

**AGREEMENT  
FOR PROFESSIONAL SERVICES**

THIS AGREEMENT is made and entered this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_, by and between the City of Pueblo, a Municipal Corporation ("Client") and Brown and Caldwell, Incorporated, a California corporation, 1527 Cole Boulevard, Lakewood, Colorado 80401 (hereinafter referred to as "Consultant") for Consultant to render professional electrical engineering services for Client with respect to Phase 3- Medium Voltage Switchgear (78A, 78B, 78C and 78D) and Transformer (69A & 69B) Replacement -Design and Construction Support Services and related ancillary services, hereinafter referred to as the "Project." In consideration of the mutual covenants hereinafter set forth, the parties agree as follows:

SECTION 1. GENERAL AND SCOPE OF SERVICES.

(a) Consultant shall satisfactorily perform the professional planning and consulting services for the Project described in more detail in Schedule 1 attached hereto and incorporated herein by reference (the "Basic Services"). Such services shall include all usual and customary professional engineering services including any required drafting or design services incident to its work on the Project as set forth in Schedule 1.

(b) To the extent Consultant performs any of the Project work through subcontractors or subconsultants, Consultant shall be and remain as fully responsible for the full performance and quality of services performed by such subcontractors or subconsultants as it is for services performed directly by Consultant or Consultant's employees.

SECTION 2. CONSULTANT'S RESPONSIBILITIES.

(a) Consultant shall be responsible for the professional quality, technical accuracy and timely completion of Consultant's work, including that performed by Consultant's subconsultants and subcontractors, and including drawings, reports and other services, irrespective of Client's approval of or acquiescence in same. Consultant shall perform its services in accordance with generally-accepted standards and practices customarily utilized by competent engineering firms in effect at the time Consultant's services are rendered.

(b) Consultant shall be responsible, in accordance with applicable law, to Client for all loss or damage to Client to the extent caused by Consultant's negligent act or omission; except that Consultant hereby irrevocably waives and excuses Client and Client's attorneys from compliance with any requirement to obtain a certificate of review as a condition precedent to commencement of an action, including any such requirements set forth in Section 13-20-602, C.R.S. or similar statute, whether now existing or hereafter enacted.

(c) Consultant shall be completely responsible for the safety of Consultant's employees in the execution of work under this Agreement and shall provide all necessary safety and protective equipment for said employees.

(d) Consultant's obligation to render services shall continue for such period of time as may reasonably be required for completion of the work contemplated in Schedule 1 as set forth in Schedule 3 of this Agreement. Consultant represents that Schedule 3 attached hereto is the schedule by which Consultant proposes to accomplish its work, with time periods for which it will commence and complete each major work item.

Time is of the Essence. *[Check this box as applicable to Consultant's services. If applicable, the following is incorporated.]*

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Consultant acknowledges that time is of the essence with respect to the completion of its services under this Agreement. Consultant represents that Schedule 3 attached hereto is the schedule by which Consultant proposes to accomplish its work, with time periods for which it will commence and complete each major work item. Except for Force Majeure events, or any reasonable period of time extended under Section 4(d) below, Consultant shall adhere to this schedule and perform its work in a timely manner so as not to delay Client's timetable for achievement of interim tasks and final completion of Project work. Consultant further acknowledges that its schedule has accounted for all reasonably anticipated delays, including those inherent in the availability of tools, supplies, labor and utilities

required for the work and the availability of information which must be obtained from any third parties, and all conditions to access to public and private facilities.

(e) Before undertaking any work or incurring any expense which Consultant considers beyond or in addition to the Scope of Work described in Schedule 1 or otherwise contemplated by the terms of this Agreement, Consultant shall advise Client in writing that (i) Consultant considers the work beyond the scope of this Agreement, (ii) the reasons that Consultant believes the out of scope or additional work should be performed, and (iii) a reasonable estimate of the cost of such work. Consultant shall not proceed with any out of scope or additional work until authorized in writing by Client. The compensation for such authorized work shall be negotiated, but in the event the parties fail to negotiate or are unable to agree as to compensation, then Consultant shall be compensated for its direct costs and professional time at the rates set forth in Schedule 2 attached hereto.

### SECTION 3. FEES FOR SERVICES; PAYMENT.

(a) Client will pay to Consultant as full compensation for all services required to be performed by Consultant under this Agreement, except for services for additional work or work beyond the scope of this Agreement, the maximum sum of U.S. \$359,382 computed as set forth in Schedule 2.

(b) Consultant shall submit periodic, but not more frequently than monthly, applications for payment, aggregating to not more than the maximum amount set forth above, for actual professional services rendered and for reimbursable expenses incurred. Applications for payment shall be submitted based upon the hourly rates and expense reimbursement provisions set forth in Schedule 2 attached hereto, and shall contain appropriate documentation that such services have been performed and such expenses incurred. Thereafter, Client shall pay Consultant for the amount of the application within 45 days of the date such application is received.

(c) No separate or additional payment shall be made for profit, overhead, local telephone expenses, lodging, routine photocopying, computer time, or similar expenses unless otherwise provided and listed in Schedule 2.

(d) No compensation shall be paid to Consultant for services required and expenditures incurred in correcting Consultant's negligent errors or omissions.

(e) Compensation for authorized work beyond the scope of this Agreement shall be governed by the provisions of Section 2(e).

(f) In the event services under this Agreement are phased and to be performed in more than one fiscal year or are subject to annual appropriation, Consultant acknowledges that funds only in the amount of initial appropriation are available and it shall confirm availability of funds before proceeding with work exceeding initial and subsequent annual appropriations.

### SECTION 4. CLIENT'S RESPONSIBILITIES.

(a) Client agrees to advise Consultant regarding Client's Project requirements and to provide all relevant information, surveys, data and previous reports accessible to Client which Consultant may reasonably require. Consultant shall rely on information provided without verification unless otherwise agreed in Schedule 1.

