrative Record (to CCD only)

3.0 Agency and Public Involvement

3.1 Agency Coordination

3.1.1 Monthly Project Leadership Team Meetings

The Project Leadership Team is comprised of the Project Sponsors and participating and cooperating agencies. The Consultant will facilitate and assemble the PLT with the input of the Project Sponsors. Based on the information gathered in Phase I of this work, the PLT will include the project sponsors, cooperating agencies (CDOT and FHWA), and participating organizations that must approve or permit the project. Members of the team shall include agency representatives, agency technical staff, and others as suggested by the Project Sponsors. These agencies are expected to include those shown in Table 3-1:

TABLE 3-1
Agency Coordination Meeting Participants

Adams County	Public Utilities Commission
CCD	Representative from the Eagle P3
CDOT Region 6	RTD
City of Aurora	Union Pacific Railroad
FHWA	

More intensive coordination is expected with the Eagle P3 project, and weekly coordination meetings are anticipated, at least during the initial phases of the NEPA process. Project Sponsors will be invited to attend all meetings but their attendance is not required. All meetings with Eagle P3 project staff will include meeting minutes distributed to the Project Sponsors. These meetings are expected to be independent of weekly PM meetings by the Project Sponsors. Additional stakeholders will be added as necessary during the project initiation process. The PLT is intended to be inclusive, although it is also anticipated that several of the organizations listed above may choose to not be engaged in the PLT after the project issues are identified.

The meetings will be limited to no more than one per month with specific emphasis on milestones. The meetings will follow the processes outlined in the Project Coordination Plan developed in Phase I.

3.1.1.1 PLT Milestone Workshops

As is discussed in greater detail below, the project schedule will be controlled by Milestone Workshops which follow the NEPA process. The content for each workshop is first drafted by the project team and usually is presented in the format of a Power Point presentation and supporting content boards. The goal of the workshop is to obtain PLT comment, endorsement, or revision of information the week before the information is presented to the public. The presentation takes place at the normal PLT monthly meeting. The benefit of this approach is that none of the PLT members are surprised by the content presented to the public.

3.1.2 Other Agency Involvement

The Project Sponsors will involve all agencies that were invited to the Agency Scoping meeting (as described in Phase I scope of work) to continue to be involved in the Peoria Grade Separation project. It is anticipated that most agencies will be involved in the review of the EA and could be involved at milestones if they choose. Additional coordination with agencies may be required for permits or other areas of jurisdiction. The Consultants shall rely on materials presented to the PLT to support any additional coordination that may be required.

3.2 Public Involvement Plan

The Consultant shall implement the Public Involvement Plan (PIP) developed in Phase I of this contract. This SOW includes the updates to the PIP as needed as the project matures. Updates will consist of an ongoing table of public involvement activities and meetings that occur so that this information can be easily transferred to the EA. The PIP addresses 1) public education strategies, 2) public input strategies, and 3) strategies to implement environmental justice.

3.2.1 Public Education Strategies

Consistent with the PIP developed in Phase I of this contract, the public education strategies focus on educating the community about the NEPA process and facilitating their efforts to provide input, as outlined in Table 3-2. Several of these strategies (stakeholder database, newsletter, and bilingual communications) were developed initially in Phase I and will be maintained in Phase II.

TABLE 3-2
Public Education Strategies

Tool	Function
Stakeholder Database	A master database of all stakeholders will be developed (or updated from the East Corridor data base) and continually updated. While the database will serve as our mailing list, it will also be used to track our interactions and communications (e.g. mailings, meetings, phone calls, etc.) with individuals in the database, providing sufficient documentation of our interactions with stakeholders regardless of the party that initiates them. Efforts will be made to include both tenants and property owners in the mailing lists.
Overview Brochure	It is essential that the public understands the NEPA process and the types of decisions that will be made during each milestone. This brochure will serve as an initial communications tool to educate the public about the NEPA process and outline the schedule for the Milestone Workshops. Advertising the schedule for public input will control the Project schedule through the NEPA phase.
Video	A brief project video (3- 6 minutes) will be prepared which describes the purpose and need for the project, the NEPA process, how to get involved, and possible alternatives to be considered. The video will be disseminated via internet (YouTube), will also be offered to community sites, such as the Montbello Library, and potentially on public access TV to run as a continuous loop for designated periods of time.
Poster	A project poster will be developed to attract attention to this NEPA effort. The poster will be distributed in hard copy to local businesses, larger employers (e.g., Fitzsimons campus), schools, churches and the Montbello Library with a request that it be posted on bulletin boards, doors, elevators and high visibility areas. The poster will give a brief overview of the project, basic alternatives to be considered, ways to get involved and give input, and an indication of workshop/

Tool	Function
	meeting dates.
YourHub Article in Denver Post-community edition	A brief newspaper article will be written, with Project Manager/PMT approval, for posting and publication in the YourHub version of the Denver Post (Northwest Denver area publication). The article will reiterate the themes and information of the overview brochure, and will incorporate quotes and messaging from key project representatives, and publicize the website, meetings, and telephone hotline. Articles self-posted in YourHub are shown in the on-line addition, and may also be highlighted in the print addition of YourHub.
News Media Release	A news release will be written to announce the kickoff of the Project, its purpose, timing, the NEPA process and the various public input opportunities. The timing of this release will precede or coincide with the public scoping meeting. The release will be distributed to local media through the PI team using the media contact list of the City of Denver Public Works or RTD – and /or it will be distributed by those entities.
Guest speaker to existing groups	The project PI team, accompanied by the PM or Environmental Task Lead, will initiate outreach to up to four local groups which have regular meetings in order to reach their membership and their built-in audience. Potential groups may be the Economic Development Council, Chamber of Commerce, School PTA, Neighborhood HOA board, and the like. Speaker points will echo those of the other education/outreach tools, but the face to face interaction and Q&A session will allow for community input, as well as a personal invitation from the project team for further community involvement in the plan.
Project Newsletters	We recommend the development of four project newsletters to correspond to each Milestone Workshop. The newsletters will be published immediately after the workshops to document the study results and the publics' response to each recommendation. They will also document how the project team anticipates responding to the received public input. Newsletters will be distributed electronically and in hard copy format.
Interactive Project Website	The project Web site will be informative but will also empower stakeholders by eliciting and enabling their input. The website will be hosted and maintained by CCD. It will include a calendar of all project meetings, key project documents (maps, renderings, reports/analysis), and all communications materials published to date. Content for the website will be provided by the Consultant. In addition, the website must help the public become involved in the process, and allow them to request meetings, submit questions to the project team, add their names to our stakeholder database and even submit comments on the document produced.
Telephone "Hotline"	A bi-lingual project telephone hotline will be developed, providing the public with a phone number to call where they can obtain basic information on upcoming meetings and even leave messages for project representatives. The hotline will be checked twice weekly to ensure timely response to inquiries.
Bi-lingual Communications	Project documents will be printed in English, Spanish, and/or Vietnamese and interpreters will be provided at public meetings.

3.2.2 Public Input Strategies

The Consultant will address NEPA requirements by providing public workshops at each project milestone as defined below. Other proven methods of public input include: Listening Sessions, Issue Focused Teams, one-on-one meetings as well as the interactive website mentioned above.

