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 **AECOM TECHNICAL SERVICES, INC.**, a California corporation, doing business at 555 South Flower Street, 4th Floor, Los Angeles, California 90071 (the "Design Consultant"), jointly "the Parties".

RECITALS:

A. The City and the Design Consultant previously entered into an Agreement on March 14, 2012 to obtain professional architecture and engineering design services in support of the public infrastructure at 38th and Blake Streets- Phase I (the "Project"); and

B. The City and the Design Consultant wish to amend the Agreement to increase the total compensation and enter into Phase II of the project:

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

1. The Scope of Work and Cost marked as **Exhibit A-1** is attached to this Amendatory Agreement and is hereby incorporated by reference.

2. Paragraph 2.07(b) of the Agreement, entitled "**Phase II - Design:**" is hereby deleted in its entirety and replaced with:

> "(b) **"Phase II - Design:** Phase II Design consists of all work as set out in the attached **Exhibit A-1.**"

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 Forty Thousand Six Hundred Forty Eight Dollars ($1,740,648.00)**, 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 **Exhibit 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 reimbursable expenses under this Agreement is **Forty Three Thousand Four Hundred Twenty-One Dollars ($43,421.00)** 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 additional services are performed by the Design Consultant, the City agrees to pay the Design Consultant for such additional services in accordance with Section 2.08. The maximum amount to be paid by the City for all additional services under this contract is **Fifty Six Thousand Seven Hundred Sixty Dollars ($56,760.00)**."

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 **One Million Eight Hundred Forty Thousand Eight Hundred Twenty-Nine Dollars ($1,840,829.00)** (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. As herein amended, the Agreement is affirmed and ratified in each and every particular.

[REMAINDER OF PAGE LEFT INTENTIONALLY BLANK]

Contract Control Number:

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:

REGISTERED AND COUNTERSIGNED:

By_____

By_____

By_____

Contract Control Number: PWADM-201204518-01

Contractor Name: AECOM TECHNICAL SERVICES INC

By: _____

Name: R.A. Plummer
(please print)

Title: Vice President
(please print)

ATTEST: [if required]

By: _____

Name: Alan Eckman
(please print)

Title: Associate Vice President
(please print)

EXHIBIT A-1

DENVER
THE MILE HIGH CITY

Department of Public Works
Engineering Division

Capital Projects Management - Dept. 506
Development Engineering Services - Dept. 507
Traffic Engineering Services - Dept. 508

201 W. Colfax Avenue
Denver, CO 80202
www.denvergov.org/PublicWorks

OVERVIEW, PURPOSE AND NEED FOR PROJECT:

General Statement of Work:

The City is undertaking infrastructure improvements for safety and access in the area surrounding the future 38th and Blake rail station. The City seeks professional design engineering and related consulting services for two tasks:

Task 1. Replace the Blake Street Bridge over 38th Street. This task requires professional design engineering and related services in connection with the removal of the Blake Street Bridge over the 38th Street Underpass, then replacing it at an elevation to provide 16.5 ft. clearance. Also required will be design engineering and related services for a modification of the adjacent roadway's vertical curve to improve sight distance and a conceptual level plan for the widening of the 38th Street Underpass. The selected consultant should have the experience and resources to develop the most cost-effective bridge design for this location at the 38th and Blake Station.

In developing the preliminary design it is the City's goal to use the recommended locations at each end of the bridge, while developing a structural solution that can be cost-effectively fabricated and erected within the time and budget constraints for the project. It is also critical that the bridge be designed in conjunction with a conceptual design for the ultimate widening of the 38th Underpass and the latest design plans for RTD's East Corridor Commuter Rail and the Central Corridor Light Rail Extension projects. Therefore, the **constructability of the bridge is of paramount consideration.**

The selected consultant will be required to review the 38th and Blake Station Area Plan and RTD's most complete set of design plans for the East Corridor Commuter Rail Transit and the Central Corridor Extension Project.

Task 2. Bicycle and Pedestrian Access to the Station. This task requires design and related consulting services for approximately 6,300 linear feet of sidewalk/curb and gutter sections along Blake Street from 35th Street to 40th Street, from Blake Street on 36th Street to Downing, from Blake Street on 40th Street to Walnut Street and finally, on 38th Street from Arkins Court to mid-block between Chestnut Place and Delgany Street. A new eight-foot wide bike path connection from Blake Street to the 38th Underpass, with twenty (20) bicycle parking spaces will be part of task 2. Ten of the twenty bicycle parking spaces must be covered. The City's federal funding application process for this project emphasized the need for pedestrian/bicycle connectivity to serve the stations on RTD's East Commuter Rail Transit Corridor.

The major project components include a bridge with 8-foot sidewalks on each side, and a 16.5-ft. vertical clearance over the 38th Street Underpass and conceptual design for the future widening of the 38th Street Underpass. ADA ramps and lighting must be included in the design for the approaches to the bridge and for the proposed sidewalks. Additional right-of-way is expected to be required at each end of the bridge and along the proposed sidewalks.

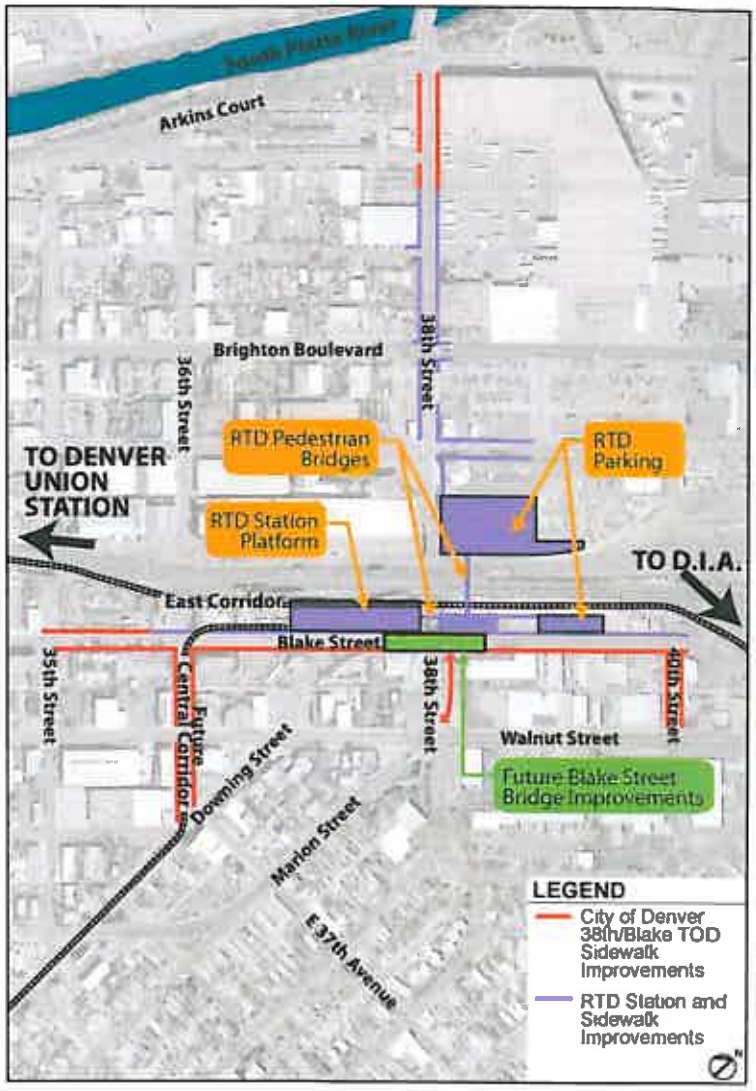
Specific services will include, but are not limited to: bridge/structural design, traffic and traffic control engineering, civil engineering, geotechnical engineering, drainage design, all utility coordination, surveying and environmental work, lighting, related engineering design services for traffic, traffic control, roadway, civil, geotechnical, landscaping, pavement, drainage, erosion control, hydrology and hydraulic, water quality, and construction phasing, utility coordination, surveying, right-of-way, pavement, ramp and sidewalk designs. Cost estimating and scheduling will also be required as well as, ROW ownership, maps, and all legal descriptions. Outreach to adjacent property owners, residents, and registered neighborhoods organizations, stakeholders and agencies at appropriate milestones in the project, and should be specifically outlined in the proposal. Services during bidding will be required, and once the project is in the construction phase, the consultant will provide services during construction up to and including full construction management, inspection, and materials testing services.

Public Infrastructure (38th & Blake Station) TOD Project

Project Overview

The City and County of Denver's Public Infrastructure (38th & Blake Station) TOD Project will make infrastructure improvements to provide better pedestrian, bicycle and vehicular access to the Regional Transportation District's (RTD's) future 38th & Blake rail station that is being constructed as part of its FasTracks program.

Through this project, the City will refine and begin implementing a long-term vision for the station area that builds off the recommendations, decisions and input from previous studies in the area. This project will be closely coordinated with the station and rail improvements that are planned and currently under construction for RTD's East Rail Line.



New & Improved Sidewalks

The City will construct thousands of feet of sidewalks, in addition to RTD's new sidewalks, to improve access to the future rail station.

Areas for City sidewalk improvement include:

- Blake St. from 35th St. to 40th St.
- 36th St. from Blake St. to Downing St.
- 38th St. from Arkins Ct. to mid-way between Chestnut Pl. and Delgany St.
- 40th St. from Blake St. to Walnut St.

Blake St. Bridge Improvements

One of the most significant challenges to pedestrian, bicycle and vehicular mobility in the project area is the Blake Street Bridge over 38th Street. Numerous studies have identified improvements to this location as a priority.

The project team is reviewing the technical feasibility of replacing the bridge so that, if funding is identified, there will be a plan in place to make the improvements.

Project Schedule*

Timing	Phase	Description
2012	**Discovery**	Data Gathering
2013	**Design**	Engineering and Design
2014	**Implementation**	Environmental Approvals, Procurement and Construction

* Please note: this schedule is tentative and subject to change

GET INVOLVED IN THE PUBLIC INFRASTRUCTURE (38TH & BLAKE STATION) TOD PROJECT

For more information about public meetings, providing input and signing-up for project updates, please visit our website at www.denvergov.org/38thandBlake or call our project hotline at (303) 223-6590.

City and County of Denver

Design Phase Scope of Work
Public Infrastructure (38th and Blake Station) TOD
Sidewalks
Blake Street Bridge and Roadway Approach

August 24, 2012

Table of Contents

INTRODUCTION

The Service Provider, herein referred to as "AECOM" will provide engineering services to the City of and County of Denver, herein referred to as the "CLIENT".

The items contained within this Scope of Work define the required engineering design services for the Public Infrastructure (38th and Blake Station) TOD, Sidewalk, Blake Street Bridge and Roadway Approach improvements. The preliminary and final design tasks will build off of the concept designs established during the Discovery Phase of the project conducted in the Spring and Summer of 2012.

A. CONTINUING REQUIREMENTS

As part of continuing requirements, AECOM Transportation will perform the following:

1. Initial Project Meeting. An initial project "Kickoff" meeting will be held immediately upon Notice to Proceed. Representatives from the Consultant and all applicable CLIENT departments will attend the meeting. AECOM Transportation will prepare the meeting agenda and meeting minutes.

2. Maintain the Project Schedule: AECOM will develop a schedule using Microsoft project software that will be periodically updated during the project.

3. Review and revise design criteria as required. City and County of Denver design criteria will be used, along with AASHTO or CDOT design criteria as appropriate. All design criteria will be documented and approved by the CLIENT prior to completion of preliminary design plans.

4. Bi-Weekly Coordination Meetings. AECOM Transportation will attend a total of (24) face to face bi-weekly coordination meetings.

5. Progress Meetings. The CLIENT and AECOM Project Manager will meet periodically as required to discuss project status. A total of (12) project management focused progress meetings are included in the Scope of Work. Conference calls will also be used to provide project management updates. These Progress Meetings will be used to coordinate and track the work effort and resolve problems. The meetings will review the following:

    - Activities required to be completed since the last meeting.
    - Problems encountered and effectiveness of previous meeting.
    - Late activities.
    - Activities required to be completed by the next meeting
    - Solutions proposed for unresolved and anticipated issues.
    - Information or items required from other agencies.
    - DTP/RTD coordination

6. Project Management. The Consultant will coordinate all the work tasks being accomplished by all parties to ensure project work completion stages are on schedule. This effort includes

project invoicing and review of subconsultant invoices for incorporation into the monthly invoices.

The Consultant will assist the Client PM with project organizational and administrative duties assigned along the project duration. This will include project filing, correspondence organization, contact list organization, and general project administration as requested.