(b) Client shall designate a Project Representative to whom all communications from Consultant shall be directed and who shall have limited administrative authority on behalf of Client to receive and transmit information and make decisions with respect to the Project. Said representative shall not, however, have authority to bind Client as to matters of governmental policy or fiscal policy, nor to contract for additions or obligations exceeding a value which is the lesser of \$5000 or 5% of the maximum contract price.

(c) Client shall examine all documents presented by Consultant, and render decisions pertaining thereto within a reasonable time. The Client's approval of any drawings, specifications, reports, documents or other materials or product furnished hereunder shall not in any way relieve Consultant of responsibility for the professional adequacy of its work.

(d) Client shall perform its obligations and render decisions within a reasonable time under the circumstances presented. Based upon the nature of Client and its requirements, a period of 14 days shall be

presumed reasonable for any decision not involving policy decision or significant financial impact, when all information reasonably necessary for Client to responsibly render a decision has been furnished. A period of 46 days shall be presumed reasonable for Client to act with respect to any matter involving policy or significant financial impact. The above periods of presumed reasonableness shall be extended where information reasonably required is not within the custody or control of Client but must be procured from others.

#### SECTION 5. TERMINATION.

(a) Client reserves the right to terminate this Agreement and Consultant's performance hereunder, at any time upon written notice, either for cause or for convenience. Upon such termination, Consultant and its subcontractors shall cease all work and stop incurring expenses, and shall promptly deliver to Client all data, drawings, specifications, reports, plans, calculations, summaries and all other information, documents, work product and materials as Consultant may have accumulated in performing this Agreement, together with all finished work and work in progress.

(b) Upon termination of this Agreement for events or reasons not the fault of Consultant, Consultant shall be paid at the rates specified in Schedule 2 for all services rendered and reasonable costs incurred to date of termination; together with any reasonable costs incurred within 10 days of termination provided such latter costs could not be avoided or were incurred in mitigating loss or expenses to Consultant or Client. In no event shall payment to Consultant upon termination exceed the maximum compensation provided for complete performance in Section 3(a).

(c) In the event termination of this Agreement or Consultant's services is for breach of this Agreement by Consultant, or for other fault of Consultant including but not limited to any failure to timely proceed with work, or to pay its employees and consultants, or to perform work with that level of care and skill ordinarily exercised by Consultants performing similar services at the time such services are performed, or to perform work in a manner deemed satisfactory by Client's Project Representative, then in that event, Consultant's entire right to compensation shall be limited to the lesser of (a) the reasonable value of completed work to Client or (b) payment at the rates specified in Schedule 2 for services satisfactorily performed and reimbursable expenses reasonably incurred, prior to date of termination.

(d) Consultant's professional responsibility for its completed work and services shall survive any termination.

#### SECTION 6. RESERVED.

#### SECTION 7. USE OF DOCUMENTS.

(a) Plans, drawings, designs, specifications, reports and all other documents and instruments ("Work Product") prepared or provided by Consultant hereunder shall become the sole property of Client, subject to applicable federal grant requirements, and Client shall be vested with all rights therein of whatever kind and however created, whether by common law, statute or equity. In the event Client uses Work Product provided hereunder for another project independent from Project, without adaptation by Consultant, Client shall hold harmless and indemnify Consultant from all loss, claims, injury and judgments arising from the use of such Work Product for such other project. Consultant shall retain all rights to its pre-existing proprietary information and intellectual property. Client shall have access at all reasonable times to inspect and make copies of all notes, designs, drawings, specifications, and all other technical data or other documents pertaining to the work to be performed under this Agreement. In no event shall Consultant publish Work Product developed pursuant to this Agreement except (i) with advance written consent of Client, which consent may be granted or withheld in Client's sole and absolute discretion and (ii) in full compliance with the requirements of this Agreement and applicable federal regulations.

## SECTION 8. INSURANCE AND INDEMNITY.

(a) Consultant agrees that it shall procure and will maintain during the term of this Agreement, such insurance as will protect it from claims under workers' compensation acts, claims for damages because of personal injury including bodily injury, sickness or disease or death of any of its employees or of any person other than its employees, and from claims or damages because of injury to or destruction of property including loss of use resulting therefrom; and such insurance will provide for coverage in such amounts as set forth in subparagraph (b).

(b) The minimum insurance coverage which Consultant shall obtain and keep in force is as follows:

(i) Workers' Compensation Insurance complying with statutory requirements in Colorado and in any other state or states where the work is performed. The Workers' Compensation Insurance policy shall contain an endorsement waiving subrogation against the Client.

(ii) Commercial General Liability Insurance (Policy Form CG 00 01) with coverage limits of no less than \$1,000,000 per occurrence and in the aggregate, for bodily injury and property damage, including premises/operations and completed operations/products liability. The Commercial General Liability Insurance policy shall also provide coverage for contractual liability and contain an endorsement waiving subrogation against the Client.

(iii) Automobile Liability Insurance with coverage limits no less than \$1,000,000 per accident and contain coverage for both hired and non-owned vehicles and equipment.

(iv) Umbrella/Excess Liability Insurance in an amount not less than \$1,500,000 per occurrence and in the aggregate in excess of the primary limits.

(v) Professional Liability Insurance with coverage of not less than One Million and No/100 Dollars (\$1,000,000.00 each claim/aggregate) covering claims arising from the negligent acts, errors or omissions in the services performed by Consultant for Client under this Agreement.

(vi) The Commercial General Liability Insurance, Automobile Liability Insurance and Umbrella/Excess Liability Insurance policies shall be endorsed naming Client, its officers, agents and employees as additional insureds.

(c) Consultant agrees to hold harmless, defend and indemnify Client from and against any liability to third parties, to the extent caused by the negligent acts, errors or omissions of Consultant, its employees, subcontractors and consultants.