3.2.2.1 Milestone Workshops (including Public Scoping Meeting and Public Hearing)

As shown on Table 3-3, Public Milestone Workshops will be held by the Consultant to receive important community input prior to key decision points in the NEPA process. The table below presents the format for the Milestone Workshops that occur in the Phase II scope of work. Each workshop will present content that has been reviewed and endorsed by the PLT. The format will include a 45-minute open house, 30-minute presentation, and 30- to 45-minute public comment period. The public comment period will be informal at the first three workshops. The public hearing will include opportunity for formal comments and transcription. Comment cards will be used to organize comment periods.

Computer station and comment cards shall be provided for public input. Comment cards will be used to organize and track the input received during each workshop's comment period. Workshop No. 4 – Consequences of Preferred Alternative shall serve as the final Public Hearing and will conclude the NEPA process.

TABLE 3-3
Milestone Workshop Format (dates are contingent upon PMT/PLT agreement and commitment)

Workshop	Scope	Goal	Date
No. 1 – Public Scoping	Included in Phase I		
No. 2 – Screening of Alternatives	Development of Alternatives Description of Alternatives Pros and Cons of Alternatives Recommended Final Alternatives	Identify fatal flaws of conceptual alternatives Communicate the logic for eliminating alternatives Receive input for improving alternatives	February 2012
No. 3 – Detailed Evaluation – Impacts	Consequences of Final Alternatives Input to Selected Alternative	Document further the public's view of the positive and negative effects of the various alternatives Receive input on the Preferred Alternative	April 2012
No. 4 – Consequences of Preferred Alternative (Public Hearing)	Consequences of Preferred Alternative Implementation Plan Next Steps for Public Involvement	Fulfillment of the Public Hearing Formal public comment period with transcription	May 2012

3.2.2.2 Listening Sessions

The Consultant shall use Community-Listening Sessions to engage those most affected by the project. Listening sessions are smaller, more personalized meetings held with individuals, local community/civic groups, local governments, and other stakeholder groups. The Consultant shall include the input received during these meetings in the Issues-Tracking System (see below).

3.2.2.3 Survey/Questionnaire

A written survey /questionnaire will be developed to capture information about the businesses or offices in the immediate area of the project, with a target of receiving responses from up to 15 to 20 sites. The purpose of the survey is to determine unique aspects of the businesses that may be important for assessing alternative impacts, or environmental justice issues, and may also be useful for subsequent ROW efforts. The survey will ask about and seek a profile of the business, employees, parking /the facility, access, roadway issues and interest in being involved in the project. The results of these questionnaire interviews will be compiled and summarized and made available to the project team/PLT.

Postcards or flyers will be mailed in advance of an outreach sweep to announce the effort, followed by one-on-one visits to proprietors or managers. When practicable, appointments for these visits may be scheduled, otherwise they will occur within a general announced timeframe. Depending on interest, meetings may be held at a central location in the corridor.

Prior to and coinciding with this outreach the PI team will coordinate with the PMT to determine the appropriate informational handout that can be left with businesses, and messaging, as it relates to ROW questions that may arise.

3.2.2.4 Issue Focused Teams

Issue-Focused Teams, comprised of both technical experts and community members, will be convened as needed to generate ideas related to specific issues. These informal working groups will be organized by topic depending on the nature of the issue they are to address. Examples of topics include bridge architecture, traffic impacts and property acquisition. The groups will dissolve as they provide their views and suggestions to the PLT. As part of this effort, the consultant will initiate property outreach meetings with property owners in the immediate project area, targeting especially those who may have access issues or ROW property issues if certain alternatives go forward. It is anticipated that this would involve up to 15 property owners /entities. These meetings will be coordinated with or as a follow on to the survey interviews noted in Section 3.2.2.3 above. A form will be developed to track the input and information received during these meetings, and the information will be tracked in the stakeholder database described below.

3.2.2.5 Conflict Resolution

Given that the nature of some of the proposed alternatives may create new and changing futures for area businesses, there may be anxiety and possibly strong feelings. If conflict develops for any reason, the Consultant shall engage conflict resolution experts to address such instances.

3.2.2.6 Issues-Tracking Database and Reports

The Consultant shall document public issues at each project milestone. This will include a catalogue of every comment received categorized by issue. The comments will be coded with various categories (e.g. visual impact, property acquisition, traffic impacts, etc.) Monthly trend reports will be produced and shared with the PLT to improve the effectiveness of subsequent actions. These reports will help document the responsiveness of the Project Sponsors to public concerns.

3.2.2.7 Type and Number of Community Meetings

Table 3-4 below provides a summary of the number of meetings estimated for the NEPA milestones associated with the implementation of the Project.

TABLE 3-4
Estimated Number of Meetings

Phase	Public Workshops	Listening Sessions	Issue Focused Teams
Public Scoping (Included in Phase I)	-	-	-
Screening of Alternatives	1	4	2
Detailed Evaluation – Impacts	1	4	4
Preferred Alternative – Public Hearing	1	4	4
Decision Document	-	2	-
Preliminary Engineering	-	4	4
Total Estimate Meetings	**3**	**18**	**14**

In addition to the above meetings, this scope includes six (6) miscellaneous meetings that will be added at the direction of the Project Sponsors.

3.2.2.8 Deliverables

The meetings, public education, outreach, and meeting materials included in this SOW are:

- Listening Sessions (18)
- Issue-focused teams (13)
- Public Workshops (3)
- Meeting invites and flyers
- Newspaper announcements
- Stakeholder database and Issue Tracking Reports
- Business survey/questionnaire
- YourHub article and press releases (1)
- Poster (1)
- Video (1)
- Project newsletter (3)
- Project website maintenance and updates
- Telephone hotline maintenance and monitoring
- Interpretive services and bilingual communications (3)
- Miscellaneous meetings (6)

4.0 Conceptual Engineering

During the development of the environmental document, the Consultant shall develop and refine conceptual designs for alternatives included in the NEPA screening process. Conceptual design efforts will include the following the elements discussed below. The outcome of the conceptual engineering will be a plan set at an average of 20 percent level. Design will be accelerated and advanced based on the evaluation of Project Sponsor risks and advanced in areas such as right-of-way, utilities, geotechnical, and survey, where more advanced design is required to evaluate constraints and reduce risks moving into preliminary engineering.

4.1 Evaluation of Existing Engineering Baseline Conditions

The Consultant shall summarize findings of existing roadway conditions developed in Phase I in a in a graphical plan set (Geometric Health Report). Plans (11" x 17", scale: 1" = 50') will be based on aerial photography of the corridor. A ranking system (Low/Medium/High) will be used to compare existing conditions to the specific design criteria for the corridor. Location of comparisons will be charted and indicated on the plan set. Geometric Health Report and supporting summary information will be included in the environmental document sections of existing roadway structures.

The Consultant shall document existing conditions information and design criteria, identified in Phase I, in a summary report for the project records. Initial data collection and identification of design criteria are included in the Phase I scope of work.

4.1.1 Deliverables

- Draft and Final Existing Conditions Summary

4.2 Survey

The following survey tasks are included in Phase I of this contract, which describes the activities in these tasks in detail:

- Kick-off Meeting/Street Permits/Traffic Control Plan
- Right of Entry
- Survey Control
- Land Survey Control Diagram
- Aerial Mapping
- Topographic Survey (Ground)
- Preliminary Ownership Map
- Potholes/Boreholes

In addition to the survey activities included in Phase I, this Phase II SOW includes completion of right-of-way plans. The Consultant shall prepare right-of-way plans for twenty four (24) adjoining property owners in accordance with CDOT requirements.