7. Quality Management. The Consultant will conduct the following quality control measures in compliance with AECOM ISO 9001 certified quality program:

- Discipline specific quality control reviews for FIR, FOR, and final PS&E submittals
- Interdisciplinary cross check reviews for FIR, FOR, and final PS&E submittals
- Deliverable release record quality assurance oversight of AECOM and subconsultants for FIR, FOR, and final PS&E submittals
- FIR, FOR, and final PS&E comment resolution meetings
- FIR, FOR, and final PS&E comment resolution meeting minutes and comment resolution tracking and documentation

8 Design Phase Public Involvement. This task will continue the stakeholder coordination, property owner discussions, and public information meetings, website, and mailings for the project up to the point of project construction advertisement. The work will be supported by the subconsultant GBSM. **(also refer to scope of work by GBSM for additional information)**

B. PRELIMINARY DESIGN

The scope of work includes design of the project as defined by the Discovery Phase of the project and includes:

- Sidewalks, curb cuts, and curb and gutter along Blake St from 35th St to 40th St
- Sidewalks, curb cuts, and curb and gutter along 36th St from Blake St to Downing St
- Sidewalks, curb cuts, and curb and gutter along 40th St from Blake St to Walnut St
- Sidewalks, curb cuts, and curb and gutter along 38th St from Arkins Ct to Mid-block between Delgany St and Chestnut St
- Multi-use trail/sidewalk connection between Walnut St and Blake St parallel to 38th St
- Downing St/Blake St intersection reconfiguration up to interim transition
- Blake St Bridge over 38th St
- Reconstructed Roadway approach to Blake St Bridge over 38th St

The work will include the necessary storm sewer drainage inlets and manholes, sanitary sewer manhole replacement/adjustments, utility relocations plans (electrical, gas, water, and communications), roadway edge reconstruction, and roadside design such as retaining walls to accommodate new sidewalks within the project limits.

InRoads Software and MicroStation CAD Software will be used in the development of the preliminary design plans. As part of this preliminary design, AECOM will perform the following activities:

1. Supplemental Field Survey: Field survey will be conducted by the subconsultant 105 West. **(also refer to scope of work by 105 West for additional information)**

    a. Survey Monument Preservation: Search for Survey Control monuments from which the Right of Way or any Land Boundary can be calculated, described, or monumented, lying within the Project Area influence. These include but are not limited to: Public Land Survey System (PLSS) monuments, Right of Way (ROW) monuments, property boundary monuments and offsets, benchmarks, easement monuments, and other monuments that are required by law or regulation to be established and recorded by a Professional Land Surveyor (PLS). Recovery of All such found Survey Control Monuments shall be referenced and properly restored at the end of construction.
    b. Survey/Right-of-Way Control: A diligent search is required for Range Points in the Project Area influence. Range Points shall be recovered or restored throughout the project area. All recovered range points within the project influence shall be enclosed in a monument box which is brought to grade. Missing range points shall be reestablished and monumented per current City Standards.
    c. Survey Control Diagram: A Survey Control Diagram shall be developed showing coordinate locations for all found and set survey monuments. The Survey Control Diagram shall be prepared with the same form, content, and elements of the Control Diagram for Broadway Reconstruction prepared by Carter Burgess and deposited in Book 70 pages 140-143 of the Denver Land Survey Plat records. Another example can be found at Book 83, pages 107-110 prepared by HCL for Broadway, Welton to Park Avenue. This Survey Control Diagram shall be reviewed by the City Surveyor and when approved shall become a part of the Advertise for Construction plan set. A survey shall be deposited with the City and County of Denver per state statute. Additionally, CCD Tie Out sheets for each Range Point location are required to be submitted to the City Surveyors Office.

2. ROW ownership and easement plans: The ROW plans will be prepared by the subconsultant 105 West. The ROW acquisition and temporary construction easement process will be managed by the subconsultant H.C. Peck and Associates. **(also refer to scope of work by 105 West and H.C. Peck for additional information)**

3. Materials Engineering. Materials engineering for pavement design, and structural foundations will be completed by the subconsultant Geocal. **(also refer to scope of work by Geocal for additional information)**

4. Catex. Finalize environmental mitigation requirements and ensure that they are included in the plan for design. Completion of the Catex environmental clearance including supporting information for the Documented Catex clearance obtained through CDOT. Mitigation outlined by the Catex documentation will be implemented in the design work. AECOM will include the subconsultant Pinyon Environmental for required reports and investigations. **(also refer to scope of work by Pinyon attached scope for additional information)**

During the Discovery phase, AECOM completed the preliminary scoping meeting with CDOT and has documented the clearance requirements with the CDOT Regional Environmental Program Manager.

5. Lighting Engineering. The subconsultant Clanton and Associates will design will coordinate with the planned DTP/RTD lighting improvements, and develop lighting plans for the project along the length of the project where sidewalks will be constructed. Also included will be lighting under the new Blake Street bridge. **(also refer to scope of work by Clanton and Associates for additional information)**

6. Utility Coordination. Utility coordination and locations of existing utilities will be obtained as part of the survey investigations. This work will be completed by the subconsultant Goodbee and Associates. **(also refer to scope of work by Goodbee and Associates for additional information and detail regarding utility coordination and clearances)**

   a. Utility coordination will require the following tasks:

      (1) Identify all utilities within the area on the plans. Determine the existing and future utilities needs based upon the proposed improvements.
      (2) Collect design data for use in the design phases and incorporation into the plan development.
      (3) Communications with utility owners and coordinating their utility comments into the designs.
      (4) Conduct utility survey and pot-holing for a maximum of (10) locations and coordinate into the project design.
      (5) Utility coordination relative to the construction phasing.
      (6) Utility clearance letters will be prepared to be executed by the Client.

7. Utility Installation Monitoring. Goodbee and Associates will provide a utility inspector to go out and monitor East Corridor utility relocates for information only and to inform the design team.

8. Hydrology/Hydraulic Engineering. This work will be completed by subconsultant Muller Engineering. **(also refer to scope of work by Muller Engineering for additional information)** A hydrology and hydraulics report will be prepared for the Project. This report can be used to facilitate the completion of the various hydrology/hydraulic engineering tasks.

   a. Hydrology
      (1) Establish drainage basin data: delineate, determine size, waterway geometry, vegetal cover, land use.
      (2) Collect historical data; research flood history and previous designs in the proximity; and obtain data from other sources (e.g., Colorado Water Conservation, City Maintenance, and local residents).

(3) Select a storm frequency based on the City Drainage Design Manual. If it is not possible to use the City and County of Denver Manual storm frequency criteria for a bridge or culvert design, the City/PM should be notified.
(4) Do a hydrological analysis using existing studies or approved methods for the storm drainage and outfall structures.

b. Hydraulics
(1) Accomplish the preliminary design for the storm drainage system including:

(a) Determine location, type, size and shape of required drainage structures.
(b) Assess the degree of sediment and debris problems to be encountered.
(c) Prepare preliminary structure profiles to determine the elevations, flowlines, slopes and lengths of the structures. Indicate the flow quantity on the sections.
(d) Complete the design computations and documentations in accordance with the City Manual or CDOT Drainage Design Manual.

c. Erosion Control / Stormwater Management Plans
1. Muller will provide the preliminary design of Erosion Control Construction Best Management Practices for the improvements.
2. Muller will review and modify Client SWMP to fit project as appropriate.

d. Preliminary Hydraulics Report. The team will prepare a preliminary hydraulics memorandum. This memorandum will include a hydrology analysis and the structure hydraulic design. The hydraulic memorandum will discuss drainage basins maps, basin descriptions, precipitation, flood history, design flood frequency, prediction of design discharge, existing structures, capacity and adequacy problems, design circumstances, potential property damage, structure alternatives, and recommended design

9. Traffic Engineering. AECOM will perform various traffic engineering tasks associated with the design and construction of the project including signing and striping plans and traffic control plans.

a. Signing and striping plans: New pavement markings and roadside signage will be developed along the length of the project where sidewalks are being constructed.
b. Construction phasing plan: At the FIR level of plans, a general phasing of construction plan will be generated that describes each phase of the project and how traffic will be maintained. The detailed layout of traffic control devices will be prepared at the FOR level plans.

10. Roadway Design. AECOM will design the Blake Street improvements based on the Discovery Phase concept plan. The roadway improvements will be design in accordance to the CLIENT, CDOT, and RTD standards, as applicable. The following activities will be completed as part of the roadway design:

a. Blake Street Roadway Design
(1) Horizontal and vertical alignment will be based on the Discovery Phase concept plan.

(2) Profiles will be adjusted based on updated survey information.
(3) Roadway typical sections for both near-term and long-term conditions.
(4) Preliminary grading sheet of Car-Go parking lot reconstruction to integrate with Blake Street improvements.
(5) Compute preliminary removal, resets, earthwork, pavement, and curb quantities.
(6) Roadway plan and profile, and typical section sheets.

b. Downing Street Roadway Design
(1) Compute preliminary removal, resets, earthwork, pavement, and curb quantities.
(2) Roadway plan and profile, and typical section sheets.

c. Trail Design
(1) Develop horizontal and vertical alignments based on the Ped/Bike Bridge Location Study preferred alternative.
(2) Develop horizontal and vertical alignments for the Walnut to Blake Street trail connection.
(3) Profiles will be adjusted based on updated survey information.
(4) Develop trail typical sections and trail access layouts at the Blake and Wazee Street tie in locations and the Walnut to Blake Street segment.
(5) Compute preliminary trail quantities (i.e. removals, earthwork, pavement and curb).
(6) Trail plan and profile, typical section sheets.

d. 38th Street TOD Station Coordination Design
(1) Coordinate DTP's 38th Street Station design requirements with the Blake Street preliminary design efforts.
(2) Obtain updated station design layouts and survey to confirm compatibility with the Blake Street design.

11. Roadside Design.

At this time, only low cost and low maintenance hardscape and/or native planting will be included in the amenity zone designation for the project. No scope of work has been included that would provide for street furniture, irrigation systems, tree plantings, or detailed enhanced scored, colored, or tiled pavements.

The Consultant will:

- Coordinate with private property owners through the public process and take direction from the Client for specific sidewalk alignment and configuration in the R.O.W. to private improvements.
- Evaluate and design curb and driveway access points as directed by the Client for deletion, consolidation or removal of existing redundant locations.
- Identify and design specific locations for 20 bicycle parking facilities of which 10 will be covered and design the cover/shelter element as well.

Up to 3 illustrative sections will be developed that describe the future opportunity for enhancements to the amenity zone/sidewalk area that could be used for discussion related to a potential future Business Improvement District.

12. Major Structure Design Blake Street over 38th Street. AECOM will prepare a Site-Specific Structure Type Study Report for the Blake Street Bridge. One and two-span configurations, as identified in Task 1, Discovery Phase will be used as the basis of design. Further coordination with CCD Structural Reviewer will be accomplished to completely define the structure type and configuration.

    A Structure Study Memorandum will also be prepared for the wall structures required (see Item 11(c)). The results of all study reports will be discussed at a Structure Review Meeting with CCD. Comments from the meeting will be addressed and/or incorporated into the final design phase.

    a. Structural Data Collection. AECOM will collect the following project information from CCD as required to complete the preliminary design.

        (1) Obtain the structure site data. The following data, as applicable, shall be collected: Typical roadway section, roadway plan and profile sheets showing all alignment data, topography, utilities, preliminary design plan, Right-of-Way restrictions, preliminary hydraulics and geology information, environmental constraints, lighting requirements, guardrail types, recommendations for structure type, and architectural recommendations.

        (2) Obtain data on existing structures. Collect existing information such as existing plans, inspection reports, structure ratings, foundation information, and shop drawings.

        (3) Design Criteria. AECOM will prepare design criteria to be used for the preliminary and final design. Horizontal and vertical constraints will also be established based upon discussions with CCD. The final design criteria will incorporate the information from the preliminary design and include specific superstructure and substructure component requirements. Ultimate and allowable design parameters will also be given.

    b. Structure Selection Report and Layout. Prepare a structure selection report to document, and obtain approval for, the structure preliminary design. By means of the structure general layout, with supporting drawings, tables, and discussion, provide for the following:

        (1) Summarize the structure site data used to select and layout the structures. Include the following:

            (a.) Existing structure data
            (b.) Project site plan
            (c.) Roadway vertical and horizontal alignments and cross sections at the structure.
            (d.) Construction phasing
            (e.) Utilities on, below, and adjacent to the structure
            (f.) Hydraulics
            (g.) Preliminary geology information for the structure foundation

(h.) Aesthetic requirements

(2) Determine the structure length, width, and span configuration that satisfy all horizontal and vertical clearance criteria.