## SECTION 9. SUBCONTRACTS.

(a) Client acknowledges that Consultant is the prime contractor and the only party with whom Client has a contractual relationship under this Agreement. To the extent Consultant performs any Project activities through subconsultants or subcontractors, Consultant shall contractually bind each of its subconsultants and subcontractors by subcontract agreement to all of the terms of this Agreement which are for the benefit of Client, and Client shall be a third party beneficiary of those subcontract provisions.

(b) Consultant shall indemnify and defend Client from all claims and demands for payment for services provided by subcontractors of Consultant.

(c) Consultant acknowledges that, due to the nature of the services to be provided under this Agreement, the Client has a substantial interest in the personnel and consultants to whom Consultant assigns principal responsibility for services performed under this Agreement. Consequently, Consultant represents that it has selected and intends to employ or assign the key personnel and consultants identified in its proposal submitted to Client prior to execution of this Agreement to induce Client to enter this Agreement. Consultant shall not change such consultants or key personnel except after giving notice of a proposed change to Client and receiving Client's consent thereto. Consultant shall not assign or reassign Project work to any person to whom Client has reasonable objection.

SECTION 10. REQUIRED FEDERAL PROVISIONS. [Delete if inapplicable.]

**Deleted – Not Applicable**

SECTION 11. MISCELLANEOUS.

(a) Notices. Any and all notices or other communications required or permitted by this Agreement or by law to be served on or given to either Consultant or Client by the other party shall be in writing and shall be deemed duly served and given when personally delivered to the party to whom it is directed, or in lieu of such personal service, when deposited in the United States mail, first-class postage prepaid, addressed to the Client, Attention:

Ms. Nancy Keller, Wastewater Director, City of Pueblo Department of Wastewater, 1300 S. Queens Ave., Engineering Building, Pueblo, Colorado, 81001 or to Consultant at

Mary J. Gearhart, PE, Brown and Caldwell, 1527 Cole Blvd., Suite 300, Lakewood, CO 80401. Either party may change his address for the purpose of this paragraph by giving written notice of such change to the other party in the manner provided in this paragraph.

(b) Entire Agreement. This instrument contains the entire agreement between Consultant and Client respecting the Project, and any other written or oral agreement or representation respecting the Project or the duties of either Client or Consultant in relation thereto not expressly set forth in this instrument and its attachments is null and void. In the case of any conflict between the terms of this Agreement for Professional Services and terms of Schedule 1 or any other attachment hereto, the terms of this Agreement shall govern.

(c) Successors and Assigns. This Agreement shall be binding on the parties hereto and on their successors and assigns; provided, however, neither this Agreement, nor any part thereof, nor any moneys due or to become due hereunder to Consultant may be assigned by it without the written consent of Client, which consent may be withheld in Client's sole and absolute discretion. Any assignment or attempted assignment in violation of this subsection shall be void.

(d) Amendments. No amendment to this Agreement shall be made nor be enforceable unless made by written amendment signed by an authorized representative of Consultant and by Client in accordance with the requirements of Section 4(b) of this Agreement or upon authorization of Client's governing board.

(e) Choice of Law. This Agreement shall be governed and interpreted in accordance with the laws of the State of Colorado. Any unresolved dispute arising from or concerning any matter relating to this Agreement, unless otherwise provided for by this Agreement, shall be decided in a state court of competent jurisdiction located in Pueblo, Colorado.

(f) Equal Employment Opportunity. In connection with the performance of this Agreement, neither Consultant nor its consultants shall discriminate against any employee or applicant for employment because of race, color, religion, sex, national origin, disability or age. Consultant shall endeavor to insure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, national origin, disability or age.

(g) Severability. If any provision of this Agreement, except for Section 2, is determined to be directly contrary to and prohibited by law or the requirements of any federal grant or other Project funding source, then such provision shall be deemed void and the remainder of the Agreement enforced. However, it is the intent of the parties that Section 2 of this Agreement not be severable, and that if any provision of said section be determined to be contrary to law or the terms of any federal grant, then as of the time of any such determination this entire Agreement shall be void and terminated pursuant to the provisions of Section 5, without waiving any claims or defenses.

(h) Force Majeure. Neither party shall be responsible for delays caused by circumstances beyond its reasonable control including but not limited to governmental action, statute, ordinance, rule or regulation, strike or other labor troubles, fires, acts of God, or other incidents outside of either party's control that makes performance or acceptance impossible or impractical.

SECTION 12. STATE-IMPOSED MANDATES PROHIBITING ILLEGAL ALIENS FROM PERFORMING WORK

(a) At or prior to the time for execution of this Agreement (which may be referred to in this section as this "Contract"), Consultant (which may be referred to in this section as "Contractor") shall submit to the Purchasing Agent of City its certification that it does not knowingly employ or contract with an illegal alien who will perform work under this Contract and that the Contractor will participate in either the "E-Verify Program" created in Public Law 208, 104<sup>th</sup> Congress, as amended and expanded in Public Law 156, 108<sup>th</sup> Congress, as amended, that is administered by the United States Department of Homeland Security or the "Department Program" established pursuant to §8-17.5-102(5)(c) C.R.S. that is administered by the Colorado Department of Labor and Employment in order to confirm the employment eligibility of all employees who are newly hired for employment to perform work under this Contract.

(b) Contractor shall not:

(I) Knowingly employ or contract with an illegal alien to perform work under this contract;

(II) Enter into a contract with a subconsultant that fails to certify to Contractor that the subconsultant shall not knowingly employ or contract with an illegal alien to perform work under this Contract.

(c) The following state-imposed requirements apply to this contract:

(I) The Contractor shall have confirmed the employment eligibility of all employees who are newly hired for employment to perform work under this Contract through participation in either the E-Verify Program or Department Program.