4.2.1 Deliverables

- 24 written property descriptions and exhibits

4.3 Initial Geotechnical Investigation

The Consultant shall review published information, available geotechnical studies and reports, and visual information collected in the field. The Consultant will supplement the records data with up to 24 geotechnical borings to determine soil quality and bedrock conditions to provide recommendations on structure selection, including appropriate foundation types and depths. The Consultant shall publish a Geotechnical TM that presents:

- Project subsurface conditions
- Groundwater conditions (depths and flows)
- Earthquake considerations
- Significance of findings
- Structural support recommendations

The Consultant's research shall include an investigation of the mineral resources, geology and soils in the project area that includes collection of soils information from resource agencies such as the cities and counties and from sources such as the state Geologic Survey, and the Natural Resources Conservation Service.

The Consultant shall perform a field investigation of the project area that includes a visual inspection of the project area to determine the impacts of features such as rock cuts, unsatisfactory subgrade materials on the alternative design under consideration. The Consultant will perform and analyze borings.

For the purposes of the EA, the Consultant shall analyze the collected data and shall prepare a summary of geotechnical conditions, including assessment of probable geotechnical hazards, and mitigation measures for feasible foundations types with estimated foundation size and estimated bottom elevation. The Consultant shall submit the recommendations in the Geotechnical Technical Memorandum.

4.3.1 Deliverables

- Up to 24 geotechnical borings
- Draft and Final Geotechnical TM

4.4 Initial Utility Investigation

Much work has been done on existing utilities by the Eagle P3 Team. This information will be collected and reviewed to determine existing utility conditions in the project study area. The

Consultant will identify all known utilities, ownership, type, size, and special conditions to consider should utility relocation be required. The Consultant shall consider the ongoing utilities relocations as the existing condition and will coordinate closely with the Eagle P3 project, utility companies, and CDOT utilities staff in determining utility relocation requirements or constraints.

Research and obtain copies of utility easements (public and private) and utility franchise agreements to determine conditions under which the utility was established in its present location (e.g. by revocable permit or by a privately owned easement).

As part of the preliminary field survey planimetric mapping requirements, above ground utilities such as poles, manholes, valves, pedestals, guy wires, and other visible utility features will be located.

4.4.1 Deliverables

- Existing utilities report - The report shall include the following:
    - List of utility agencies and contacts
    - List of utilities in the project area, identifying location, ownership, and party responsible for relocation
    - Existing Utilities Map (based on relocations underway for Eagle P3)
    - Identification of potential conflicts with the selected build alternative
    - Proposed mitigation requirements

4.5 Preliminary Structure Selection Report

Due to the influence of the structure type to the ultimate configuration of the Peoria grade separation, the Consultant shall prepare a Structure Selection Report as part of the Conceptual Engineering. This report includes a description of project goals and design criteria. Especially important to the planning phase is the establishment of evaluation factors, including vertical and horizontal clearance requirements, geometry, cost, constructability, serviceability, maintenance factors, and softer issues such as bridge aesthetics. The structure selection report will be informed by geotechnical borings (see Section 4.3).

4.5.1 Deliverables

- Structure Selection Report to include:
    - Bridge superstructure alternatives
    - Bridge substructure alternatives
    - Design details such as approach slabs, MSE walls, deck drainage, lighting, signage, pedestrian features
    - Preliminary cost estimate
    - Recommendations

4.6 Traffic Study

4.6.1 Traffic Data Collection

CCD, Aurora and the Eagle P3 team have collected a significant amount of traffic data in the study area. These data will be used as the starting point for this analysis. Additionally, the

Consultant shall obtain current traffic counts for the corridor 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. A traffic count program shall be undertaken to facilitate level of service evaluation on Peoria Street, surrounding arterial intersections, and the north and south I-70 interchange ramps. Daily vehicle classification counts will be collected at two locations along Peoria Street and one along Smith Road. AM and PM peak hour turning movement counts will be collected at up to 10 intersections on two consecutive weekdays. 2011 travel time data collected along Peoria Street will be provided by CCD/Aurora. The Project Sponsors will review all traffic data before it is presented or released publicly.

4.6.2 Travel Demand Forecasting

Travel demand modeling shall begin at the same time as data collection. The Consultant will utilize the adopted 2035 regional DRCOG model, COMPASS, and develop a sub-area model specific to the Peoria Street corridor. The new COMPASS model has a more refined transportation analysis zone structure than previous models, so the Consultant shall assume that extensive zone restructuring and network refinement is not required but that some network and TAZ refinement is expected.

The primary product of this work will be 2035 travel demand forecasts approved for study use by DRCOG. These forecasts will be used to develop 2035 traffic movements at study intersections, un-signalized ramp movements, and along major arterials. The Consultant shall use the approved DRCOG data sets and road network to ensure that the environmental assessment traffic analysis is compatible with the NEPA process. In addition to the no-action alternative, the Preferred Alternative will be modeled and similarly evaluated.

4.6.3 Traffic Operations

Traffic operational analyses will include evaluation of the existing, East Corridor opening day (late 2015), and 2035 conditions. The analyses will include baseline of existing conditions, a no-action alternative, and the Preferred Alternative. The Consultant shall analyze alternatives in accordance with the latest edition of the Highway Capacity Manual or similar methodology to assist in the development of the appropriate roadway geometry (i.e. number of lanes, auxiliary lanes, storage lengths, roadway configurations, etc.). It is anticipated that Synchro will be used for intersection operations and to serve as a preprocessor for development of Vissim micro simulations. In addition, the Consultant shall use the Vissim micro simulation software package to evaluate the operations of the entire Peoria Street network and report the appropriate measures-of-effectiveness (MOEs) for the existing conditions, no action, and the Preferred Alternative for the AM and PM peak hour conditions.

Levels of service, queue and other appropriate MOEs will be determined at the following 10 locations along Peoria (all are signalized unless noted otherwise):

- Fitzsimons Parkway
- 30th Avenue
- Baranmor Parkway (unsignalized)
- 33rd Avenue
- Smith Road
- 37th Avenue

- 38th Avenue (unsignalized)
- 39th Avenue
- I-70 north ramps
- I-70 south ramps

In addition, consideration shall be made for multimodal and maximum capacity corridor build-out.

4.6.4 Traffic Impact Identification and Mitigation

The Consultant shall perform a sensitivity analysis on the effects to the surrounding roadway network and intersections using existing and 2035 projected volumes. This analysis shall consider traffic volumes, travel/access patterns, LOS, delays, travel times and speeds in neighborhoods and other areas of anticipated traffic congestion. The Consultant shall describe the methodology for traffic analyses for the Peoria project and describe any conflicts with results with the I-70 East DEIS, East Corridor and I-225 environmental documents. The Consultant shall coordinate with RTD to ensure understanding of its systems and signals effects on traffic. The Consultant shall also identify and evaluate the traffic impacts due to railroad operations and the phased construction of various project elements and recommend appropriate mitigation measures. Traffic impacts will be presented for the No Action and Preferred Alternatives for existing conditions, RTD East Corridor opening day (January 2016), and 2035 conditions.

4.6.5 Documentation

The Consultant shall use the information from the traffic study to document the improvements required to address the needs on Peoria Street and surrounding roadways. 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 if appropriate.

4.6.6 Deliverables

- A compilation of raw traffic data and train movements, including counts and field observations.
- 2035 traffic forecasts for the no action and one build alternatives.
- Input into the environmental document regarding recommended improvements to avoid or mitigate adverse impacts to the transportation system.
- Technical memorandum summarizing impacts, mitigation, and enhancements to the bicycle, trail, and pedestrian system.
- A traffic study report evaluating existing and expected 2035 traffic conditions for the No Action and Preferred Alternatives.