(3) Consider precast concrete BT and BX girders and steel rolled beam superstructure types. Identify the girder layout and structure depth requirements.

(4) Determine the foundation alternatives. Consider steel pile and drilled caisson foundations based on geology information from existing structures and early estimates from the project geologist. To obtain supporting information, initiate the foundation investigation as early as possible during the preliminary design phase.

(5) Determine the rehabilitation alternatives. Continued use of all or parts of existing structure shall be considered as applicable. The condition of existing structures shall be investigated and reported. Determine the modifications and rehabilitation necessary to use all or parts of existing structures and the associated costs.

(6) Develop the staged construction-phasing plan, as necessary for traffic control and detours; in conjunction with the parties performing the roadway design and traffic control plan. The impact of staged construction on the structure alternatives shall be considered and reported on.

(7) Compute preliminary quantities and preliminary cost estimates as necessary to evaluate and compare the structure layout, and foundation type alternatives.

(8) Evaluate the structure alternatives based upon relative costs and verbal discussion to support recommending anything other than the least expensive alternative. Criteria for selection will be based upon the project goals and determined with stakeholder concurrence.

(9) Prepare preliminary general layout for the recommended structure. Prepare layouts in accordance with current standards. Special detail drawings and a detailed preliminary cost estimate shall accompany the general layout. The special detail drawings shall include the architectural treatment. Perform an independent design and detail check of the general layout.

(10) Obtain CCD acceptance on the structure selection report and structure layout. Allow approximately two weeks for review of the structure selection report. The associated general layout, with the revisions required by the CCD review, will be included in the FIR plans. The structure selection report, with the associated general layout, must be accepted in writing by CCD prior to the commencement of further design activities.

c. Wall structures along Blake Street are required by the proposed roadway improvements. It is assumed that a maximum of two wall types will be studied for the four (4) retaining walls along Blake Street and two (2) walls at the bridge abutments.

(1) Perform an assessment on the existing conditions to determine which methods of wall construction are feasible (i.e. top-down or conventional construction). It is anticipated that Mechanically Stabilized Earth (MSE), and cast-in-place (CIP) wall types will be investigated along Blake Street. Abutment retaining walls along 38th Street will be soil nail or drilled caisson walls.

(2) Review the project site data and available geotechnical reports to determine the site-specific requirements that will control the structure selection. Consider right-of-way, roadside drainage, hydraulics, construction phasing and utility impacts.

(3) Develop preliminary wall plan and elevation layouts to compute preliminary quantities and preliminary cost estimates as necessary to evaluate and compare the wall alternatives. Evaluate retaining wall alternatives using square foot costs.

(4) Summarize the results from the evaluation in a wall structure type memorandum and submit a draft copy to the CCD structure reviewer for final approval. Incorporate CCD comments, as required into a final wall memorandum

13. Aesthetic Design Concepts for Blake Street over 38th Street Bridge. AECOM will develop the following:
    - Architectural concepts for piers, abutments, lighting, barriers and railings for the Blake Street structure
    - Concepts for 38th Street including lighting, pier, wall and abutment faces
    - Sidewalk and bike access from 38th Street to Blake Street including walls, grading and pavement alignment

    All concepts will be developed in plan, cross section and 3D illustrations for discussion and presentation to CCD.

14. Preparation for the FIR

    a. Coordinate, complete, and compile the plan inputs from other activities: materials and geotechnical, and major structure

    b. General layouts for major structures (which have been accepted by CCD) will be included in the FIR plans.

    c. Prepare the preliminary cost estimate for the work described in the FIR plans based on estimated quantities.

    d. The FIR plans will include: title sheet, typical sections, general notes, plan/profile sheets, and preliminary layouts intersections. The plan/profile sheets will include the following: all existing topography, survey alignments, projected alignments, profile grades, ground

line, existing ROW, rough structure notes (preliminary drainage design notes), and existing utility locations. The FIR plans shall be in CDOT format.

15. Field Inspection Review:

a. Attend the FIR.

b. The FIR meeting minutes shall be prepared by AECOM, approved by the CLIENT/ PM, and distributed as directed.

c. The final design will commence immediately on receiving FIR comments.

d. Design decisions concerning questions raised by the FIR will be resolved in cooperation with the CLIENT/PM. AECOM will document the decision and transmit the documentation to the CLIENT/PM for approval.

e. A list of all deviations from standard design criteria along with the written justification for each one shall be submitted to the CLIENT/PM.

C. FINAL DESIGN

InRoads Software and MicroStation CAD Software will be used in the development of the final design plans. Selected roadway plans will be prepared in Micro Station CAD format. As part of this final design, AECOM Transportation will perform the following activities:

1. Project Review. AECOM will coordinate activities required for final design, initiate design decisions and discuss variances as they affect FOR activities.

2. ROW ownership and easement plans: Final negotiations and securing of the construction easements and ROW clearances shall be completed by H.C. Peck and Associates.

3. Materials Engineering. AECOM will incorporate pavement and foundation materials recommendations into the design plans as required. Geocal will prepare and submit the final geotechnical report.

4. Lighting Engineering. Clanton and Associates will prepare the final plans for lighting. After approval of the locations of the lights, the lighting design will be completed with the following information shown on the plans sheets:

   (a.) Circuit type and voltage of power source
   (b.) Location of power source (coordinated with the utility engineer)
   (c.) Luminaire type and lumens
   (d.) Light standard type and mounting height
   (e.) Bracket arm type and length
   (f.) Foundation Details
   (g.) Size and location of electrical conduit
   (h.) Locations of power source(s)/lighting control center(s) (if appropriate)
   (i.) Location of direct burial cable
   (j.) Size of wiring and/or direct burial cable

5. Utility Coordination. Goodbee and Associates will coordinate with utility companies to identify and coordinated the required utility relocations. Following the finalization of the roadway horizontal alignment and profile grade and the horizontal location of drainage structures, sewers, and other underground structures, Goodbee and Associates will coordinate with CLIENT's Utility Engineer to finalize utility clearances. All utility agreements will be prepared by Goodbee and Associates and executed by the CLIENT with the individual utility agents.

6. Storm Sewer Design. Muller Engineering will complete the final hydraulic design activities required for the storm drainage and outfall structures. The work shall include:

   a. Data Review. Review data and information developed under the Preliminary Hydraulic Investigation and update in accordance with decisions made at the FIR.

b. Geometry Revisions. Geometric revisions to storm sewer inlets and manholes are anticipated as a result of post-FIR revisions to roadway and bridge geometry. Hydrologic basins must be updated. Hydraulic structure locations, flow rates, and design must be updated.

c. Storm Water Management Plan (SWMP). Update the SWMP in accordance with decisions made at the FIR, in response to post-FIR roadway/bridge geometry revisions, and based upon additional investigation since the FIR incorporated new CLIENT Standard SWMP plans. Muller Engineering will coordinate with CLIENT to finalize the erosion control plans and specifications.

d. Finalize Hydraulics Report. Complete the hydraulic design for the storm drainage and outfall structures within the project limits. Update hydrology/hydraulics in accordance with bridge/roadway geometric revisions.

7. Traffic Engineering. AECOM will perform the following traffic engineering activities:

a. Final Permanent Signing/Pavement Marking Plans along the length of the project where sidewalk is being constructed.

b. Construction Phasing Plan. A final construction phasing plan will be developed which integrates the construction of the structure work elements into a practical and feasible sequence. This plan shall accommodate the existing traffic movements during construction, and a final traffic control plan developed which shall be compatible with the phasing plan.

c. Traffic Control Plan: Complete TCP plans and quantities will be prepared and incorporated into the final design.

8. Final Roadway Design. Complete the final design based upon the input from all applicable CLIENT departments and design disciplines.

a. Blake Street Roadway Design
   (1) Finalize removal, resets, earthwork, pavement, and curb quantities.
   (2) Final roadway plan and profile, typical section, curb return profiles and curb detail sheets.
   (3) Intersection detail sheet for the Blake Street and Downing Street intersection.

b. Downing Street Roadway Design
   (1) Finalize removal, resets, earthwork, pavement, and curb quantities.
   (2) Final roadway plan and profile, typical section, curb return profiles and curb detail sheets.

c. Trail Design
   (1) Finalize trail quantities (i.e. removals, earthwork, pavement and curb).
   (2) Final trail plan and profile, typical section and detail sheets.

d. 38th Street TOD Station Coordination Design
   (1) Detail sheet(s) showing reconstruction limits to integrate Blake Street improvements with station access.

9. Roadside Design. Final design of the amenity zones will be prepared with basic pavements or natural plantings.

10. Major Structure Design Blake Street over 38th Street. During the conduct of this activity AECOM Transportation shall participate in structural review meetings as previously specified with the CLIENT/CCD Structural Reviewer. The design and independent analysis shall be in accordance with the AASHTO's LRFD Bridge Design Specifications, CCD Design Criteria, CDOT Bridge Design Manual, Chapter 19.1 and the remainder of the CDOT Bridge Design Manual.

    It is assumed that the bridge will be designed as both one-span (near-term) and two-span (long-term) precast girder structures made continuous for live load. Any other superstructure type will be considered out of scope.

    a. Structure Final Design for Major Structures

        (1) Review CCD FIR accepted general layouts and comments. Develop revised general layouts for review by CCD.
        (2) Review CCD accepted foundation recommendations.
        (3) Review CCD accepted hydraulic report.
        (4) Revise the general layouts and proceed with the final design as necessary to incorporate all review comments.
        (5) Perform the structural analysis. Provide the superstructure and substructure design. Document with the design notes, detail notes, and computer output.
        (6) Perform preliminary design check from design and detail notes before proceeding with the final design.

    b. Preparation of Structural Plans and Specifications

        (1) Obtain the latest CDOT worksheets for the plan set.
        (2) Prepare all detail drawings in accordance with the CDOT Bridge Detailing Manual, CDOT Bridge Design Manual, and CDOT Drafting Manual.
        (3) Complete the computer runs/calculations.
        (4) Prepare the plan sheets.
        (5) Prepare special provisions applicable to the project.
        (6) Compute quantities and complete the quantity summary.

    c. Independent Design, Detail, and Quantity Check

        (1) Perform independent detail check and design check based upon plans generated by original designer.

(2) Revise all plan sheets and design notes to reflect any deficiencies found in the design and detail check.
(3) Check quantities.

d. Structure Final Review Plans and Specifications

(1) Make final plan and special provision corrections.
(2) Complete cross-referencing of plans.
(3) Assemble the complete plans and special provisions and submit for the FOR plans.

e. Bridge Rating Package. Prepare the rating packages in accordance with the CCD protocol and the CDOT Bridge Rating Manual using VIRTUS software.

11. Final Wall Structure Design. The design and independent analysis shall be in accordance with the AASHTO's LRFD Bridge Design Specifications, CCD Design Criteria, CDOT Bridge Design Manual, Chapter 19.1 and the remainder of the CDOT Bridge Design Manual.

It is assumed that retaining walls along Blake Street will be CIP concrete with spread footing foundations or MSE embankment walls. Abutment retaining walls along 38th Street will soil nail retaining walls designed by the Geocal, Inc.

a. Structure Final Design for Wall Structures

(1) Review CCD accepted general layouts and comments.
(2) Review CCD accepted foundation recommendations.
(3) Review CCD accepted hydraulic/drainage report.
(4) Revise the general layouts and proceed with the final design as necessary to incorporate all review comments.
(5) Design for the wall structures will be documented with the design notes, detail notes, and computer output.
(6) Designer shall review the plans with the design and detail notes.
(7) Coordinate wall aesthetic treatments.

b. Preparation of Structural Plans and Specifications

(1) Obtain the latest CDOT worksheets for the plan set.
(2) Prepare all detail drawings in accordance with the CDOT Bridge Detailing Manual, CDOT Bridge Design Manual, and CDOT Drafting Manual.
(3) Complete the calculations.
(4) Prepare the plan sheets.
(5) Prepare special provisions applicable to the project
(6) Compute quantities and complete the quantity summary.

c. Independent Design, Detail, and Quantity Check

(1) Perform independent detail check and design check based upon plans generated by original designer.