(II) The Contractor is prohibited from using either the E-Verify Program or Department Program procedures to undertake pre-employment screening of job applicants while this Contract is being performed.

(III) If the Contractor obtains actual knowledge that a subcontractor or subconsultant performing work under this Contract knowingly employs or contracts with an illegal alien, the Contractor shall be required to:

A. Notify the subconsultant and the Client's Purchasing Agent within three (3) days that the Contractor has actual knowledge that the subcontractor/subconsultant is employing or contracting with an illegal alien; and

B. Terminate the subcontract with the subcontractor/subconsultant if within three (3) days of receiving the notice required pursuant to subparagraph (c)(III)A. above the subcontractor/subconsultant does not stop employing or contracting with the illegal alien; except that the Contractor shall not terminate the contract with the subcontractor/subconsultant if, during such three (3) days, the subcontractor/subconsultant provides information to establish that the subcontractor/subconsultant has not knowingly employed or contracted with an illegal alien.

(IV) The Contractor is required to comply with any reasonable request by the Colorado Department of Labor and Employment (hereinafter referred to as "CDLE") made in the course of an investigation that CDLE is undertaking pursuant to its authority under §8-17.5-102(5), C.R.S.

(d) Violation of this Section 12 by the Contractor shall constitute a breach of contract and grounds for termination. In the event of such termination, the Contractor shall be liable for Client's actual and consequential damages.

(e) As used in this Section 12, the terms "subcontractor" and "subconsultant" shall mean any subconsultant or subcontractor of Consultant rendering services within the scope of this Agreement.

SECTION 13. Reserved.

SECTION 14. PERA LIABILITY

Consultant shall reimburse the City for the full amount of any employer contribution required to be paid by the City of Pueblo to the Public Employees' Retirement Association ("PERA") for salary or other compensation paid to a PERA retiree performing contracted services for the City under this Agreement. The Consultant shall fill out the questionnaire attached as Exhibit A and submit the completed form to Client as part of the signed Agreement.

IN WITNESS WHEREOF, the parties hereto have made and executed this Agreement as of the day and year first above written.

CLIENT: CITY OF PUEBLO, A MUNICIPAL CORPORATION

By \_\_\_\_\_  
President of the City Council

ATTEST:

APPROVED AS TO FORM:

\_\_\_\_\_  
City Clerk

\_\_\_\_\_  
City Attorney

CONSULTANT: BROWN AND CALDWELL, INC.

\_\_\_\_\_  
By:

\_\_\_\_\_

Name:  
Title:





SCHEDULE 1  
SCOPE OF WORK

# **Brown & Caldwell Proposal for: Phase 3 - Medium Voltage Switchgear and Transformer Replacement**

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Prepared for  
City of Pueblo  
April 13, 2016

# Project Overview

Brown and Caldwell (BC) will provide assistance to the City of Pueblo (COP), James R. Dilorio Water Reclamation Facility in design and construction phase services for the replacement of medium voltage switchgear lineup (78A, 78B, 78C, and 78D) located near the primary clarifiers, two 750kVA transformers (69A and 69B) located at the secondary clarifiers, and associated medium voltage cables, duct banks, conduits and related appurtenances as defined within the electrical asset study dated June 8, 2012.

Additionally, the design will incorporate the addition of the following:

- One mobile generator quick connect station for the Administration Building panel H80A. This quick connect station will be located in the niche on the southern wall of the Administration Building by the parking lot. A new 400A/3P breaker would be placed in the present spaces available within the H80A panel and connected to the generator tap box.
- One mobile generator quick connect station for the Shop Building panel H79A, generator tap box mounted on the eastern wall by the access road that goes between the shop building and Digesters.
- One mobile generator quick connect station for each, of the transformers 69A and 69B. The tap box will be located adjacent to the transformers.
- One mobile generator quick connect station for the old Administration/Engineering Building, just ahead of panel DP-1, generator tap box mounted on the northern wall by the parking lot. The generator tap box would replace the existing 200A fused disconnect outside the building. A new 225A breaker would be placed in the generator tap box and connected to the panel lugs.
- Installing and programming of additional components required to complete the Ethernet ring by installing new Ethernet switches at ACP-62 (Old Headworks), ACP-63 (New Headworks), ACP-71/72 (Digesters), ACP-73 (DAF), utilizing the existing fiber optic cables that the City recently installed, and configuring new and existing Ethernet switches located at ACP's 62, 63, 68, 69, 71/72, and 73 to communicate via two routes in order to change the existing star-configuration, to a ring-configuration.

This project was given a medium priority for 2015 as a part of the electrical asset study, predicting an average of an additional 3 year life span for the equipment in 2012 (at the time of the study's publish date).

Any changes to contract must be authorized by the City of Pueblo Wastewater Director and CPPO Director of Purchasing and negotiated with the Brown and Caldwell Project Manager.

## Phase 100 – Project Management and Administration

### 1.1 Activities

Project Management and Administration includes the following activities:

- Project Management Planning
- Project Control and Reporting
- Project Meetings and Workshops
- Project Closeout

### **1.1.1 Project Management Planning**

The Project Management Plan will document the key project information required by all project team members to assist them in executing the project to meet the required objectives: on time, on budget, with high quality. The key elements of the project plan are described below:

- Scope of Services with work breakdown structure
- Project schedule updates will be provided in monthly progress reports if changes have been made and agreed upon.
- Project budgets
- Communications Plan
- Risk Management Plan
- QA/QC Plan
- Project documentation plan and file structure
- Change management process
- Health and Safety Plan for field work, if applicable

### **1.1.2 Project Control and Reporting**

Monthly invoices (assumed 18 month project duration) will be prepared and submitted to the City of Pueblo in an approved format. Invoices shall include:

- Total contract amount
- Total charges to date
- Previous billings
- Outstanding balance
- Current amount remaining
- Total amount due

This task also includes periodic project review by BC management to assure the project is meeting critical success factors, is on schedule, and is within budget.