4.7 Safety Assessment Report

The Consultant shall obtain all available crash data from CCD and Aurora and near-miss data from the UPRR (if available) to identify existing safety problems along the corridor. In the alternatives evaluation portion of the EA and any other sections that pertain to safety, the

Consultant shall evaluate the effectiveness of alternatives in mitigating the existing safety problems. The Consultant shall prepare a traffic safety assessment report to document the existing conditions, and considerations for the No Action Alternative as well as the Preferred Alternative.

The Consultant will also review the Preliminary Hazard Analysis and Collision Hazard Analysis conducted for the East Corridor PE work.

4.7.1 Deliverables

- Draft and Final Traffic and Safety TM summarizing the safety problems in the study area and considerations for the No Action and Preferred Alternatives.

4.8 Preliminary Plan Sets

4.8.1 Preferred Alternative

Level of effort will consist of delivery of a Conceptual Level plan set (approximately 20% Level of Completion) plan set (11″ x 17″) and will include the following design information:

- Cover sheet
- Index of plans sheet
- Typical section detail sheet
- Plan sheets (scale: 1″ = 40′)
- Alignment data
- Highway / Street lane widths and dimensions
- Driveway accesses
- Side street and intersection layouts
- Major drainage culvert crossings
- Major drainage MS4 system layouts
- Retaining walls
- Traffic signal design
- Estimated limits of construction
- Existing and proposed ROW boundaries
- Profile sheets (scale: Horizontal 1″ = 40′, Vertical 1″ = 10′)
- Profile data
- Major drainage culvert crossings
- Vertical clearances with crossing structures
- Structural bridge layout plan
- Existing utility plans
- Cross sections (100′ intervals)
- Construction Cost Estimates

4.8.1.1 Visual Simulations

The Consultant shall develop a 3-D computer base model for use in creating visual animations for the preferred alternative. Animations will be used to provide visual demonstration of the proposed improvements at public and agency meetings. Computer base model will also be used to support visual and aesthetic analysis efforts during the environmental analysis tasks.

4.8.2 Value Engineering (VE) Study

A team of transportation design and construction experts will perform a Value Engineering (VE) study. The VE study will be conducted early enough in the project development process to allow evaluation and incorporation of VE recommendations in the NEPA document process.

The VE study shall be performed in accordance with Federal Highway Administration's (FHWA) guidelines and SAVE Job Plan will be use to identify possible alternatives that may save the project cost, time or other resources. The study will be lead by a CVS (Life) and using an independent team of professionals.

The Consultant/PM shall prepare a written response detailing which recommendations were not included, the reasons for exclusion, and how all approved VE results will be incorporated into subsequent engineering efforts. These responses shall be forwarded to the project sponsors for disposition. All approved VE proposals shall be incorporated into the recommendations in the environmental document.

4.8.3 Project Cost Estimates (Preferred Alternative)

Planning level cost estimates will be prepared for the final alternatives, and a conceptual cost estimate will be prepared for the Preferred Alternative. As a part of this task, the Consultant will prepare a Cost Estimating Methodology TM for acceptance from the project sponsors.

The current assumptions for estimating the cost of the preferred alternative are given below:

General

- Costs will be presented in year of expenditure dollars based on escalation factors recommended by the Consultant and endorsed by the project sponsors.
- The detailed construction estimate is developed using crew-based, bottom-up approach in a commercial cost estimating program then formatted into an Excel spreadsheet.
- Quantities for the estimates will be obtained and provided from the 20 percent plan set developed for the preferred alternative.
- Quantities associated with utility relocation and ROW will be based off of the 20 percent plan set developed for the preferred alternative.
- Costs are based on a design-bid-build contract approach during the NEPA phase and a competitive construction climate.
- The costs include markups for contractor and subcontractor overhead, profit, bonds, insurance, general conditions, mobilization, and traffic control.
- Hazardous material costs for known sites will be based on costs from past recent projects in the study area. An allowance will be made for the medium risk sites within reasonable distance of the construction right of way.
- Right-of-Way acquisition and relocation costs will be based on H.C Pecks experience in the corridor and from the experience of the project sponsors.

Allowances and Contingencies

- A Design Allowance will be applied to all estimates to account for uncertainties given the conceptual nature of the design. The Design Allowance will account for design details known to exist but that cannot be quantified at this level of design, uncertainty regarding jurisdictional code requirements, and potential cost impacts due to schedule constraints. The Design Allowance to be used in this estimate ranges from 5 to 15 percent.
- A contingency of 30 percent will be applied to the base cost plus the design allowance.

Soft Costs

Soft costs of 21 percent of contract value including contingencies are assumed.

4.8.4 Project Delivery Analysis

The Project Delivery Analysis (PDA) and workshop will be prepared to analyze the method of construction contracting for the Project. Two methods will be considered: Design-Bid-Build (DBD) and Design-Build (DB). The PDA will be conducted by month 6 of the study as soon as a Preferred Alternative has been identified. The intent is to align the Project Sponsors' cost and schedule requirements, understand risk allocation strategies between delivery models, and to define the most appropriate contract packaging prior to PE, and optimize the time required for procurement. The Consultant's analysis will compare the delivery methods using criteria endorsed by the Project Sponsors and the PLT. The format for the PDA will be a white paper with supporting matrices that will include the following:

- Summary
- Project Sponsor's goals
- Evaluation Criteria
- Approach to analysis
- Construction market evaluation
- Owner Constraints
- Project schedule analysis
- Construction cost analysis
- Risk and mitigating factors
- Conclusions and recommendations

5.0 Other Tasks

This SOW includes flexibility to advance design or hold additional meetings as necessary to support the NEPA decision making process. Some of the activities that could occur but are not specifically outlined in the above tasks include:

- Support for additional public or agency briefings, including participation in industry events, business organizations, elected officials briefings, media briefings, or resource agency consultations. Consultant staff could lead meetings or could provide materials to support Project Sponsors' needs.
- Additional public outreach, particularly for non-English speaking populations.
- Additional document reviews and revisions based on unanticipated involvement, such as FHWA Legal or Headquarters reviews.
- Expanded environmental analyses, such as additional noise modeling related to rail background noise, expanded analyses of resources assumed not present (e.g., archaeological and paleontological resources), or Section 4(f) evaluation. The Consultant may also support additional agency consultations related to expanded analyses, such as 404 coordination with the US Army Corps of Engineers or more involved Section 106 consultations with the State Historic Preservation Office.
- Additional engineering support to detail impacts or ascertain appropriate mitigation. Design activities may include access control plans, ROW plans, signal and striping plans, pavement design, or other activities.