(2) Revise all plan sheets and design notes to reflect any deficiencies found in the design and detail check.
(3) Check quantities.

d. Structure Final Review Plans and Specifications

(1) Make final plan and special provision corrections.
(2) Complete cross-referencing of plans.
(3) Assemble the complete plans and special provisions and submit for the FOR plans.

12. Aesthetic Final Design Detailing for Blake Street over 38th Street Bridge. Final construction drawings, details and specifications will be prepared.

13. Final Miscellaneous Structural Design. Final design services will be provided for any miscellaneous structure modifications to accommodate any drainage requirements for this project.

14. Plan Preparation for the Final Office Review

a. Coordinate the Packaging of the Plans. Collect plans from all design elements and collate the plan package. Include the construction phasing plan. Calculate plan quantities and prepare the tabulations and Summary of Quantities.

b. New or revised utility locations shall be added to the plan topography. Conflicts shall be resolved and appropriate pay items/specifications added, to adjust utilities.

c. The Final Office Review (FOR) plans shall include the following sheets (as appropriate):

- Title Sheet
- Standard Plans List
- Typical Sections
- General Notes
- Summary of Approximate Quantities
- Appropriate Individual Quantity Tabulations
- Special Details
- Structure Details
- Roadway Plan and Profiles
- Existing and proposed Utility plans
- Structure Cross Sections
- Roadway Cross Sections with Quantities

The work associated with the FOR plans also includes a quality control and assurance review by the Project and Task Managers to assure that all final plan revisions have been incorporated into the FOR set.

d. In addition to the plan sheets, the Special Provisions shall be provided. This will consist of those unique Project Special Provisions which have to be written specifically for items, details and procedures not adequately covered by CDOT's Standard Specifications and Standard Special Provisions. Also a list of the Standard Special Provisions which are applicable to the project shall be prepared. The Project Special Provisions shall be provided in the CDOT format and submitted with the project plans.

e. Prepare the FOR estimate. Item numbers, descriptions, units and quantities shall be listed and submitted to the CLIENT /PM.

15. Final Office Review. AECOM Transportation will attend the FOR and prepare the FOR meeting minutes, approved by the CLIENT/ PM, and distributed as directed.

16. Construction Plan Package

a. Post-FOR meeting minutes will be prepared by AECOM for the structure sheets and submitted to CLIENT for review and approval.

b. The final review of the plans by the CLIENT may require final revision of the plans which shall be done completed by AECOM and its subconsultants.

c. The bid plan construction contract package shall consist of the revised FOR plans and will completely describe the work required to build the project including project dated special provisions and detailed quantities.

17. Submittals. The Consultant shall submit a hard copy of the following:

a. Roadway Profile and Earthwork Quantities

b. Major structures: An independent set of the following shall be submitted to the CLIENT Structural Reviewer for each major structure.

(1) A letter to CLIENT certifying that the Structural Plans and Specifications have been prepared in accordance with the present design standards for the Colorado Department of Transportation and all federal FHWA regulations.

(2) The complete and final set of original design notes for each bridge and each retaining wall structure at each site (including output from computer programs). These notes shall include revisions reconciling any differences between the original design, the independent design check and any design changes resulting from subsequent reviews. See item (6) for format.

(3) The complete and final set of design check notes for each bridge and each retaining wall. See item (6) for format.

(4) Two sets of field packages: The final quantity calculations as described in the CDOT Bridge Detailing Manual, a copy of the geology report, and as-constructed plans for existing structures on the project, where applicable.

(5) The bridge rating package: Each stand along bridge rating package shall contain a rating summary sheet for girders and deck, rating information and hand calculation sheets, rating computer output, and electronic copy of rating input file. Refer to the Bridge Rating Manual for a description of these items.

(6) An electronic submittal of the bridge design notes and independent check will provided, via CDROM. The files will be in acrobat.pdf format.

c. Shelf Plans. A complete set of design drawings and project specifications will be submitted to CLIENT/CDOT at the completion of the FOR design.

18. Record Plan Sets. Two (2) record plan sets for final design of roadways and structures will be produced which shall bear the seal and signature of the responsible Consultant Engineer on each sheet. One (1) set shall be retained by the Consultant for three (3) years. The other set shall be submitted to CLIENT per CRS 12-25-117, as amended. The original plan drawings shall not bear a seal.

19. Additional Services. As authorized by the City, AECOM will support any further services requested by the City for the project. These services could include unforeseen and currently unidentified scope of services.

D. SERVICES AFTER DESIGN

Construction management can be negotiated at a later date to handle the day-to-day construction activities, oversight and inspections. Shop drawing review, RFI review and responses, Field Design Change Engineering Support, and other engineering support services can also be negotiated at a later date as part of the Construction Management scope of work.

This scope of work will address the construction packaging and bidding support services required for the construction advertisement and award of the Project. AECOM will provide engineering support services, as described below.

1. Preparation of bid documents. AECOM will support the city in preparing the bid documents including:
   a. Table of contents for contract documents
   b. Statement of quantities
   c. Notice of invitation for bids
   d. Instructions to bidders
   e. Formatting of various contract documents, rules and regulations
   f. Formatting of the project special provisions

2. Attendance at the pre-bid meeting. AECOM will provide 2 staff to attend the meeting and answer any questions.

3. Bid opening. AECOM will attend the bid opening.

Post Construction Support Services associated with the final earthwork determination, as-built plans, revisions to the ROW plans, monuments, and updating the Record Plan Set are not included but can be negotiated at a later date.

END OF SCOPE OF WORK

	38th/Blake Phase II Design, Fee Estimate by Firm									HC Peck	Muller	Geocal	Pinyon	Goodbee	105 West	Clanton	GBSM		
	Sidewalks, Blake Street Bridge and Roadway Approach	PM	Sen Eng	Eng	Jnr Eng	Sen Planner	Planner III	CADD	Admin										
		$ 170	$ 170	$ 130	$ 85	$ 170	$ 85	$ 85	$ 60									**SubConsultant Task Subtotal**	**AECOM Task Subtotal**
A	**Continuing Requirements**																		
A.1	Initial Project Meeting	2	2	2	0	2	2	0	4										
A.2	Maintain Project Schedule	32	0	0	0	0	0	0	0										
A.3	Review/Revise Design Criteria	1	4	0	0	2	2	0	0										
A.4	Bi-Weekly Coordination Meetings	60	48	48	0	16	16	0	48										
A.5	Progress Meetings	24	24	0	0	24	0	0	0										
A.6	Project Management	100	0	0	0	0	0	0	200										
A.7	Quality Management	24	32	32	0	0	16	0	0		$6,624								
A.8	Design Phase Public Involvement	60	12	0	30	12	30	0	40								$41,540		
	Subtotal Hours	303	122	82	30	56	66	0	292										951
	Subtotal Labor Cost	$ 51,510	$ 20,740	$ 10,660	$ 2,550	$ 9,520	$ 5,610	$ -	$ 17,520	$0	$6,624	$0	$0	$0	$0	$0	$41,540	$48,164	118,110
B	**Preliminary Design**																		
B.1	Supplemental Field Survey	0	4	0	8	0	0	0	0										
B.2	ROW Ownership and Easement Plans	8	4	4	16	0	0	48	0	$9,488					$36,960				
B.3	Materials Engineering	0	8	0	8	0	0	0	0			$21,007							
B.4	NEPA Compliance, Environ. Permitting & Compliance	2	8	0	0	120	0	0	0				$30,910						
B.5	Lighting Engineering	0	4	0	28	0	0	28	0							$30,000			
B.6	Utility Coordination	8	8	48	0	0	0	48	0					$31,860					
B.7	Utility Installation Monitoring	0	0	0	0	0	0	0	0					$15,000					
B.8	Hydrology/Hydraulic Engineering	0	0	32	8	0	0	16	0		$44,880								
B.9	Traffic Engineering	0	0	44	104	0	0	100	0										
B.10	Roadway Design	4	12	80	240	0	0	120	0										
B.11	Roadside Design	4	0	8	64	40	60	60	0										
B.12	Blake Street Bridge Design	0	48	90	220	0	0	136	0										
B.13	Aesthetic Concepts for Blake Street Bridge	2	8	0	24	60	60	120	0										
B.14	Preparation for the FIR	8	16	16	16	16	16	40	0										
B.15	Field Inspection Review	16	16	16	16	8	8	8	8										
	Subtotal Hours	52	136	338	752	244	144	724	8										2,398
	Subtotal Labor Cost	$ 8,840	$ 23,120	$ 43,940	$ 63,920	$ 41,480	$ 12,240	$ 61,540	$ 480	$9,488	$44,880	$21,007	$30,910	$46,860	$36,960	$30,000	$0	$220,105	255,560
C	**Final Design**																		
C.1	Project Review	8	8	0	0	8	0	0	0										
C.2	ROW Ownership and Easement Plans	0	4	4	16	0	0	16	0	$35,875					$28,040				
C.3	Materials Engineering	0	4	0	0	0	0	0	0										
C.4	Lighting Engineering	0	4	8	0	0	0	16	0							$37,850			
C.5	Utility Coordination	8	4	60	0	0	0	48	0					$8,600					
C.6	Storm Sewer Design	0	0	32	0	0	0	16	0		$35,870								
C.7	Traffic Engineering	0	0	40	120	0	0	120	0										
C.8	Final Roadway Design	0	12	80	200	80	0	120	0										
C.9	Roadside Design	4	0	8	40	40	60	60	0										
C.10	Blake Street Bridge Design	0	104	340	580	0	0	384	0										
C.11	Retaining Wall Structure Design	0	64	208	224	0	0	176	0										
C.12	Blake Street Aesthetics	0	16	0	0	60	0	60	0										
C.13	Miscellaneous Structural Design	0	0	0	40	0	0	40	0										
C.14	Plan Preparation for the Final Office Review	8	24	8	120	8	8	100	0										
C.15	Final Office Review	8	24	8	16	8	0	8	8										
C.16	Construction Plan Package	16	16	16	56	12	12	100	0										
C.17	Submittals	4	12	48	100	0	0	60	0										
C.18	Record Plan Sets	4	4	4	0	4	0	16	0										
C.19	Additional Plan Services	40	60	80	160	0	0	160	16										
	Subtotal Hours	100	360	944	1672	220	80	1500	24										4,900
	Subtotal Labor Cost	$ 17,000	$ 61,200	$ 122,720	$ 142,120	$ 37,400	$ 6,800	$ 127,500	$ 1,440	$35,875	$35,870	$0	$0	$8,600	$28,040	$37,850	$0	$146,235	516,180
D	**Services After Design**																		
D.1	Preparation of Bid Documents	4	4	32	48	12	8	8	40		$1,300								
D.2	Attendance at the Pre-Bid Meeting	4	8	0	0	4	0	0	8										
D.3	Bid Opening	4	4	0	0	0	0	0	0										
	Subtotal Hours	12	16	32	48	16	8	8	48										188
	Subtotal Labor Cost	$ 2,040	$ 2,720	$ 4,160	$ 4,080	$ 2,720	$ 680	$ 680	$ 2,880	$0	$1,300	$0	$0	$0	$0	$0	$0	$1,300	$19,960

								Subconsultant Labor	$ 45,363	$ 88,674	$ 21,007	$ 30,910	$ 55,460	$ 65,000	$ 67,850	$ 41,540		
																	AECOM Subtotal Hours		8437
								Firm	**ODCs**								**AECOM Subtotal Labor**	$ -	$ 909,810
								HC Peck	$ 7,000								**SubConsultant Subtotal Labor**	$ 415,804	$ -
								Muller	$ 665								**Subtotal Labor including Subconsultants**		$ 1,325,614
								Geocal	$ 336										
								Pinyon	$ 150								**Reimbursable Expenses (AECOM)**		
								Goodbee	$ 6,988								Mailings/Courier		$ 500
								105 West	$ -								Printing		$ 3,000
								Clanton	$ -								Public Meeting Displays		$ 1,500
								GBSM	$ 6,400								Sub total		$ 5,000
																	Reimbursable Expenses (Subconsultants)		
								Total	**$ 21,539**								Sub total (see sub worksheets)		$ 21,539
																	Grand Total		**$ 1,352,153**

GEOCAL, INC.
Geosciences & Engineering

July 23, 2012

Mr. Alan Eckman, PE, PTOE
AECOM
717 17th Street, Suite 2600
Denver, CO 80202

RE: Proposal for Geotechnical Engineering Services (Data Collection), Task 2, 38th and Blake Street Station Area, City & County of Denver Project Control No. 20121-1003
Denver, Colorado

Dear Alan:

This proposal summarizes our scope of work and cost to conduct a geotechnical investigation for Task 02 of the 38th & Blake project for the City & County of Denver. We understand that this task will be for design purposes of the pedestrian bridge between 35th and 36th Streets, retaining walls at the pedestrian bridge, walls at the bridge at 38th Street, and pavement design for Blake Street.