### **1.1.3 Project Meetings**

BC will meet with the City of Pueblo every month (including kickoff meeting) or at important milestones, during the design phase of the project, to review project status, coordinate project activities, obtain direction, and answer specific questions relating to the project. Conference call updates will be held, as needed, between monthly progress meetings. Project meetings coinciding with submittal workshops (below) will be handled as part of the workshop budget. Budgeted two people for a total of four (4) meetings for this item.

### **1.1.4 Project Close-Out**

During project close-out, BC will resolve all final invoices to the City of Pueblo, consolidate and archive all project files, and meet with the City to review the project performance and achievement of project objectives.

## **1.2 Deliverables**

The following deliverables will be provided as part of this phase:

- Project Management Plan
- Monthly invoices

- Meeting agendas, presentation materials, and minutes

## Phase 200 - Design Services

### Objectives

As part of this project BC will provide engineering support to the City of Pueblo for the following services:

- Develop an electrical and I&C design package to install new medium voltage primary switchgear (78A, 78B, 78C, and 78D), cable, conduit, raceways and appurtenances.
- Develop an electrical design package to install new 750kVA transformers (69A and 69B), cable, conduit, raceways, and appurtenances.
- Design for the installation of a mobile generator connection point to support the Secondary Clarifier loads on the secondary side of transformers 69A and 69B.
- Design for the installation of a mobile generator connection point to support the Administration Building panel H80A.
- Design for the installation of a mobile generator connection point to support the Shop Building panel H79A,
- Design for the installation of a mobile generator connection point to support the old Administration/Engineering Building, just ahead of panel DP-1,
- To date, the City has had good success with the existing S&C fusible load-interrupter switchgear and existing Square D distribution transformers. BC will evaluate the potential for utilizing this same style S&C and Square D equipment for the replacement tasks.
- Include plans to terminate new conductors fed from the new primary switchgear (SWGR-78A, B, C, and D) to the transformers (65A and 65B) that feed SWGR-65A/B.
- Include plans to terminate new conductors fed from the new primary switchgear (SWGR-78A, B, C, and D) into the new transformers (69A and 69B) to be installed in this project.
- Removal of the existing transformers (69A and 69B) and the existing switchgear line-up (SWGR-78A, B, C, D).
- Integrating control and monitoring signals with the existing plant SCADA system.
- Construction Sequence analysis to determine the most efficient methods for phasing in the installation and removal of electrical equipment while maintaining electric service to critical plant equipment.

### 2.1 Basis of Design Report (BODR) Phase

The BODR is a narrative description of what BC will develop to respond to and meet the City of Pueblo's project requirements and objectives as described above. This BODR will include any assumptions made, project requirements and design criteria used.

#### 2.1.1 BODR Key Elements

The following key elements will be included in the BODR:

##### 2.1.1.1 Medium Voltage Primary Switchgear

This section will provide a broad narrative description of the design criteria and project requirements involved in replacing medium voltage primary switchgear (78A, 78B, 78C, and 78D). It will also describe installation of cable, conduit, raceways and ancillary requirements for the new medium voltage primary

switchgear. Additionally, it will summarize the process of removing the existing medium voltage switchgear and transformers in a sequence that ensures very little, if any, power interruption and will aid in the successive design and construction of this portion of the electrical system by providing an improved understanding of the processes involved in carrying out this activity.

#### **2.1.1.2 750kVA Transformers**

This section will discuss the replacement of the two 750kVA transformers (69A and 69B) as a general narrative description of the design criteria and project requirements. It will also describe ancillary installation requirements for the new transformers, including installation of cable, conduit, raceways, and appurtenances. It will summarize the process of removing the existing transformers, and will begin to nominate replacement manufacturers and options. It will allow for an improved understanding of the processes involved in carrying out this portion of the project, and will aid in the successive design and construction of this portion of the electrical system.

#### **2.1.1.3 Mobile Generator Connection points**

This section of the BODR will provide a general description of the requirements involved in the installation of a mobile generator connection point at select buildings to support Secondary Clarifier loads, Administration Building panel H80A loads, Shop Building panel H79A loads, , and the old Administration/Engineering Building panel DP-1 loads.

#### **2.1.1.4 Convert existing process Ethernet from star to ring configuration**

This section of the BODR will provide a general description of the requirements involved to complete the Ethernet ring by utilizing existing fiber optic cables and configuring new and existing Ethernet switches located at ACP62, 63, 68, 69, 71/72, and 73 to communicate via two routes in order to change the existing star-configuration, to a ring-configuration.

### **2.1.2 Site Visits**

A total of one (1) site visit is budgeted during the BODR Phase in order to confirm record drawings, take field measurements, etc. Budgeted three people for a total of eight hours each for this item.

### **2.1.3 Deliverables**

The following deliverables will be provided as part of this phase:

- Draft BODR submittal – 5 hard copies and one electronic copy
- Final BODR submittal – 5 hard copies and one electronic copy

### **2.1.4 Workshop**

The Engineer will organize and attend one (1) Workshop Review Meeting with City personnel under the BODR phase of this task. The workshop is for the following:

- Draft BODR submittal - A workshop will be held following the draft BODR submittal and sufficient review period (10 working days) by the City. The meeting should include primary stakeholders including the following: Pueblo procurement officer, Construction contractor, Pueblo Operations and Maintenance lead, Pueblo Electrical Lead, and BC Project Manager and Electrical Lead. The purpose of the meeting is to review and resolve comments related to the BODR including project requirements, design criteria, plans and assumptions. This meeting is expected to last approximately 2-3 hours. Following the meeting, BC will perform a field investigation to verify proposed plans and existing equipment data.