Task #	Task Name		CH2M HILL	APEX	CDR	GOODBEE	HC PECK	LUND	PINYON	ROCKSOL	TOTAL
Task.01	**1.0 Project Management and Governance**	**Cost**	**$298,408**	**$33,456**	**$20,460**	**$5,040**	**$8,880**	**$0**	**$11,520**	**$7,848**	**$385,612**
Task.01.01	Project Management Team Meetings (39)	Hours	620	120		16	16		60	$16	
Task.01.02	PLT/Agency Coordination Meetings (10)	Hours	308	120	40		8		0		
Task.01.01	Eagle P3 Coordination Meetings (10)	Hours	248			8			0	$8	
Task.01.04	Screening Results Workshop	Hours	96		16		8		0		
Task.01.05	Avoidance and Minimization Workshop	Hours	96		16		8		0		
Task.01.06	NEPA Results Workshop	Hours	96		16		8		0		
Task.01.07	Project Delivery Workshop	Hours	96		16		8		0		
Task.01.10	Subconsultant invoice processing and management	Hours	40								
Task.01.11	Progress meetings, reports, billings and invoices (10 deliverables)	Hours	160	48	20	18	18		48	48	
Task.01.12	Schedule Updates (10 updates)	Hours	40						0		
Task 01.13	Quality Reviews	Hours	60								
Task.02	**2.0 NEPA Studies and Documentation**	**Cost**	**$399,834**	**$57,968**	**$0**	**$15,120**	**$20,160**	**$0**	**$141,211**	**$19,184**	**$653,477**
Task.02.01	Purpose and Need	Hours	346	60	0	0	0	0	0	0	
Task.02.01.01	Technical Memoranda for Transportation Data	Hours	64								
Task.02.01.03	Draft P&N Statement	Hours	66	40							
Task.02.01.02	Final P&N Statement	Hours	46	20							
Task.02.01.05	Logical Termini Memo	Hours	20								
Task.02.01.06	Draft P&N Chapter	Hours	128								
Task.02.01.07	Final P&N Chapter	Hours	22								
Task 02.02	Alternatives Analysis	Hours	674	248	0	64	40	0	56	64	
Task.02.02.01	Develop alternatives analysis methodologies	Hours	40	24		8	8			8	
Task.02.02.02	Develop Evaluation Criteria	Hours	40	16		8	8		8	8	
Task.02.02.03	Define No Action Alternative	Hours	48	16		8				8	
Task.02.02.04	Level 1 Screening	Hours	72	24		8	8			8	
Task.02.02.05	Refine Conceptual Alternatives & Criteria	Hours	128	48		8	8		32	8	
Task.02.02.06	Level 2 Screening	Hours	196	48		8	8		16	8	
Task.02.02.07	DRAFT Alternative Development and Screening TM	Hours	80	40		8				8	
Task.02.02.08	FINAL Alternative Development and Screening TM	Hours	36	16		8				8	
Task.02.02.09	Prepare Draft Chapter 2: Alternative Considered	Hours	34	16							
Task.02.03	Affected Environment and Env. Consequences	Hours	1062	64	0	24	88	0	977	24	
Task.02.03.01	Transportation Conditions EA Section (inc. multimodal)	Hours	88	40							
Task.02.03.02	Noise Analysis	Hours	88								
Task.02.03.03	Noise TM	Hours	98								
Task.02.03.04	Noise EA Section	Hours	8								
Task.02.03.05	Air Quality	Hours	20								
Task.02.03.06	Air Quality TM	Hours	20								
Task.02.03.07	Air Quality EA Section	Hours	12								
Task.02.03.08	Archaeology	Hours	0						20		
Task.02.03.09	Archaeology TM	Hours	0						6		
Task.02.03.10	Paleontology	Hours	0						20		
Task.02.03.11	Paleontology TM	Hours	0						6		
Task.02.03.12	Water Quality	Hours	0						40		
Task.02.03.13	Water Quality TM	Hours	0						41		
Task.02.03.14	Water Quality EA Section	Hours	0						17		
Task.02.03.15	Ecological Assessment	Hours	0						40		
Task.02.03.16	Ecological Assessment TM	Hours	0						21		
Task.02.03.17	T&E Species	Hours	0						40		
Task.02.03.18	T&E Species TM	Hours	0						11		
Task.02.03.19	Wetlands and other Waters	Hours	0						40		
Task.02.03.20	Wetlands and other Waters TM	Hours	0						21		
Task.02.03.21	Historic Resources	Hours	0								
Task.02.03.21.01	Consulting Parties and APE	Hours	18						24		
Task.02.03.21.02	Historic Eligibility Report	Hours	58						48		
Task.02.03.21.03	Historic Effects Assessment	Hours	16						68		
Task.02.03.21.02	Historic EA Section	Hours	0						16		
Task.02.03.22	Floodplains and Drainage	Hours	0								
Task.02.03.23	Floodplains and Drainage TM	Hours	40								

Task #	Task Name		CH2M HILL	APEX	CDR	GOODBEE	HC PECK	LUND	PINYON	ROCKSOL	TOTAL
Task.02.03.24	Right-of-Way/Owner Outreach	Hours	138				24				
Task.02.03.25	Right-of-Way TM	Hours	44				64		80		
Task.02.03.26	Right-of-Way EA Section	Hours	24						40		
Task.02.03.27	Land use	Hours	0						40		
Task.02.03.28	Land Use EA section	Hours	0						17		
Task.02.03.29	Section 4(f)/6(f) (no resource use)	Hours	0						20		
Task.02.03.30	Section 4(f)/6(f) TM	Hours	0						6		
Task.02.03.31	Hazardous Materials	Hours	8						40		
Task.02.03.32	Hazardous Materials TM	Hours	4						61		
Task.02.03.33	Hazardous Materials EA Section	Hours	0						31		
Task.02.03.34	Construction Requirements	Hours	116	24		24				24	
Task.02.03.35	Construction Requirements EA Section	Hours	32								
Task.02.03.36	Visual/Aesthetics	Hours	66								
Task.02.03.37	Visual/Aesthetics TM	Hours	48								
Task.02.03.38	Visual/Aesthetics EA Section	Hours	8								
Task.02.03.39	Economics	Hours	24						20		
Task.02.03.40	Economics EA Section	Hours	0						14		
Task.02.03.41	Social Considerations	Hours	36						12		
Task.02.03.42	Social Considerations EA Section	Hours	0						12		
Task.02.03.43	Environmental Justice	Hours	24								
Task.02.03.44	EJ TM	Hours	24						30		
Task.02.03.45	EJ EA section	Hours	0						10		
Task.02.03.46	Cumulative Impacts	Hours	0						40		
Task.02.03.47	Cumulative Impacts EA section	Hours	0						25		
Task.02.04	Environmental Assessment	Hours	494	73	0	0	0	0	149	0	
Task.02.04.01	Compile chapters 1 through 3	Hours	80	16							
Task.02.04.02	Public Involvement/Agency Coordination	Hours	56								
Task.02.04.03	Section 4f	Hours	0								
Task.02.04.04	References	Hours	0								
Task.02.04.05	Executive Summary	Hours	44	16					20		
Task.02.04.06	Compile first draft EA	Hours	72	16					60		
Task.02.04.07	Internal QC EA	Hours	24						20		
Task.02.04.08	Revise first draft EA	Hours	24						14		
Task.02.04.09	Project Sponsors Review EA	Hours	18								
Task.02.04.10	Comment Resolution	Hours	22								
Task.02.04.11	Revise EA based on Project Sponsors review	Hours	26	9					15		
Task.02.04.12	CDOT Region 6/EPB Review	Hours	6								
Task.02.04.13	Comment Resolution	Hours	22								
Task.02.04.14	Revised based on CDOT Region 6/EPB Review	Hours	46	8					20		
Task.02.04.15	FHWA Review	Hours	6								
Task.02.04.16	Comment Resolution	Hours	22								
Task.02.04.17	Revised based on FHWA Review	Hours	26	8							
Task.02.04.18	Print Signature copy EA	Hours	0								
Task.02.04.19	Distribute EA for Public Review	Hours	0								
Task.02.04.20	Notices of availability	Hours	0								
Task.02.05	Decision Document	Hours	306	40	0	16	40	0	143	0	
Task.02.05.01	Respond to public comments	Hours	120	16		16	40		25		
Task.02.05.02	Prepare Draft Decision Document	Hours	48	4					25		
Task.02.05.03	Internal QC Decision Document	Hours	8						17		
Task.02.05.02	Revise first draft decision document	Hours	16	4					25		
Task.02.05.05	Project Sponsors Review decision document	Hours	18								
Task.02.05.06	Comment Resolution	Hours	18								
Task.02.05.07	Revise decision document based on Project Sponsors review	Hours	10	4					17		
Task.02.05.08	CDOT Region 6/EPB Review	Hours	6								
Task.02.05.09	Comment Resolution	Hours	18								
Task.02.05.10	Revised based on CDOT Region 6/EPB Review	Hours	10						17		
Task.02.05.11	FHWA Review	Hours	6	4							
Task.02.05.12	Comment Resolution	Hours	18								
Task.02.05.13	Revised based on FHWA Review	Hours	10	4					17		
Task.02.05.14	Print Signature copy decision document	Hours	0	4							