Proposed Scope of Work

For this task order, we proposed to drill ten exploratory borings (two for the pedestrian bridge, two for retaining walls at the pedestrian bridge, four for retaining walls at the 38th Street bridge, and two pavement investigation borings). The borings will provide information on the subsurface conditions including soil type, depth to bedrock and ground water. The structure borings will be advanced to a maximum of about 70 feet deep, and the pavement borings will extend 5 feet to 10 feet deep. Based on previous work done in the area, we expect bedrock to be about 45 feet deep (from the Blake Street level). The final drill depths however may be adjusted during the field work depending upon the subsurface conditions encountered. The Utility Notification Center of Colorado (UNCC) will be notified for utility locates prior drilling, and permitting will be through the City and County of Denver. We have assumed that the City will issue a permit without cost to Geocal. We will also arrange for traffic control.

A Geocal field engineer or geologist will log the borings, record ground water levels, depth to bedrock, results of penetration tests, and obtain representative soil and bedrock samples. We have assumed that an environmental (hazmat) consultant will be onsite during drilling to sample the soils and/or ground water for contaminants, and that if action levels are encountered, the field work will terminate and holes backfilled. Otherwise the borings will be backfilled after drilling and compacted with the weight of the drill rig. The pavement will be patched. Soil and bedrock samples collected during drilling will be returned to our laboratory and selected samples will be programmed for testing. Typical tests will include liquid and plastic limits, swell-compression characteristics, gradation, resistance R-

value, and water soluble sulfate content. We will also conduct chemical tests such as chloride, sulfide, pH, and electrical resistivity for buried metal corrosion potential.

The results of the field and laboratory investigations will be evaluated and the data summarized for geotechnical design recommendations for the proposed bridge foundation, adjacent wing walls, and Blake Street pavement. An engineering report will be prepared to summarize at least the following.

- brief review of field and laboratory procedures
- site geology and physical description
- subsurface conditions encountered (soils, bedrock, and groundwater)
- results of laboratory testing
- geotechnical engineering for foundations, walls and Blake St. pavement, etc.

Proposed Fee and Schedule

Our proposed fee to conduct the field work, laboratory testing, and to provide a data report is estimated at **$21,343.25** as summarized on the attached Table 1. This amount will not be exceeded without prior approval. We can initiate the work within two weeks of notice to proceed. Initial activity will be development of a traffic control plan and ROW permit application through the City & County of Denver and with private land owners. We anticipate that our report will be available for review within about 10 weeks of notice to proceed. Permitting and weather can often cause significant delays in our field work, and specific times associated with our schedule may vary. But we will keep you informed of our progress and any information available.

We appreciate the opportunity to assist with this project. If you have any questions or need additional information, please feel free to give me a call.

Sincerely,

GEOCAL, INC.

Ronald J. Vasquez, P.E.
Principal Engineer

RJV/P11.1075.002

Attachment: Table 1 - Cost Estimate for Geotechnical Services, Task 02

Table 1 - Cost Estimate for Geotechnical Engineering - Task 02

36th Street Pedestrian Bridge over Union Pacific RR & Blake Street Pavement Design

City & County of Denver Project Control No: 20121-1003 (QuestCDN No. 1719175)

Denver, Colorado

GEOCAL, INC.: P12.1122.000 for AECOM, Inc. July 23, 2012

Task 02 Geotechnical Investigation drilling scope: **(1)** two abutment borings (65-70' deep) for 36th St. pedestrian bridge, **(2)** two retaining wall borings (50-55') one at each approach to the bridge, **(3)** two pavement design borings five feet deep along Blake St. (35th to Downing Sts) as a southward continuation of similar Task 01 pavement design drilling, and **(4)** four retaining wall borings (50-55') on approaches to Blake St. over 38th St. One each Pedestrian Bridge & wall boring on private property; all others are on Denver street ROW. Geocal will arrange for drilling 2-borings on private land (York-Blake LLC; lot at 3585 Blake St.).

Item	Unit	Quantity	Unit Price	Amount
Field Engineering, Pre- & Post-Drill				
Secure 2-City street/ROW permits (Blake & Wazee Sts); includes arranging 1-site-specific traffic control plan.	Hour	7	$ 75.00	$ 525.00
Secure entry approvals to drill 2-borings on private land (same owner).	Hour	16	$ 75.00	$ 1,200.00
Stake 10-borings plus selected offsets/alternates & notify utilities (8hrs). Plus added 2-follow-up 2nd Tier utility & site finalization meets (4hrs each)	Hour	16	$ 75.00	$ 1,200.00
Coordinate pre-drill activities (City & private ppty. final notifications, environmental screening contractor arrangements, traffic control & drilling contractor communications, affected private parking at 36th & Wazee, etc).	Hour	5	$ 75.00	$ 375.00
Mileage (45mi average RT x 3-trips)	Mile	135	$ 0.55	$ 74.25
Drilling Supervision & Directly Related (each day includes 4hrs prep/load-unload/travel/pre-meet time/stage samples/re-supply/similar; added to drilling).				
4-drill days (27hrs drilling + 4x4hrs)	Hour	35	$ 75.00	$ 2,625.00
Mileage (45 mi average RT x 4-trips)	Mile	180	$ 0.55	$ 99.00
Sub-Contracted Costs, Drilling. Incl. traffic control delays, backfill/patch holes, & relocates). Charged at cost. Denver ROW drilling limited to 7hrs/day. 10-BHs @ 27hrs drilling excluding travel.				
Driller RT travel , 4-days (@ 1.5hrs/day @ 4" solid stem auger rate)	Hour	6	$ 130.00	$ 780.00
Day-1: Drill (1) 65-70' abutment & (1) 50-55' wall BHs on Wazee St.;nearby w/HSA. North side of PedBridge.	Hour	7	$ 150.00	$ 1,050.00
Day-2: Drill (2) 50-55' wall borings on Blake St.;nearby w/HSA. On south side of 38th Overpass.	Hour	6	$ 150.00	$ 900.00
Day-2: Drill (2) 5' pavement BHs on 3500-3600 Blake St. w/4" Ø solid auger.	Hour	1	$ 130.00	$ 130.00
Day-3: Drill (2) 50-55' wall borings on Blake St.;nearby w/HSA. On north side of 38th Overpass.	Hour	6	$ 150.00	$ 900.00
Day-4: Drill (1) 65-70' abutment & (1) 50-55' wall BHs on private ppty (3585 Blake St.);nearby w/HSA. South side of PedBridge.	Hour	7	$ 130.00	$ 910.00
Sub-Contracted Costs, Traffic Control (all days incl. RT travel, pre-meet/pre-set & take-down). Denver streets ROW sites only.				
Crew unit operations, 3-days (TCS, 2-flaggers). 3hrs travel/pre-meet/setup-take down + 7hrs site work= 10hrs/day average.	Hour	30	$ 120.00	$ 3,600.00
Equipment rental (signs & cones package average).	Day	3	$ 40.00	$ 120.00
Equipment rental (arrowboard).	Day	1	$ 65.00	$ 65.00
Site specific TCP's	Each	1	$ 75.00	$ 75.00
Other Direct Costs, Drill-Related				
Asphalt patch	Sacks	5	$ 16.00	$ 80.00
Backfill blend components (grout & bentonite), averaged costs. 2-bags/HSA hole.	Sacks	16	$ 16.00	$ 256.00

Soils Laboratory Testing (Geocal personnel)				
Swell-Compression	Each	6	$ 60.00	$ 360.00
Gradations	Each	6	$ 60.00	$ 360.00
Hydrometer Tests	Each	0	$ 85.00	$ -
Liquid & Plastic Limits	Each	6	$ 60.00	$ 360.00
R-value	Each	1	$ 375.00	$ 375.00
Standard Proctor AASHTO T-99	Each	0	$ 100.00	$ -
Unconfined Compressive Strength	Each	6	$ 75.00	$ 450.00
pH	Each	4	$ 14.00	$ 56.00
Laboratory Resistivity	Each	4	$ 20.00	$ 80.00
Chloride Concentration	Each	4	$ 18.00	$ 72.00
Sulfide Concentration	Each	4	$ 14.00	$ 56.00
Water Soluble Sulfate	Each	4	$ 35.00	$ 140.00
Report Preparation				
Graphics & AutoCAD	Hour	12	$ 50.00	$ 600.00
Geologist/Field Engineer	Hour	4	$ 75.00	$ 300.00
Staff Engineer	Hour	16	$ 85.00	$ 1,360.00
Senior Engineer/PM (includes one meeting w/ AECOM)	Hour	8	$ 110.00	$ 880.00
Principal Engineer, Review (one meeting w/ AECOM)	Hour	6	$ 155.00	$ 930.00
			Estimated Geotechnical Total :	**$ 21,343.25**

ASSUMPTIONS: **(1)** C&C of Denver is the only permitting authority involved w/streets & ROW. City project; no permit fees to be charged. Lane closure operations permitted 0830-1330hrs only. **(2)** Railroad ROW not involoved. **(3)** Private property owners at 3585 Blake St. to be notified by City and/or of plans for their lot. **(4)** Cost estimate assumed that entry approval will be relatively routine with no fees or bonding. **(5)** The project environmental consultant will provide instrumented screening for combustible conditions, potentially hazardous volatile organic constituents and similar while drilling & sampling in the vicinity of the groundwater table; screening will be conducted at least in one boring at each bridge site. In the event action levels are reached during screening, drilling will be terminated, the hole backfilled with the cuttings, and no additional drilling at the site conducted until the project's scope is modified. Environmental screening costs are not included in Geocal's scope or reflected in this table. **(6)** Reconstruction of Blake Street pavement is assumed, i.e. no pavement distress surveys to be conducted.

105WEST INCORPORATED

2140 S. Ivanhoe St., STE G5
Denver, CO 80222
Phone 303-859-4491
www.105westinc.com

July 9, 2012

Mr. Alan Eckman, PE, PTOE
AECOM
717 17th Street, Ste. 2600
Denver, CO 80202

Re: Public Infrastructure TOD – 38th & Blake St. Area Station Phase II
City & County of Denver, Colorado

Dear Alan:

105 West, Inc., (105 West) appreciates the opportunity to offer our costs for providing professional surveying services for the discovery phase of the above-referenced project.

SCOPE OF SERVICES

Task A – Meetings

105 West will attend project meetings with the design team, the City and County of Denver, the Regional Transportation District (RTD) and other appropriate agencies. 105 West has budgeted four (4) hours for this task.

Task B – Permits/Right-of-Entry Forms

105 West will apply for and obtain the necessary City and County of Denver permits required to work within the public rights-of-way. For the purposes of this proposal, 105 West anticipates all surveying tasks to take place within the public rights-of-way except where identified on Exhibit A, provided to 105 West on July 5th 2012. Where field activities require field personnel to enter on to private property, right-of-entry forms will be prepared and mailed out to the affected landowner/s. At this time, the affected landowners include: York/Blake LLC, Blake Industrial Park LLC, Public Service Company of Colorado (PSCo), Blake TOD LLC, RTD, James Pacheco and Kalamath Industrial Park LLC. Any additional access onto unmentioned private properties will be handled on a case by case basis. 105 West will keep records of all right-of-entry forms and each owner's response including special comments and/or requests made by the property owner/s. If at such time a landowner is unresponsive, a second right-of-entry form will be mailed to them and an introductory phone call will be placed. If a second written right-of-entry request and subsequent phone call are not successful in gaining access to the property, 105 West assumes that the City and County of Denver will contact private landowners unwilling to grant access.

Task C - Survey Control

105 West will establish approximately twelve (12) permanent control monuments within the topographic design survey limits. Horizontal and vertical control will be based on the FasTracks project datum UTM Zone 13 for horizontal control and NAVD '88 for vertical control. Our fee does not include surveying additional City and County of Denver control monuments to determine a conversion between the FasTracks datum and City control datums (if any).