### **2.1.5 QA/QC**

Prior to the BODR submittal packages, the Engineer will conduct an internal QA/QC review of materials to be submitted to the City.

## **2.2 60 Percent Design Phase**

The 60 percent design effort will proceed following submittal and approval of the BODR. Following the 60 percent design submittal and allowing for sufficient review period (10 working days) by the City, a 60 percent design review meeting will be held to review and resolve comments.

### **2.2.1 60 Percent Design Key Tasks**

The following tasks will be included as part of the 60 Percent design: The following key elements will be included in the BODR:

#### **2.2.1.1 Modify Existing One-Line Diagrams**

Modify existing one-line diagrams to show new switchgear and transformer equipment along with new power distribution cable types and sizes that may change as a result of new equipment. All drawings will be created or modified using AutoCAD format.

#### **2.2.1.2 Develop Preliminary Electrical and I&C Plan Drawings**

This task includes plan drawings showing general location of existing and proposed locations of electrical equipment near the Primary Clarifier Electrical Building, near the Secondary Clarifier transformers, Administration Building, Shop Building, and the Engineering Building. The scope of this activity also includes integrating control and monitoring signals with the existing plant SCADA system. General routing of underground duct banks and conduits are a part of these plans.

#### **2.2.1.3 Develop Preliminary Grounding Grid Plan Drawing**

A grounding grid plan will be developed to depict how the S&C load-interrupter switchgear and the Square D distribution transformer will be grounded. Details will include ground rod location, conductor sizes, and general routing.

#### **2.2.1.4 Develop Preliminary Electrical Detail Drawings**

This task will include mounting details for new electrical equipment and appurtenances at existing structures as part of the installation of the new primary switchgear and transformers and the Generator Tap Boxes and Ethernet components.

#### **2.2.1.5 Coordination Study and Arc Flash Analysis**

BC will complete a Coordination Study and Arc Flash Analysis for the new switchgear. The analysis will be performed using the latest software version of SKM. Protective device setting recommendations and Arc Flash hazard labels will be supplied as part of this activity. Seventy (70) hours have been allotted this task.

#### **2.2.1.6 Develop Preliminary Duct bank, Manhole, and Handhole Schedules**

This task includes creating plans and schedules for duct banks, manholes and handholes for the underground routing of cables from the new S&C electrical switchgear to the primary of new transformers 65A/65B cabinet, installed in a previous project, and the new transformers 69A and 69B installed in this project. This task also includes plans and schedules for duct banks, manholes, and handholes for the underground routing of 15kV cables to feed existing loads from switchgear 78A, 78B, 78C, and 78D. We will utilize existing ductbank where possible.

#### **2.2.1.7 Develop Preliminary Structural Detail Drawings**

This task will include the structural design criteria including material specifications and special inspection requirements, plans and sections for the concrete equipment pads.

### 2.2.1.8 Develop Preliminary Construction and Demolition Sequence

Planning will concentrate on maintaining continuity of service during the switchover from the existing switchgear located near the Primary Clarifier electric buildings to the new switchgear located on the same concrete pad. Much thought will be given to a proper construction and demolition sequence. BC will work with Pueblo and the construction contractor to develop a documented construction sequence to include provisions for a portable backup generator to supply power to critical facilities during the switchover. This task will also include planning for erosion and sediment control measures to be taken during construction.

### 2.2.1.9 Develop Preliminary Construction and Procurement Specifications

During the 60 percent design phase, project assumptions, design criteria, and project requirements from the Basis of Design Report will be implemented. This design phase will execute individual portions of this project as described below:

- Medium Voltage Primary Switchgear

Implementing the design of medium voltage primary switchgear replacement will take place during the 60 percent design phase. In this phase, the project team will begin design implementation with a review of the medium voltage switchgear replacement narrative in the BODR. After comments and concerns are addressed by the project team, BC will verify proposed plans and existing switchgear equipment in the field. Upon completion of field verification, BC will update schematic (one-line) drawings to include new switchgear equipment and update plan drawings to show proposed location of new switchgear equipment. During this phase, a preliminary grounding plan as well as mounting details for the new medium voltage switchgear will be developed.

Also during the 60 percent design phase, BC will refine duct bank, manhole, and handhole schedules for the underground routing of 15kV cables to feed existing loads from switchgear 78A, 78B, 78C, and 78D.

BC will coordinate with the owner and contractor teams to develop a construction sequence during the 60 percent design phase. This construction sequence will facilitate a seamless transition from the old medium voltage switchgear over to the new installment.

- Replacement of the 750kVA transformers

The 60 percent design phase will enable design of the two 750kVA transformer replacements. This design implementation will proceed following the review of the transformer replacement narrative in the BODR. After comments and concerns are addressed by the project team, BC will verify proposed plans and existing transformer equipment in the field.

Following the field verification, BC will update schematic (one-line) drawings to include new transformer equipment and update plan drawings to show proposed location of new transformers and any conduit or ductbank routing required. During this phase, a preliminary grounding plan as well as mounting details for the new transformers will be developed. Transformer models will be further defined during the 60 percent design phase as well.

The 60 percent design phase will facilitate more complete duct bank, manhole, and handhole schedules for the underground routing of 15kV cables that feed the transformers. BC will also refine duct bank, manhole, and handhole schedules for the underground routing of 480V loads from the new transformers, as required.

BC will coordinate with the project teams to develop a construction and demolition sequence during the 60 percent design phase. Because of the broad range of work occurring at the site, this scheduled sequencing of activities will help ensure the facility remains in service throughout construction.