Task #	Task Name		CH2M HILL	APEX	CDR	GOODBEE	HC PECK	LUND	PINYON	ROCKSOL	TOTAL
Task.03	**5.0 Public Involvement**	**Cost**	**$152,768**	**$23,562**	**$25,740**	**$1,920**	**$0**	**$0**	**$50,160**	**$2,616**	**$256,766**
Task.03.01	Listening Sessions (18)	Hours	148	44							
Task.03.02	Issue-focused teams (13)	Hours	94	42		8			16	16	
Task.03.03	Public Workshops (3)	Hours	364	32	64				80	8	
Task.03.04	Newspaper Announcements (1 set)	Hours	24								
Task.03.05	Stakeholder Database and Issue Tracking	Hours	18						100		
Task.03.06	Survey/questionnaire	Hours	26								
Task.03.07	YourHUB articles	Hours	4						27		
Task.03.08	Poster	Hours	40								
Task.03.09	Video	Hours	16						40		
Task.03.10	Project Newsletters (3)	Hours	80						40		
Task.03.11	Project Website	Hours	36						48		
Task.03.12	Conflict Resolution	Hours	0		52						
Task.03.13	Telephone Hotline	Hours	4						60		
Task.03.14	Bi-lingual Communication	Hours	0	40							
Task.03.15	Miscellaneous Meetings (assume 6)	Hours	168		40	12					
Task.04	**4.0 Concept (20%) Engineering (Preferred Alternative only)**	**Cost**	**$319,224**	**$61,240**	**$0**	**$12,800**	**$9,600**	**$26,246**	**$0**	**$33,606**	**$462,716**
Task.04.01	Existing Conditions	Hours	124	40							
Task.04.02	Geotechnical Investigations and Borings	Hours	24							238	
Task.04.03	Utility Investigations	Hours	24			40					
Task.04.04	Structure Selection Report	Hours	200								
Task.04.05	Traffic Study	Hours	144	120							
Task.04.06	Safety Assessment / Crash Analyses	Hours	8	100							
Task.04.07	Preliminary Plan Sets	Hours	680				80				
Task.04.07.01	Project Sponsors Review Plan Sets	Hours	0								
Task.04.07.02	Revise Plan Sets	Hours	168								
Task.04.07.03	Finalize Conceptual Engineering Plan Sets	Hours	184								
Task.04.08	VE Study	Hours	160	40							
Task.04.09	Cost Estimates	Hours	280								
Task.04.10	Project Delivery Analysis	Hours	176	40							
Task.05	**5.0 Additional Tasks and Coordination**	**Cost**	**$191,240**	**$0**	**$0**	**$0**	**$0**	**$0**	**$28,006**	**$0**	**$219,246**
Task.05.01	Additional Environmental Analyses	Hours	0		0	0					
Task.05.01.01	ROW	Hours	160								
Task.05.01.02	Economics	Hours	32						42		
Task.05.01.03	EJ	Hours	24						144		
Task.05.01.04	Historic	Hours	104						40		
Task.05.01.05	Wetlands/Ecological	Hours	0						40		
Task.05.02	Additional Engineering	Hours	0		0	0					
Task 05.02.01	Alternatives Analysis and Screening	Hours	500								
Task.05.02.02	Purpose and Need	Hours	260								
Task.05.02.03	Construction Requirements	Hours	88								
Task.05.03	Additional Public Involvement	Hours	0								
Task.05.03.01	Property Owner Coordination	Hours	40								
Task.05.03.02	Public Comments	Hours	152						171		
	TOTAL LABOR		**$1,361,474**	**$176,226**	**$46,200**	**$34,880**	**$38,640**	**$26,246**	**$230,897**	**$63,254**	**$1,977,817**

Reimbursable Expenses	
Bulk Postage	$750
Photocopies	$500
Denver Post Advertising (1)	$800
Other Newspaper Advertising (8)	$1,600
Court Reporter (2)	$3,000
Local mileage - team meetings (45 ea X 4 staff)	$3,690
Local mileage - public and corridor meetings (30 ea x 4 staff)	$2,640
Parking ($12 ea; 300 meetings)	$3,600
Miscellaneous (e.g., additional meeting expenses and translation services)	$3,000
Sub Mileage and Misc. Expenses	$6,000
Sub Markup	$31,117

TOTAL LABOR (FEE FOR BASIC SERVICES)	**$1,977,817**
DIRECT COST AND SUB MARKUP (REIMBURSABLE EXPENSES)	**$56,697**
TOTAL COST (MAXIMUM CONTRACT AMOUNT)	**$2,034,514**