Task D - Topographic Design Survey (Ground)

105 West will obtain, by field methods, existing, visible planimetric features and topography at a one-foot (1') contour interval along Blake Street, 38th Street, 36th Street, 40th Street, Downing Street, Walnut Street and Wazee Street as shown on Exhibit A. For the protection of 105 West field personnel, traffic control, where needed, will be provided by Highway Technologies. If the City and County of Denver or any other agency requires additional traffic control devices other than those currently estimated the associated costs will be added at that time. All electronic deliverables will be provided in MicroStation V8i. **Field personnel of 105 West, Inc., are strictly forbidden to enter any manhole or subsurface access to obtain invert elevations, pipe diameters, or directions of flow. Invert measurements must be obtained from outside of the manhole or invert.**

Task E – Geotechnical Boring Locations

105 West will field survey up to ten (10) geotechnical boreholes and their associated underground utility paint marks once they have been drilled by the geotechnical consultant. For the purpose of this proposal we have assumed that all geotechnical borings will be available for survey at the same time.

Task F – Preliminary Ownership Mapping

In order to determine the existing right-of-way limits for Blake Street, 38th Street, 36th Street, 40th Street, Downing Street, Walnut Street and Wazee Street within the design topographic survey limits, 105 West, Inc. will obtain vesting deed information for eighty-two (82) adjoining parcels. Based on this vesting deed information, 105 West, Inc. will survey approximately eight (8) aliquot land corners and approximately twenty (20) City and County of Denver range points associated with the adjoining parcel deeds and prepare a preliminary right-of-way map based on record information. Boundary surveys and the reestablishment or rehabilitation of range points is not currently part of this task.

Task G – Legal Descriptions and Exhibits

Based on geometry provided to us by AECOM, 105 West, Inc. will prepare separate written legal descriptions and exhibits for ten (10) temporary construction easement legal descriptions and exhibits. For the purpose of this proposal, 105 West has assumed that any title commitments needed to disclose easements which may impact the proposed construction easements will be provided by others.

FEES

For the professional services described herein, 105 West, Inc., proposes to be compensated in accordance with our attached 2012 charge rate fee schedule for a total cost not-to-exceed **$65,000.**. Our fee breakdown is as follows:

Task A - Meetings	$460
Task B - Permits/Right-of-Entry Forms	$2,420
Task C - Survey Control	$5,260
Task D - Topographic Design Survey	$26,760
Task E - Geotechnical Boring Locations	$2,060
Task F - Preliminary Ownership Mapping	$19,200
Task G - Legal Descriptions & Exhibits	$8,840

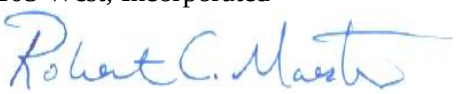
SCHEDULE

Upon your written notice to proceed, we are prepared to commence work immediately. We anticipate completing Tasks A through D and Task F within eight (8) weeks (weather permitting). The remaining Tasks E and G are at the schedule discretion of others.

Thank you for the opportunity to provide our services to you. Please contact us if you have any questions.

Sincerely,

105 West, Incorporated



Robert C. Maestas, PLS
Director of Surveying and Mapping Services

SCOPE OF WORK
38th and Blake
Sidewalk Implementation and Access Design Standards
Design Review Services
July 26, 2012

As part of the ongoing design effort for the 38th and Blake Street project, Muller Engineering will provide plan review services at the preliminary design level and final design level as requested. The main purpose of this task will be to review the design for conformance with City and County of Denver design standards as applied to sidewalk, pedestrian ramps, driveway curb cuts , and other related pedestrian and roadway elements. The review findings will be presented via meeting with AECOM staff.

END OF SCOPE OF WORK

PROJECT FEE ESTIMATING SHEET

Project: 38th & Blake, Sidewalk Implementation and Access Design Standards Review

Client: AECOM

Prepared by: **BJF**

Checked: **RGC**

PROPOSAL NO.: 911.59

DATE: 12/13/2011

PROPOSED TOTAL FEE $6,700

Task Description	Project Manager VIII $145	Project Manager VII $138	Project Engineer IV (Roadway) $104	Project Engineer IV (Drainage) $104	Designer $89	CAD Tech III $78	Admin $62	Expenses: Direct Costs Travel	Delivery	REPRO	TOTALS Hours	Labor Cost	Expenses +Subs	Grand Total (Rounded)
Design Review Services														
Review of Preliminary Design		16									16	$2,208		**$2,208**
Review of Final Design		16									16	$2,208		**$2,208**
Project Team Coordination		16						$50			16	$2,208	$50	**$2,258**
Total Hours		48						-	-	-	**48**	**-**	**-**	**-**
Fee, Billing Rate		$6,624						-	-	-	**-**	**$6,624**	**-**	**-**
Total Expenses	-	-	-	-	-	-	-	$50			**-**	**-**	**$50**	**-**
Totals		**$6,624**						**$50**			**48**	**$6,624**	**$50**	**$6,674**

SCOPE OF WORK
MULLER ENGINEERING COMPANY, INC.
38th and Blake Street / Preliminary and Final Design
Drainage and Construction BMPs
July 27, 2012

PRELIMINARY DESIGN PHASE

Data Gathering: Muller will need to gather reports and plans that encompass the project area. This data will be utilized to integrate the design of the Blake Street improvements into the plans for the area. Based on the limits of the project not widening the footprint over existing conditions, no permanent water quality improvements are required nor included in the scope of work.

Coordination with AECOM, City Staff and Stakeholders: Muller will coordinate with AECOM and City staff to determine the planned improvements and coordinate the related drainage design required for the project.

Preliminary Hydrologic Calculations: Muller will complete basin delineations and associated flow rate calculations for the minor and major storms.

Preliminary Layout of Storm Sewer, Hydraulic Calculations, and Preliminary Storm Drain Profiles: Muller will complete the preliminary layout of the storm drain system in a coordinated effort with the AECOM roadway layout. Hydraulic calculations will be completed for the storm drain system. Preliminary storm drainage profiles will be completed. Utility crossings will be identified to determine the appropriate vertical layout of the system. It is anticipated that the system will outfall into the existing systems at 36th Street and 40th Street, and no additional extension of drainage systems beyond those connections will be required.

Preliminary SWMP/ Construction BMP Design: Muller will complete incorporate the CLIENT SWMP template into the plan package and will design the construction BMPs for the project.

Quantities/ Costs for Storm Drain and construction BMP's: Muller will complete a quantity and cost tabulation for the preliminary design.

Preliminary Specifications: Muller will compile the necessary special provisions and identify the standard specifications that apply to the storm drain system and construction BMPs for the project.

Preliminary Construction Plans: Muller will complete plan production and packaging for the storm drain system and construction BMPs for incorporation into the FIR plan set.

Preliminary Drainage Report: Muller will prepare a Preliminary Drainage Report for the project. The report will include related hydrologic and hydraulic calculations, drainage plan, and construction BMP descriptions.

FIR Meeting: Muller will attend the FIR Meeting.

FINAL DESIGN PHASE

Post FIR Data Review: Muller will review the comments received from the FIR and coordinate with AECOM and CCD regarding appropriate revisions to update the design to the Final Design level.

Update Hydrologic Basins: Muller will update the hydrologic basins and related calculations based on the revised storm drainage system layout.

Update Hydraulics for Post FIR changes, and include HGL and EGL calculations: Muller will update the hydraulic calculations based on revised system layout and complete HGL and EGL calculations to add to the profiles.

Update CLIENT SWMP / Construction BMPs: Muller will update the CLIENT SWMP and construction BMPs based on the final project layout.

Quantities/ Costs for Storm Drain and construction BMP's: Muller will complete a quantity and cost tabulation for the final design. Tabulation sheets will be completed for these items.

Final Construction Plans: Muller will complete plan production and packaging for the storm drain system and construction BMPs for incorporation into the FOR plan set.

Final Drainage Report: Muller will prepare a Final Drainage Report for the project. The report will include related hydrologic and hydraulic calculations, drainage plan, and construction BMP descriptions.

FOR Meeting: Muller will attend the FOR Meeting.

Post FOR Revisions / Ad (Shelf) Set: Muller will revise the drawings and specifications based on FOR comments.

Pre-Bid Involvement / Addenda: Muller will provide support for pre-bid questions related to strom drainage and construction BMPs and address any issues within addenda as necessary.

EXCLUSIONS

Muller is expecting that permanent water quality is not required for the 38th and Blake Street improvements due to the no increase in impervious area and the flowline to flowline footprint is not increased beyond the 0.5 acre threshold over the existing footprint, which is the current minimum threshold parameter triggering permanent water quality improvements.

PROJECT FEE ESTIMATING SHEET

Project: 38th & Blake, Drainage and Construction BMPs for Prelim and Final Design

Prepared by: **BAB**

Checked:

PROPOSAL NO.: 911.59

DATE: 7/27/2012

Client: AECOM

PROPOSED TOTAL FEE $94,900

Task Description	Project Manager VIII (Drainage) $145	Project Engineer IV (Drainage) $106	Design Engineer I (Drainage) $84	CAD Tech IV $87	Expenses Direct Costs Travel	Delivery	REPRO	TOTALS Hours	Labor Cost	Expenses +Subs	Grand Total (Rounded)
Initial Data Gathering	10	20						30	$3,570		**$3,600**
Coordination with AECOM, City Staff, and Stakeholders	24	24			$90			48	$6,024	$90	**$6,100**
Preliminary Hydrology Calculations	6	10	24	12				52	$4,990		**$5,000**
Preliminary Layout of Storm Sewer, Hydraulic Calcs, Prelim Profiles	10	18	30	24				82	$7,966		**$8,000**
Quantities/ Costs for Storm and Construction BMPs	3	6	9					18	$1,827		**$1,800**
Preliminary SWMP / Construction BMPs	6	18	36	27				87	$8,151		**$8,200**
Preliminary Specifications	2	6	6					14	$1,430		**$1,400**
Preliminary Const Plan Production and Packaging	8	12	48	36			$280	104	$9,596	$280	**$9,900**
Preliminary Drainage Report	6	12	24	18			$220	60	$5,724	$220	**$5,900**
Attend FIR meeting	6	6			$15			12	$1,506	$15	**$1,500**
Post FIR Data Review	4	8						12	$1,428		**$1,400**
Update Drainage Basins based on Post FIR Layouts	4	8	18	7				37	$3,549		**$3,500**
Update Hydraulics (Post FIR changes, HGL and EGL Calcs)	8	20	36	24				88	$8,392		**$8,400**
Update CLIENT SWMP / Construction BMPs	3	9	22	18				52	$4,803		**$4,800**
Quantities & costs / Tabulations sheets for storm & Const. BMPs	6	12	9	12				39	$3,942		**$3,900**
Final Const Plan Production and Packaging	8	12	40	32				92	$8,576		**$8,600**
Final Drainage Report	4	12	24	18				58	$5,434		**$5,400**
Attend FOR meeting	6	6						12	$1,506		**$1,500**
Post FOR revisions/ Ad Set Preparation	6	15	12	14				47	$4,686		**$4,700**
PreBid Involvement / Addenda	3	8						11	$1,283		**$1,300**
Total Hours	133	242	338	242	-	-	-	**955**	**-**	**-**	**-**
Fee, Billing Rate	$19,285	$25,652	$28,392	$21,054	-	-	-	**-**	**$94,383**	**-**	**-**
Total Expenses	-	-	-	-	$105		$500	**-**	**-**	**$605**	**-**
Totals	**$19,285**	**$25,652**	**$28,392**	**$21,054**	**$105**		**$500**	**955**	**$94,383**	**$605**	**$94,900**

CLANTON & ASSOCIATES

LIGHTING DESIGN AND ENGINEERING

Date: July 10, 2012

Alan Eckman, PE, PTOE
Associate Vice President
West Region
AECOM
717 17th Street
Suite 2600
Denver, CO 80202

Re: Public Infrastructure (38th and Blake Station) TOD
City & County of Denver
Lighting Design Consulting Proposal

Clanton and Associates proposes to undertake the lighting and associated electrical consulting for the Public Infrastructure (38th and Blake Station) TOD Project in Denver, CO. The scope of work includes:

- Streetlighting: Blake Street (35th to 40th Street) - $ 25,500
- Streetlighting: 36th Street (Blake Street to Downing Street) – 10,200
- Streetlighting: 40th Street (Blake Street to Walnut Street) - $ 5,100
- Streetlighting: 38th Street (Arkins Court to Mid-block between Delgany street and Chestnut Street) – 7,650
- Multi-use trail/sidewalk lighting connection: Walnut Street to Blake Street parallel to 38th Street - $ 3,400
- Street and Pedestrian Lighting: Blake Street Bridge over 38th Street - $ 8,000
- Pedestrian Lighting: Pedestrian bridge over the railroad near 36th Street - $ 8,000

A breakdown of the design services shall include the following:

Preliminary Design (30%)

- Site visit to observe existing lighting conditions
- Analyze Lighting Requirements
- Preliminary lighting plan
- Photometric (point-by-point illuminance) calculations to confirm AASHTO compliance
- Utility coordination
- Up to one (1) submittal (FIR set)
- Up to (8) design meetings
- Attendance at FIR meeting
- Opinion of Probable Cost
- Revise plans per FIR comments

Final Design (90% and 100%)

- Incorporate comments from 30% Review
- Final lighting layout
- Final electrical design
  - Circuit type and voltage of power source
  - Location of power sources (coordinated with the utility engineer)

  - Luminaire type and lumens
  - Light standard type and mounting height
  - Bracket arm type and length
  - Electrical Foundation Details
  - Size and location of electrical conduit
  - Locations of power sources(s)/lighting control center(s) (if appropriate)
  - Size of wiring
- Specifications (CDOT format)
- Tabulation of approximate quantities
- Up to two submittals – FOR and AD sets
- Up to (8) design meetings
- Attendance at FOR meeting
- Opinion of Probable Cost

This scope of work is based upon normal project progress and within the time schedule agreed upon, without major redesign or change order work. Additional fees will be required if project timing is extended or project is put on hold and restarted at later date. If the project timing exceeds one year, additional services rates may increase.