- Mobile Generator Connection  
During the 60 percent design phase, the project team will consider the best way to provide a mobile generator connection to support the Secondary Clarifier loads on the secondary side of transformers 69A and 69B, Administration Building panel H80A loads, Shop Building panel H79A loads, and the old Administration/Engineering Building panel DP-1 loads. The project team will discuss with WRF staff what load they desire to be supported and evaluate if these loads can be supported by the existing 100KW mobile generator or a rented trailer generator. BC will verify proposed plans in the field after all comments from the BODR have been addressed. Upon completion of field verification, BC will update schematic (one-line) drawings to include new generator connection equipment and update plan drawings to show proposed location of the new generator connection and any conduit or ductbank routing required.

### **2.2.2 Site Visits**

One (1) additional site visit is budgeted during the 60 Percent Design Phase. Budgeted two people for a total of eight hours each per visit for this item.

### **2.2.3 Deliverables**

The following deliverables will be provided as part of this phase:

- 60 Percent Submittal – It is anticipated the 14 construction and procurement specifications (BC Format) will be submitted. BC will provide to the City of Pueblo an electronic copy along with two hard copies of this deliverable

### **2.2.4 Workshop**

The Engineer will organize and attend one (1) Workshop Review Meeting with City personnel under the 60 Percent phase of this task to discuss the submittal.

### **2.2.5 QA/QC**

Prior to the 60 percent submittal package, the Engineer will conduct an internal QA/QC review of materials to be submitted to the City.

## **2.3 90 Percent Design Phase**

Following 60 percent review comment resolution, the 90 percent design effort will commence. The 90 percent design effort should progressively elaborate the 60 percent design effort and when submitted the design should be substantially complete. BC will provide to the City of Pueblo an electronic copy along with two hard copies of this deliverable. BC will also submit this substantially completed design to the Authority Having Jurisdiction for approval.

### **2.3.1 90 Percent Design Key Tasks**

The following design elements will be progressed from the 60 percent to the 90 percent design phase:

- One-Line Diagrams
- Electrical and I&C Plan Drawings
- Grounding Grid Plan Drawing
- Electrical Detail Drawings
- Duct bank, Manhole, and Hand hole Schedules
- Site Drawing with Erosion Control Plan and Details
- Structural Detail Drawings

- Construction Sequence
- Construction and Procurement Specifications

### **2.3.2 Site Visits**

One (1) additional site visit is budgeted during the 90 Percent Design Phase. Budgeted two people for a total of eight hours each per visit for this item.

### **2.3.3 Deliverables**

The following deliverables will be provided as part of this phase:

- 90 Percent Submittal – BC will provide to the City of Pueblo an electronic copy along with two hard copies of this deliverable
- BC will also submit this substantially completed design to the Authority Having Jurisdiction for approval.

### **2.3.4 Workshop**

The Engineer will organize and attend one (1) Workshop Review Meeting with City personnel under the 90 Percent phase of this task to discuss the submittal.

### **2.3.5 QA/QC**

Prior to the 90 percent submittal package, the Engineer will conduct an internal QA/QC review of materials to be submitted to the City.

## **2.4 100 Percent Design Phase**

Following 90 percent review comment resolution, the 100 percent design effort will commence.

### **2.4.1 100 Percent Design Key Tasks**

- 90 percent comments will be addressed.
- Complete design documents will be stamped by a BC Professional Engineer
- Assist the City's in preparation of advertisement for bidding, to include final plans, drawings and technical specifications.

### **2.4.2 Deliverables**

The following deliverables will be provided as part of this phase:

- 100 Percent Submittal – BC will provide to the City of Pueblo an electronic copy along with two hard copies of this deliverable
- BC will also submit this substantially completed design to the Authority Having Jurisdiction for approval.

### **2.4.3 Workshop**

The Engineer will organize and attend a total of one (1) Workshop Review Meeting with City personnel under the 100 Percent phase of this task to discuss the submittal.

### **2.4.4 QA/QC**

Prior to the 100 percent submittal package, the Engineer will conduct an internal QA/QC review of materials to be submitted to the City.

## **Phase 300 – Bidding Phase Services**

### **3.1 Activities**

Upon authorization from the City, Brown and Caldwell will perform the following Bidding Phase Services for the Project 3 construction phase:

#### **3.1.1 Bid Solicitation**

Brown and Caldwell will assist the City of Pueblo in advertising for bids from construction contractors to construct the proposed project by providing an appropriate advertisement for City use. (It is anticipated that the City will cover publication costs required as part of the bidding process.)

Brown and Caldwell will also conduct a Pre-Bid Conference in conjunction with City of Pueblo Staff. Pre-Bid Meeting Minutes will be prepared as part of this effort.

#### **3.1.2 Bidding Documents**

Provide copies of the bidding documents to prospective bidders upon their request. A fee will be charged for the documents to cover the cost of printing and distribution.

#### **3.1.3 Bidder Questions**

Answer questions of prospective bidders during the advertisement and bidding period.

#### **3.1.4 Addenda**

Prepare not more than three addenda, as required, to modify or amend the bidding documents as appropriate during the bidding period.

#### **3.1.5 Bid Opening**

Bids will be received by the City of Pueblo. A Brown and Caldwell representative will be in attendance during bid opening.

#### **3.1.6 Bidder Evaluation**

Review the submitted bids. Brown and Caldwell will submit a letter to the City of Pueblo summarizing results of the review and making a recommendation regarding acceptance of the bid and award of the contract.

## **Phase 400 - Engineering Services During Construction**

### **Objectives**

BC to provide construction phase services for the replacement of medium voltage primary switchgear (78A, 78B, 78C, and 78D), cable, conduit, raceways and appurtenances.

### **4.1 Activities**

Upon authorization from the City, Brown and Caldwell will perform the following engineering services during construction in conjunction with the Phase 3 construction phase:

#### **4.1.1 Shop Drawing Submittals**

Review shop drawings submitted by the Contractor to assess the conformance of equipment proposed by the Contractor with the design intent of the contract documents and indicate to the Contractor the acceptability of such equipment. It is assumed that thirty-three (33) shop drawings will be reviewed by

the Engineer. BC assumes no more than (2) reviews per shop drawing submittal. A total of 4 hours has been budgeted for review of the initial shop drawing submittal and 3 hours for potential re-submittals. BC will maintain a shop drawing submittal log.