Task #	Task Name	Project Mgr Don Ulrich	Quality Mgr Bill Lang	Task Manager Eng M. Pinkerton	Senior Engineer - Structures John Rohrer	Senior Engineer - Roadway Mark Lamott	Senior Engineer - Safety Dowds-Bennett	Engineer - Traffic Z. Lynch	Task Manager PI M.Majusce	Task Manager Env M. Wharton	Sr Planner C. Roberts	Sr Planner T. Siedlecki	Planner Shonna Sam	Task Mgr Constr. Brian Bellfi	Construction Estimator Denny Stoddard	Sr Admin - Subcontracts R. McGuinn	Senior Designer J. Richardson	CAD Technician H. Morton	Graphics J. Webb	Planner GIS Joe Guenther	Editor T. Cheney	Admin - Word Processing Various	Sr Admin Various	Accounting B. Kluger
Task.01	**1.0 Project Management and Governance**	404	60	268	0	20	0	0	242	296	0	0	0	272	0	40	0	0	180	0	0	24	32	40
Task.01.01	Project Management Team Meetings (39)	156		100					100	156				100								8		
Task.01.02	PLT/Agency Coordination Meetings (10)	60		60					60	60				60								8		
Task.01.01	Eagle P3 Coordination Meetings (10)	60		60					30	30				60								8		
Task.01.04	Screening Results Workshop	12		12					8	8				8					40				8	
Task.01.05	Avoidance and Minimization Workshop	12		12					8	8				8					40				8	
Task.01.06	NEPA Results Workshop	12		12					8	8				8					40				8	
Task.01.07	Project Delivery Workshop	12		12					8	8				8					40				8	
Task.01.10	Subconsultant invoice processing and management															40								
Task.01.11	Progress meetings, reports, billings and invoices (10 deliverables)	40				20			20	20				20										40
Task.01.12	Schedule Updates (10 updates)	40																						
Task.01.13	Quality Reviews		60																					
Task.02	**2.0 NEPA Studies and Documentation**	182	10	202	174	114	62	0	182	544	212	294	220	18	84	0	0	44	184	128	112	96	20	0
Task.02.01	Purpose and Need	20	0	22	22	22	22	0	6	80	0	6	0	18	0	0	0	0	36	32	40	20	0	0
Task.02.01.01	Technical Memoranda for Transportation Data	4		12	12	12	12							12										
Task.02.01.03	Draft P&N Statement	4		2	2	2	2		2	16		2		2					16	16				
Task.02.01.02	Final P&N Statement	2							0	24									0		20		0	
Task.02.01.05	Logical Termini Memo	4								16														
Task.02.01.06	Draft P&N Chapter	4		8	8	8	8		4	16		4		4					16	16	16	16		
Task.02.01.07	Final P&N Chapter	2								8									4		4	4		
Task.02.02	Alternatives Analysis	68	6	104	92	28	24	0	32	0	4	36	0	0	84	0	0	44	76	0	0	76	0	0
Task.02.02.01	Develop alternatives analysis methodologies	8		8					8						8				8					
Task.02.02.02	Develop Evaluation Criteria	8		8					8						8				8					
Task.02.02.03	Define No Action Alternative	8		8	24										8									
Task.02.02.04	Level 1 Screening	16		16	24										8									
Task.02.02.05	Refine Conceptual Alternatives & Criteria	4		8	20	12	8		8		4	4			12			12	24			12		
Task.02.02.06	Level 2 Screening	4		16	24	16	16		8			32			16			32	16			16		
Task.02.02.07	DRAFT Alternative Development and Screening TM	8		24											16				8			24		
Task.02.02.08	FINAL Alternative Development and Screening TM	4	4	8											8				4			8		
Task.02.02.09	Prepare Draft Chapter 2: Alternative Considered	8	2	8																		16		
Task.02.03	Affected Environment and Env. Consequences	26	0	28	36	56	8	0	32	172	208	188	152	0	0	0	0	0	40	96	0	0	20	0
Task.02.03.01	Transportation Conditions EA Section (inc. multimodal)	8		4	12	8	8			8		40												
Task.02.03.02	Noise Analysis									8			80			0								
Task.02.03.03	Noise TM									4	54		40						0		0	0	0	0
Task.02.03.04	Noise EA Section										8		0											
Task.02.03.05	Air Quality										20		0											
Task.02.03.06	Air Quality TM										20		0											
Task.02.03.07	Air Quality EA Section										12		0											
Task.02.03.08	Archaeology										0		0											
Task.02.03.09	Archaeology TM										0		0											
Task.02.03.10	Paleontology										0		0											
Task.02.03.11	Paleontology TM										0		0											
Task.02.03.12	Water Quality										0		0											
Task.02.03.13	Water Quality TM										0		0											
Task.02.03.14	Water Quality EA Section										0		0											
Task.02.03.15	Ecological Assessment															0		0						
Task.02.03.16	Ecological Assessment TM															0		0						
Task.02.03.17	T&E Species															0		0						
Task.02.03.18	T&E Species TM															0		0						
Task.02.03.19	Wetlands and other Waters															0		0						
Task.02.03.20	Wetlands and other Waters TM															0		0						
Task.02.03.21	Historic Resources															0		0						
Task.02.03.21.01	Consulting Parties and APE	2																						
Task.02.03.21.02	Historic Eligibility Report	2								16						0		0						
Task.02.03.21.03	Historic Effects Assessment	0								16						0		0		40				
Task.02.03.21.02	Historic EA Section									8						0		0		8				
Task.02.03.22	Floodplains and Drainage															0		0						
Task.02.03.23	Floodplains and Drainage TM															0		0						
Task.02.03.24	Right-of-Way/Owner Outreach	6		24		24			20	24		40						0						
Task.02.03.25	Right-of-Way TM	4								24			20			0		0		0			20	
Task.02.03.26	Right-of-Way EA Section																	0		16				
Task.02.03.27	Land use																	0		24				
Task.02.03.28	Land Use EA section															0	0	0						
Task.02.03.29	Section 4(f)/6(f) (no resource use)															0	0	0						
Task.02.03.30	Section 4(f)/6(f) TM															0	0	0						
Task.02.03.31	Hazardous Materials															0	0	0						
Task.02.03.32	Hazardous Materials TM									8						0	0	0						
Task.02.03.33	Hazardous Materials EA Section									4						0	0	0	0	0	0	0	0	
Task.02.03.34	Construction Requirements	4			24	24				24						0	0	0	40					
Task.02.03.35	Construction Requirements EA Section									0		24				0	0	0		8				
Task.02.03.36	Visual/Aesthetics										58		8					0						
Task.02.03.37	Visual/Aesthetics TM										36	8	4											
Task.02.03.38	Visual/Aesthetics EA Section											8												
Task.02.03.39	Economics									8		16												
Task.02.03.40	Economics EA Section																							
Task.02.03.41	Social Considerations								12	8		16												
Task.02.03.42	Social Considerations EA Section																							
Task.02.03.43	Environmental Justice									8		16												
Task.02.03.44	EJ TM									4		20												
Task.02.03.45	EJ EA section																							
Task.02.03.46	Cumulative Impacts															0		0						
Task.02.03.47	Cumulative Impacts EA section															0		0						