Specific exclusions from this scope are as follows:

- Construction administration and/or services during construction
- Structural engineering for foundations
- Any development, design, or detailing of custom luminaires

Client will supply Clanton and Associates with review materials and backgrounds in AutoCAD or Micro Station format. Reimbursable expenses shall include printing costs, overnight delivery and travel expenses associated with the project and shall be charged in addition to the compensation for professional services. Payment for services is expected within 30 days of invoice unless other arrangements are made in writing.

This agreement is valid for 60 days.

CLANTON & ASSOCIATES

July 10, 2012

DATE

CLANTON & ASSOCIATES

LIGHTING DESIGN AND ENGINEERING

CLANTON & ASSOCIATES, INC

Rates

Principal Engineer	$180/hr
Electrical Designer	$100/hr
Engineer	$85/hr
Designer	$85/hr
CAD Technician	$60/hr

4699 Nautilus Ct. So. #102 Boulder, CO 80301 303-530-7229

38th & Blake Task Order 2 Scope
Task 14 – Public/Agency Coordination

- **Project Materials** – The consultant will develop the necessary print and electronic materials needed to support the project activities in Task Order 2. As appropriate, certain materials will be prepared in Spanish. These materials will include:
    - Public Meeting Mailer #2
    - Updated Project Fact Sheet
    - Press Release
    - Updated Content for the Project Page on the City's Website

- **Stakeholder Database** – The consultant will continue to update and maintain the stakeholder database. At the conclusion of the project, the consultant will provide the City with a final up-to-date stakeholder database in Microsoft Excel or other tab-delimited format.

- **Stakeholder Outreach** – Continued stakeholder outreach will be divided into two tiers: Project Area and Adjacent Stakeholder Working Group.

    - Project Area Outreach – This area has been defined by the following general boundaries: BNSF Rail Yards to the northwest, 30th Street to the southwest, 40th Street/Avenue to the northeast, York Street to the east and Martin Luther King Boulevard/Curtis Park to the south. The consultant will conduct outreach in this area that includes: direct mail, door-to-door fliers and posted announcements at targeted community centers and gathering places.

    - Adjacent Stakeholder Direct Outreach – The consultant will help plan coordinate up to 25 meetings with stakeholders whose property is adjacent to potential sidewalk improvements. The consultant will also be available to participate in up to 5 of these meetings.

    - Adjacent Stakeholder Working Group – This task and budget from the consultant's Task Order 1 scope of work will be carried over into Task Order 2.

- **Community Leader Outreach** – The consultant will arrange meetings and periodic updates with key community leaders that have the ability to inform/engage multiple individuals. The bulk of this outreach will be through individual meetings and phone calls.

- **Community Partnership Program** – The consultant will continue communications with the Community Partnership Program developed in Task Order 1 as part of the effort to promote Public Meeting #2.

- **Project Hotline** – The consultant will continue to monitor the bi-lingual project hotline. The hotline provides basic project information in English and Spanish and allows callers to leave a message. Messages will be shared with the project team within one business day of them being left and will be responded to within 2-3 business days.

- **Public Meeting #2** – The consultant will plan, promote, facilitate and summarize one Public Meeting as part of Task Order 2. As part of this, the consultant will prepare and distribute announcements promoting the meeting, develop meeting materials (e.g. fact sheets, graphical displays, presentations) and assist in conducting/staffing the meetings. Spanish-language interpretation will be available at all Public Meetings.

- **Agency Coordination** – The City and County of Denver is leading an active coordination effort with RTD and DTP concerning all Denver FasTracks projects. As part of the 38th & Blake project team, the consultant will support the City with project information and attend these meetings as requested to ensure a high level of communication and collaboration. CDOT representatives will also be invited to attend 38th & Blake project team coordination meetings as appropriate.

- **Media Outreach** – The consultant will prepare and disseminate appropriate media materials to promote Public Meeting #2. In addition, the consultant will provide up to 10 hours to help facilitate any additional outreach or response to the media related to Task Order 2 activities.

Task Order 2	Andy Mountain (Principal)	(Senior Associate)	Andrea Cunningham (Associate)	Hilary Zarlengo (Support)	GBSM Labor	GBSM Expenses	Jennifer Lucero (Hispanidad)	Total	Notes
Project Materials	13		40	10	$ 8,555	$ 1,150	16	$ 9,705	
Stakeholder Database	2		4	12	$ 1,570			$ 1,570	
Adjacent Stakeholder Direct Outreach	36		16	10	$ 10,960			$ 10,960	
Adjacent Stakeholder Working Group					$ -			$ -	
Community Leader Outreach	12		4	2	$ 3,420			$ 3,420	
Community Partnership Program	3		8	3	$ 1,855		4	$ 1,855	
Project Hotline	2		6	3	$ 1,370		2	$ 1,370	
Public Meeting #2	16		30	16	$ 8,310	$ 1,000	12	$ 9,310	
Agency Coordination	6		4	2	$ 2,010			$ 2,010	
Media Outreach	4		18	6	$ 3,490			$ 3,490	
TOTAL					**$ 41,540**	**$ 2,150**	**$ 4,250**	**$ 47,940**	

Goodbee and Associates, Inc.
38th/Blake Final Design
Scope of Work and Cost Proposal
7/30/2012

Task	Description of Activities /Assumptions	Princ. Engr (Goodbee)	Lead Project Engineer (Roselyn)	Staff Engr (Lehocky, Anstey)	Field Project Manager (Sloan)	Administrative Assistant/ Tech (Pavelka)	Total Hrs	Total Cost
		$140/hr	$130/hr	$105/hr	$105/hour	$90/hr		
Continuing Requirements	Attend project meetings with design team and City. Assume Goodbee attendance at kick-off meeting and 12 of the bi-weekly Coordination mtgs (half of the 24 total mtgs).	4	4	40			**48**	$5,280
	Monthly progress reports and invoicing (assume 12 months)		6	6		12.5	**24.5**	$2,535
Preliminary Design/FIR	Continue coordination with utility owners and design team to confirm existing and proposed utilities and potential conflicts based upon the proposed interchange configurations.		4	40			**44**	$4,720
	Coordinate with AECOM to develop pothole plan. Coordinate with potholing contractor; Assume 10 potholes. Coordinate with project surveyor to survey pothole locations.		4	33			**37**	$3,985
	Update utility table developed during discovery phase based on new utility and design information . Coordinate with design team to show existing and relocated utilities on plans. Prepare CAD utility plan sheets (plan view). Base sheets/cut sheets provided by design team. Assume 12 sheets. Wet design by others.	1	8	136			**145**	$15,460
	Meet with utility owners regarding project, potential utility conflicts, mitigation measures and recommended relocations. Obtain information necessary for utility spec and clearance letters. Prepare meeting minutes. Assume 15 utility owners, 1 meeting each.	2	8	64			**74**	$8,040
	Finalize and distribute FIR plans to utility owners. Coordinate with utility owners re: attendance at FIR meeting. Attend FIR meeting.			14			**14**	$1,470
Final Design/FOR	Continue coordination with design team and utility owners regarding utility relocations.		4	14			**18**	$1,990
	Revise CAD utility sheets per FIR comments/changes. Coordinate with AECOM re: plan sheets.		4	14			**18**	$1,990
	Following finalization of roadway horizontal alignment and profile grade, and the horizontal and vertical location of drainage structures and other underground structures, coordinate with City to prepare utility spec and clearance letters/agreements for signature by utility owners. Coordinate with utility owners and the City to obtain signature (agreements executed by the City). Assume 15 utility owners.	2	14	50			**66**	$7,350
	Distribute FOR plans to utility owners. Coordinate with utility owners re: attendance at FOR meeting. Attend FOR meeting.			8			**8**	$840
	Revise CAD utility plans, utility spec, and clearance letters per FOR comments/design changes.	1	4	16			**21**	$2,340
Utility Installation Monitoring	Goodbee and Associates will provide a utility inspector to go out and monitor East Corridor utility relocates for information only and to inform the design team.				200		**200**	$21,000
TOTAL LABOR		**10**	**60**	**435**	**200**	**13**	**718**	**$77,000**

Item	Units	# of Units	Unit Price	Subtotal
Mileage	miles	2500	$0.555	$1,387.50
Reproduction	at cost	--	$100.00	$100.00
Private Locator (assume no additional private locates required since performed during discovery phase)	hours	0	$150.00	$0.00
Potholing (assume 10 potholes)	each	10	$500.00	$5,000.00
Traffic Control during potholing	at cost	0	$500.00	$500.00
Permits for potholing- assume City waives permit fee	at cost	0	$0.00	$0.00
TOTAL ODCs				**$6,988**

TOTAL ESTIMATE **$77,000.00** + **$6,987.50** = **$83,988**

H. C. Peck & Associates, Inc.

CITY & COUNTY OF DENVER - 38th & BLAKE PROJECT
SCOPE OF SERVICES - TIME & COST ESTIMATES

This Scope of Services - Time & Cost Estimate is predicated on the following assumptions at 7/02/12 - Temporary construction easement acquisitions from 10 owners. If agreement cannot be reached to acquire the property, the file will be turned over for condemnation. All the following activities will be performed in strict compliance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 as amended, with direction and oversight from the City and County of Denver.

		Sr. Project Mgr Hrs	R/W Agent III Hrs	R/W Agent II Hrs	R/W Agent I Hrs	Total $
1	Create and maintain project scheduling information of all land activities to show progress of each parcel and to estimate segment completion against established milestone schedules. (10 Ownerships)	4		8		$939.72
2	Attend project meetings and coordinate tasks with AECOM, City & County of Denver, and others involved and/or affected by the project. (10 Ownerships)	16		8		$2,187.12
3	Coordinate the Value Finding review process, title services, and row plans & legal descriptions for all parcels. Review all dcouments in preparation for negotiation. (10 Ownerships)	12		16		$2,295.24
4	Have each parcel appraised using guidelines established by CDOT appraisal manual. (0 anticipated ownerships over $5000) (Cost + 10%.)					$0.00
5	Prepare value findings. (10 Ownerships)	24		24		$4,066.56

6	Prepare: offer letter and summary of just compensation, final offer letter, conveyance documents, and any additional correspondence with property owners. (10 Ownerships)	16		24		$3,234.96
7	Conduct negotiations with each owner for the acquisition of the property rights to be acquired based on the approved fair market value. These negotiations will be carried out in accordance with all applicable Federal and State laws, and City & County of Denver policies. (10 Ownerships)	176		160		$28,773.60
8	Order/coordinate warrant request and conduct informal closings with property owners. (10 Ownerships)	8		24		$2,403.36
9	File closeout - QA/QC (10 Ownerships)	4		16		$1,463.64
10	Estimate of Reimbursables					$7,000.00
TOTAL TIME & COST ESTIMATE		**260**	**0**	**280**	**0**	**$52,364.20**

*HCP&A litigation support will be billed at $150.00/hour and is not included in this cost estimate. (This rate does not include the project appraiser.)

** If estimates determine that additional parcels must be appraised by a qualified appraiser, this cost estimate will be revised.