		Project Mgr	Quality Mgr	Task Manager Eng	Senior Engineer - Structures	Senior Engineer - Roadway	Senior Engineer - Safety	Engineer - Traffic	Task Manager Pl	Task Manager Env	Sr Planner	Sr Planner	Planner	Task Mgr Constr.	Construction Estimator	Sr Admin - Subcontracts	Senior Designer	CAD Technician	Graphics	Planner GIS	Editor	Admin - Word Processing	Sr Admin	Accounting
		Don Ulrich	Bill Lang	M. Pinkerton	John Rohrer	Mark Lamutt	Dowds-Bennett	Z. Lynch	M.Majeune	M. Wharton	C. Roberts	T. Siedlecki	Shonna Sam	Brian Beliff	Denny Stoddard	R. McGuire	J. Richardson	H. Morton	J. Webb	Joe Guenther	T. Chaney	Various	Various	B. Kluger
Task.02.04	Environmental Assessment	26	4	32	8	0	0	0	72	196	0	0	68	0	0	0	0	0	16	0	72	0	0	0
Task.02.04.01	Compile chapters 1 through 3									40			24								16			
Task.02.04.02	Public Involvement/Agency Coordination								40	16														
Task.02.04.03	Section 4f																							
Task.02.04.04	References																							
Task.02.04.05	Executive Summary	4		8					8	8						0					16			
Task.02.04.06	Compile first draft EA	4		8					8	16			20								16			
Task.02.04.07	Internal QC EA		4										20											
Task.02.04.08	Revise first draft EA									24														
Task.02.04.09	Project Sponsors Review EA	2		4					4	4									4					
Task.02.04.10	Comment Resolution	2		4					4	8									4					
Task.02.04.11	Revise EA based on Project Sponsors review	2								16											8			
Task.02.04.12	CDOT Region 6/EPB Review	2								4														
Task.02.04.13	Comment Resolution	2		4					4	12														
Task.02.04.14	Revised based on CDOT Region 6/EPB Review	2			8					16			4						8		8			
Task.02.04.15	FHWA Review	2								4														
Task.02.04.16	Comment Resolution	2		4					4	12														
Task.02.04.17	Revised based on FHWA Review	2								16											8			
Task.02.04.18	Print Signature copy EA																							
Task.02.04.19	Distribute EA for Public Review																							
Task.02.04.20	Notices of availability																							
Task.02.05	Decision Document	42	0	16	16	8	8	0	40	96	0	64	0	0	0	0	0	0	16	0	0	0	0	0
Task.02.05.01	Respond to public comments	16			16	8	8		24	24		24						0						
Task.02.05.02	Prepare Draft Decision Document	8								24		16						0						
Task.02.05.03	Internal QC Decision Document											8						0						
Task.02.05.02	Revise first draft decision document											16						0						
Task.02.05.05	Project Sponsors Review decision document	2		4					4	4		0						0	4					
Task.02.05.06	Comment Resolution	2		4					4	4									4					
Task.02.05.07	Revise decision document based on Project Sponsors review	2								8		0						0						
Task.02.05.08	CDOT Region 6/EPB Review	2								4														
Task.02.05.09	Comment Resolution	2		4					4	4									4					
Task.02.05.10	Revised based on CDOT Region 6/EPB Review	2								8		0						0						
Task.02.05.11	FHWA Review	2								4														
Task.02.05.12	Comment Resolution	2		4					4	4									4					
Task.02.05.13	Revised based on FHWA Review	2								8		0						0						
Task.02.05.14	Print Signature copy decision document																							
Task.03	**5.0 Public Involvement**	140	0	84	0	0	0	0	362	86	16	24	98	60	0	0	0	0	68	0	0	24	60	0
Task.03.01	Listening Sessions (18)	36		24					64	24														
Task.03.02	Issue-focused teams (13)	26							42				26			0								
Task.03.03	Public Workshops (3)	36		36					60	36	16	12	72	36									60	
Task.03.04	Newspaper Announcements (1 set)	2							8	2		12												
Task.03.05	Stakeholder Database and Issue Tracking	2							16															
Task.03.06	Survey/questionnaire	2							24															
Task.03.07	YourHUB articles																		4					
Task.03.08	Poster								16										24					
Task.03.09	Video								16															
Task.03.10	Project Newsletters (3)								40										40					
Task.03.11	Project Website								36															
Task.03.12	Conflict Resolution																							
Task.03.13	Telephone Hotline								4															
Task.03.14	Bi-lingual Communication																							
Task.03.15	Miscellaneous Meetings (assume 6)	36		24					36	24				24								24		
Task.04	**4.0 Concept (20%) Engineering (Preferred Alternative only)**	60	16	440	524	344	32	120	0	0	0	0	0	96	200	0	220	96	8	0	8	8	0	0
Task.04.01	Existing Conditions	4		16	16	16	16							16				16	8		8	8		
Task.04.02	Geotechnical Investigations and Borings			24																				
Task.04.03	Utility Investigations			24																				
Task.04.04	Structure Selection Report			40	100	60																		
Task.04.05	Traffic Study			16			8	120																
Task.04.06	Safety Assessment / Crash Analyses						8																	
Task.04.07	Preliminary Plan Sets			160	120	100																		
Task.04.07.01	Project Sponsors Review Plan Sets																220	80						
Task.04.07.02	Revise Plan Sets			40	64	64																		
Task.04.07.03	Finalize Conceptual Engineering Plan Sets		16	40	64	64																		
Task.04.08	VE Study	40		40	80																			
Task.04.09	Cost Estimates				40	40									200									
Task.04.10	Project Delivery Analysis	16		40	40									80										
Task.05	**5.0 Additional Tasks and Coordination**	56	0	144	128	244	16	0	72	120	72	80	24	144	0	0	12	0	72	88	32	56	0	0
Task.05.01	Additional Environmental Analyses																							
Task.05.01.01	ROW	16		16						16									40	56		16		
Task.05.01.02	Economics										32													
Task.05.01.03	EJ									8	16													
Task.05.01.04	Historic	8								8									32	32	8	16		
Task.05.01.05	Wetlands/Ecological																							
Task.05.02	Additional Engineering																							
Task.05.02.01	Alternatives Analysis and Screening	4	0	96	56	164	8		8	36	4	40	12	72	0				0	0	0	0	0	
Task.05.02.02	Purpose and Need	4		32	40	48	8		8	36	4	24	12	32			12							
Task.05.02.03	Construction Requirements				16	16						16		40										
Task.05.03	Additional Public Involvement																							
Task.05.03.01	Property Owner Coordination								40															
Task.05.03.02	Public Comments	24			16	16			16	16	16										24	24		
		842	86	1138	826	722	110	120	858	1048	300	398	342	590	284	40	232	140	492	216	152	208	112	40

EXHIBIT B

KEY PERSONNEL RATE SCHEDULE

KEY PERSONNEL - STANDARD HOURLY RATES
PEORIA GRADE SEPARATION PROJECT

CH2M HILL		
STAFF	**CATEGORY**	**RATE**
Don Ulrich	Project Manager	$200
Bill Lang	Quality Manager	$200
Mandy Whorton	Task Manager	$165
Michelle Pinkerton	Task Manager	$165
Brian Bellfi	Task Manager	$165
Michelle Majeune	Task Manager	$165
Jim Richardson	Senior Structural Designer	$148
Colleen Roberts	Senior Planner	$140
Tim Siedlecki	Senior Planner	$140
Shonna Sam	Planner	$100
Joe Guenther	Planner	$100
John Rohner	Senior Engineer	$140
Mark Lamutt	Senior Engineer	$140
Jacqueline Dowds-Bennett	Senior Engineer	$140
Bonnie Scheeland	Accountant	$125
Zeke Lynch	Engineer	$115
Tom Cheney	Editor	$106
Various	Senior Admin	$85
Various	CAD	$80
Various	Graphics	$75
Various	Admin/Word Processing	$62

APEX DESIGN	
STAFF	**RATE**
Task Manager	$119
QC	$119
Traffic Engineer	$90
Project Administrator	$65

KEY PERSONNEL - STANDARD HOURLY RATES
PEORIA GRADE SEPARATION PROJECT

CDR	
STAFF	**RATE**
Principal Facilitator	$165
Conflict Resolution Specialist	$165

GOODBEE	
STAFF	**RATE**
Principal	$140
Project Manager	$130
Field Utility Coordinator	$130
Junior Field Utility Coordinator	$105
Senior Staff Utility Engineer	$105

	HC PECK
STAFF	**RATES**
Principal	$115.50
Quality Manager	$103.95
Sr. Project Manager	$103.95
Project Manager II	$97.02
Project Manager I	$84.89
Right-of-Way (ROW) Agent III	$77.62
ROW Agent II	$65.49
ROW Agent I	$55.79
Senior Title Examiner	$91.25
Closer	$65.49
Administrative Assistant	$48.51

KEY PERSONNEL - STANDARD HOURLY RATES
PEORIA GRADE SEPARATION PROJECT

LUND	
STAFF	**RATE**
Principal	$160
Project Manager	$115
Project Surveyor	$ 95
Project Engineer	$ 95
Design Engineer	$ 80
CAD Manager	$ 80
Survey Technician	$ 70
CAD Technician	$ 65
Office Administrator	$ 80
Two-Person Survey Crew	$130
Three-Person Survey Crew	$190
Construction Observer	$ 75
Paralegal	$ 65

PINYON	
STAFF	**RATE**
Principal	$160
Project Manger	$120
Senior Environmental Scientist	$92.75
Environmental Scientist	$85
Word Processing/Admin/ Accounting	$60

ROCKSOL	
STAFF	**RATE**
Project Manager	$162
Senior Project Engineer	$109
Project Engineer	$74
Project Administrative Assistant	$58
Drafting	$68
Laboratory Technician	$59