*** H. C. Peck & Associates, Inc. will not be responsible for any delays by other consulting firms, nor any delays caused by Federal, State, or County officials granting licenses, permits or other entitlements of use. Not withstanding any other provisions hereof, this Right-of-Way Cost Estimate is conditional upon and subject to the aforementioned assumptions. In the event other matters are required to be performed outside those described in the Scope of Work per the contract, negotiations exceed the industry standards for a "good faith effort to negotiate", or there are changes in the pertinent information provided at the inception of the project, H. C. Peck & Associates, Inc. reserves the right to amend its Right-of-Way Cost Estimate.

**** Title insurance is not included in this Cost Estimate. If requested Peck can provide title insurance through WestCore for an additional charge.

RATE SCHEDULE

* Principal	$115.50
* Senior Project/Quality Manager	$103.95
* Project Manager 1	$84.89
* Right of Way Agent III	$77.62
* Right of Way Agent II	$65.49
* Right of Way Agent I	$55.79
* Support Staff	$48.51

Proposed Cost Estimate and the above rates do not include the following expenses reimbursable at

Reproduction Costs (third party)	Delivery and express mail
Recording, notary, license & permit fees	Parking and tolls
Maps	Long distance Telephone and Fax
Mileage at a rate of $0.555 per mile	

Above reimbursable expenses are estimated to be:	$1,650.00
Cost of title commitments: 10@ $455	$4,550.00
Additional Title Research: 0 hrs @ $91.25	$0.00
Purchase appraisal data from Civil Technology, Inc.	$800.00
Total	$7,000.00

The above cost estimate is based upon average negotiation times and average expenses for a typical project and is intended to be used to establish a working budget for this project. Actual hours performing the work based upon certified time sheets and actual expenses will be billed on a monthly basis as work progresses. Invoices are due 30 days from receipt.

By: _____ Date: 7/3/2012

H. C. Peck & Associates, Inc.

City and County of Denver

Design Phase Scope of Work

Public Infrastructure (38th and Blake Station) TOD

Environmental Scope

Pinyon Environmental, Inc.

Background

Pinyon Environmental, Inc. (Pinyon) is pleased to submit this scope of work for environmental services for the Design Phase Scope of Work, for the Public Infrastructure (38th and Blake Station) Transportation Oriented Development (TOD) project in Denver, Colorado. Pinyon is currently subcontracted to AECOM to complete services related to the "Discovery Phase" of this project related to environmental documentation required to meet National Environmental Policy Act (NEPA) provisions. A Categorical Exclusion Determination (CatEx) is expected to meet the NEPA environmental requirements for this project. AECOM and Pinyon met with CDOT Environmental Staff on June 21, 2012. Based on the current conditions and affected environment at this project location, the following resources will require detailed evaluation:

- Hazardous Materials
- Historical Resources
- Water Quality (this resource will be evaluated by AECOM)

For the Discovery Phase of this project, Pinyon is currently researching and documenting existing conditions for hazardous materials and historical resources. However, the scope of that work is limited, and does not include some intrusive work and investigation that may be necessary. The limited scope for each resource area is as follows:

- Hazardous Materials – Complete a CDOT Initial Site Assessment (Form 881).
- Historic Resources – Complete background file search and literature review, define the Area of Potential Effect (APE), and complete a field survey.

For Final Design, it is expected that more in-depth research and/or agency coordination will be required to fully evaluate these resource areas in order to provide CDOT with the information necessary to "clear" this project. The following scope of work is presented best on information collected to date; however, Pinyon must emphasize that this scope is preliminary in nature and could be subject to change based on the results of the Discovery Phase.

Additional Design Elements (36th Street Ped/Bike Bridge)

Pinyon understands that a new pedestrian bridge may be added to the design scope. This would include a new pedestrian/bicycle bridge over the UPRR, at or near 35th or 36th Streets. This new bridge would be located relatively near the existing study area. The affected environment is not expected to deviate significantly from the subject project, but would add additional tasks to provide a complete project assessment. Pinyon has included additional services (scope and fee) for Hazardous Materials and Historic Resources should this additional design element be added. The costs for these additional services assume that work on this new element may be reasonably completed concurrently with the other portions of the project.

Design Phase Scope of Work

Hazardous Materials

Note: These proposed services and selected analytes are preliminary and estimated. It is possible that some services and analysis will not be required, or that the service may need to be expanded, based on the results of the Discovery Phase ISA.

The majority of the project will result in relatively shallow excavation (e.g., new or replaced sidewalk, curb and gutter, pavement surfaces, etc.) with much of the project being constructed on new fill (elevated substrates). Therefore, it is not likely that exposure to contaminated soil and/or groundwater would occur, except in locations where intrusive construction activities would occur. The key location where deep excavations are anticipated, and where contaminated media could be encountered, is near the new bridge foundation at 38th and Blake. CDOT Region 6 has recently begun requesting/requiring that environmental samples be collected concurrently in areas where known/suspected contamination while geotechnical drilling operations are conducted. Pinyon assumes that at least one geotechnical boring will be completed at each bridge abutment/foundation on either side of 38th Street.

For this project, Pinyon assumes that two borings will be evaluated for environmental concerns concurrently with the geotechnical evaluation. The following services will be completed:

- During the geotechnical investigation, Pinyon will coordinate environmental sample collection to help evaluate potential soil contamination. Duplicate soil samples collected during the geotechnical sampling will be field screened for non-specific volatile organic compounds (VOCs) using a photoionization detector (PID) and the headspace technique. In the headspace technique, a portion of the soil sample is placed in a “zip-lock” bag, which is sealed and placed in a warm area to promote volatilization. After a period of time, the PID is inserted into the headspace of the bag, and a reading is obtained. This reading will be recorded in the field notebook.

- At the time of this proposal, Pinyon cannot estimate what potential chemicals of concern will be identified at the project. The potential analytes will be defined during completion of the ISA; therefore, the analytes presented below are preliminary assumptions based on current project knowledge. Pinyon estimates that the selected samples exhibiting elevated PID readings and/or visual impacts will be submitted to Origins Laboratory, Inc. (Origins), of Denver, Colorado, for analysis. If elevated PID readings or evidence of visual impacts are not observed, the sample from the soil interval that will likely be excavated (depending on location) will be submitted to the laboratory. The samples will be analyzed for VOCs using EPA Method 8260B; polycyclic aromatic hydrocarbons (PAHs) by EPA Method 8270SIM; and the eight Resource Conservation and Recovery Act (RCRA) metals using EPA Methods 6010/7471. Costs are based on standard (five to ten business day) laboratory turnaround time.

- Costs associated with subcontracting drilling, utility locates, access agreements, traffic control, etc., are not included in this task (included elsewhere in the AECOM team budget).

- If possible, a groundwater sample will be collected from each of the two geotechnical borings. However, it may be difficult to collect a viable groundwater sample if the borings are completed in the roadway due to safety considerations. Where practical, a temporary groundwater monitoring well will be constructed in the borings. Ten feet of factory slotted screen will be placed in the bottom of the boring, and blank casing will be threaded onto the screen and extended to the ground surface. The wells will be allowed to recover for approximately 24 hours prior to sampling.

- Pinyon will measure the depth to ground water, and then sample the ground-water monitoring wells using disposable bailers. The samples will be containerized in bottles provided by the analytical laboratory, labeled, and placed on ice in a cooler.

- The samples will be submitted to Origins for analysis for analytes that would likely be required to be analyzed by the Colorado Department of Public Health and Environment (CDPHE) Water Quality Control Division (WQCD) to support a groundwater discharge permit. These analytes will include VOCs by EPA Method 624; PAHs by EPA Method 625; total recoverable metals and potentially dissolved metals, including aluminum, antimony, arsenic, barium, beryllium, cadmium, chromium (III and VI), copper, iron, lead, manganese, molybdenum, mercury, nickel, selenium, silver, thallium, uranium and zinc. These analytes will be analyzed by Methods 200.7, 200.8; or EPA SW846 Method 245.1.

- Following receipt of analytical results, all well casings will be left in place so that ground-water levels may be gauged in the future. If preferred, Pinyon can abandon these wells after sampling.

- After the field investigation and the analytical testing have been completed, Pinyon will prepare a letter report presenting the findings of the investigation. Additionally, based on the sample results and conclusions, additional recommendations will be made.

Additional Design Services (36th Street Ped/Bike Bridge)

Pinyon assumes that geotechnical investigations would be completed for this project element, similar in scope to the bridge investigation at 38th and Blake. Therefore, Pinyon assumes a similar scope and fee for these services.

History

Compliance with Section 106 of the National Historic Preservation Act will be required for this project. Because the project will take place within an older developed area, the potential short-term and long-term direct impacts to historic resources and effects to the visual setting will need to be assessed. Depending on the project specifics and its effects to any historic resources, mitigation may be required.

Pinyon is currently evaluating historic resources as part of the "Discovery Phase." Part of those efforts is to evaluate previous studies completed, including those completed in support of the RTD East Line NEPA evaluation. Per State Historic Preservation Office (SHPO) guidelines, cultural resource Re-Visitation forms may need to be completed for these resources. Additional resources in the area may require recordation on Colorado SHPO Architectural Inventory, Management Data, and Linear Component survey forms and determinations of eligibility made. Additionally, properties in the project area with structures over 50-years old may need to be recorded and evaluated if they have not been evaluated previously. Currently, Pinyon is completing the following:

1. Coordinating with CDOT to define the APE
2. Draft a Memorandum detailing the affected environment
3. Provide recommendations for inventory/survey forms that will need to be completed.

Depending on the results of the above services already underway, the following may be needed:

1. Complete historic inventories including research, field documentation, and forms suitable for submittal to CDOT and SHPO. Scope and fee assumes that six properties will need to be inventoried.
2. Prepare a Cultural Resource Survey Report per SHPO guidelines presenting all inventoried properties within the APE, determinations of eligibility, and effects findings.

The report would be reviewed by CDOT, revised by the historian if needed, and then CDOT would submit the report to SHPO.

3. Mitigation is not included in this scope and fee because it is not known if it would be required. If it is determined that the project could result in an adverse effect to historic resources, then mitigation would be required. This usually includes preparation of a Memorandum of Agreement between FHWA and SHPO, recordation, and interpretive displays onsite.

These services constitute the proposed scope of work.

Additional Design Services (36th Street Ped/Bike Bridge)

The new pedestrian bridge would be constructed near two previously identified historic resources. Pinyon assumes a 25% level of effort addition to complete services associated with the ped/bike bridge should this design element be added to this scope of work.

Table 1
Summary of Estimated Costs
Design Phase Scope of Work
Public Infrastructure (38th and Blake Station) TOD
Environmental Scope

Task 1 - Sampling During Geotechnical Investigation				
Description	**Quantity**	**Unit**	**Rate**	**Extension**
Labor Rates				
Principal	1.0	hour	$160.00	$160.00
Project Manager	7.0	hours	$120.00	$840.00
Project Specialist	36.0	hours	$92.75	$3,339.00
Staff II Engineer	26.0	hours	$82.00	$2,132.00
Equipment/Material Unit Rates				
Truck/Van Mileage	50.0	miles	$0.55	$27.50
Soil Boring	2.0	each	$105.00	$210.00
Well Development	2.0	each	$55.00	$110.00
Well Sampling	2.0	each	$67.00	$134.00
Laboratory Rates				
Soil - VOCs	2.0	samples	$104.50	$209.00
Soil - PAHS	2.0	samples	$104.50	$209.00
Soil - PAHS	2.0	samples	$104.50	$209.00
Water - VOCs	2.0	samples	$104.50	$209.00
Water - PAHS	2.0	samples	$275.00	$550.00
Water - Metals	2.0	samples	$425.00	$850.00
			Task Subtotal	***$9,188.50***
			Task Subtotal (with Additional Design Elements; with 100% addition)	***$18,377.00***

Task 2 - Historic Documentation				
Description	**Quantity**	**Unit**	**Rate**	**Extension**
Labor Rates				
Principal	2.0	hours	$160.00	$320.00
Project Manager	10.0	hours	$120.00	$1,200.00
Project Specialist	80.0	hours	$92.75	$7,420.00
Project Engineer	12.0	hours	$85.00	$1,020.00
Field Technician/Project Assistant	1.0	hour	$64.00	$64.00
Equipment/Material Unit Rates				
Truck/Van Mileage	20.0	miles	$0.55	$11.00
			Task Subtotal	***$10,035.00***
			Task Subtotal (with Additional Design Elements; with 25% addition)	***$12,543.75***
			Additonal Design Element Fee	**$11,697.25**
			Project Total without Additonal Design Element	**$19,223.50**
			Project Total with Additional Design Element	**$30,920.75**