BC anticipates reviewing and commenting on the following submittal list:

- Contractor's preliminary schedule
- Contractor's measurement and payment plans
- Contractor Health & Safety Plan
- Cast-in-place concrete
- Concrete reinforcement
- Erosion control
- Shoring and bracing
- Sub soil and concrete strength
- Concrete formwork
- Earthwork
- Manhole/handhole submittal.
- Geotextile submittal
- Electrical Acceptance Testing submittal
- Arc Flash Analysis submittal
- Grounding components
- Raceways
- Single mode fiber optic cable and appurtenances
- Ethernet switch hardware and software
- Medium voltage Switchgear submittal.
- 750kVA transformer submittal.
- Temporary backup generator submittal.
- S&C Switchgear O&M manual submittal (2).
- Square D distribution Transformer O&M manual submittal.
- Duct bank submittal
- Cable and wire submittal.
- Conductor labeling
- PLC package
- Electrical test reports
- Power study report
- Switchgear acceptance test
- Transformer acceptance test
- Fiber optic cable test reports
- Training Submittals

#### **4.1.2 Requests for Information**

Respond up to nine (9) Requests for Information (RFI) submitted by the construction contractor to help clarify the intent of the contract documents. Forty (40) hours have been allotted for this task. BC will maintain an RFI log.

### **4.1.3 Change Orders**

Provide assistance, where applicable, on reviewing up to three (3) proposed change orders. Assistance can be in the form of collaboration, coordination and minor design alterations, Assist with determination of conformance with the original design intent and cost effectiveness. Fifteen (15) hours have been allotted for this task.

### **4.1.4 Construction Sequence Planning and MOP Development**

Coordinate, review and comment (with City staff input) Contractor's proposed sequence of construction to maintain power to critical equipment throughout the construction process. This will consist of review and comment on construction sequencing and six (6) utility switchover MOPs

### **4.1.5 Meetings and On-Site Services**

On-site services during construction phase will include attendance at the pre-construction meeting, attendance at one construction progress meeting per month, and construction observation performed in conjunction with the progress meetings. It is assumed that a total of no more than six (6) trips to the site will be required (budgeted 8 hours for two people per visit).

### **4.1.6 Drawings of Record**

Upon completion of construction, Brown and Caldwell will prepare record drawings, to reflect changes made during construction as recorded by the construction contractor. These drawings will be marked as "Record Drawings" and two (2) "hard copy" sets and one (1) electronic set on a CD and in a format acceptable to the District's current AutoCad system will be submitted to the City.

**SCHEDULE 2  
FEE AND RATES**

Pueblo, City Dept of Wastewtr (CO) -- Project P3-MV Swgr and Xfrmr Repl

Phase	Phase Description	Total Labor Hours	Total Labor Effort	APC	Total ODCs	Total Unit Pricing Effort	Total Sub Cost	Total Expense Cost	Total Expense Effort	Total Effort
100	PM and Admin	306	51,692	0	1,080	0	0	1,080	1,080	52,772
200	Design Phase	1,298	204,510	0	2,740	0	0	2,740	2,740	207,250
300	Bidding Phase	67	12,178	0	1,000	0	0	1,000	1,000	13,178
400	Eng Services During Constr	526	84,682	0	1,500	0	0	1,500	1,500	86,182
<b>GRAND TOTAL</b>		<b>2,197</b>	<b>353,062</b>	<b>0</b>	<b>6,320</b>	<b>0</b>	<b>0</b>	<b>6,320</b>	<b>6,320</b>	<b>359,382</b>

Hours and Dollars are rounded to nearest whole number.

## Brown and Caldwell Schedule of Hourly Billing Rates

Level	Engineering	Technical/Scientific	Administrative	Hourly Rate
A			Office/Support Services I	\$68
B	Drafter Trainee	Field Service Technician I	Word Processor I Office/Support Services II	\$76
C	Assistant Drafter	Field Service Technician II	Word Processor II Office/Support Services III	\$76
D	Drafter Engineering Aide Inspection Aide	Field Service Technician III	Accountant I Word Processor III Office/Support Services IV	\$86
E	Engineer I Senior Drafter Senior Illustrator Inspector I	Geologist/Hydrogeologist I Scientist I Senior Field Service Technician IV	Accountant II Word Processor	\$95
F	Engineer II Inspector II Lead Drafter Lead Illustrator	Geologist/Hydrogeologist II Scientist II	Accountant III Area Business Operations Mgr Technical Writer Word Processing Supervisor	\$114
G	Engineer III Inspector III Senior Designer Supervising Drafter Supervising Illustrator	Geologist/Hydrogeologist III Scientist III	Accountant IV Administrative Manager	\$134
H	Senior Engineer Principal Designer Senior Construction Engineer Senior Engineer Principal Engineer	Senior Geologist/Hydrogeologist Senior Scientist	Senior Technical Writer	\$153
I	Principal Construction Engineer Supervising Designer	Principal Geologist/Hydrogeologist Principal Scientist	Corp.Contract Administrator	\$173
J	Supervising Engineer Supervising Constr. Engineer Supervising Engineer	Supervising Scientist Supervising Geologist/ Hydrogeologist	Assistant Controller	\$184
K	Managing Engineer	Managing Geologist/Hydrogeologist Managing Scientist	Area Bus Ops Mgr IV	\$201
L	Chief Engineer Executive Engineer	Chief Scientist Chief Geologist/Hydrogeologist	Corp Marketing Comm. Mgr.	\$227
M	Vice President			\$227
N	Senior Vice President			\$237

10% markup on subconsultants

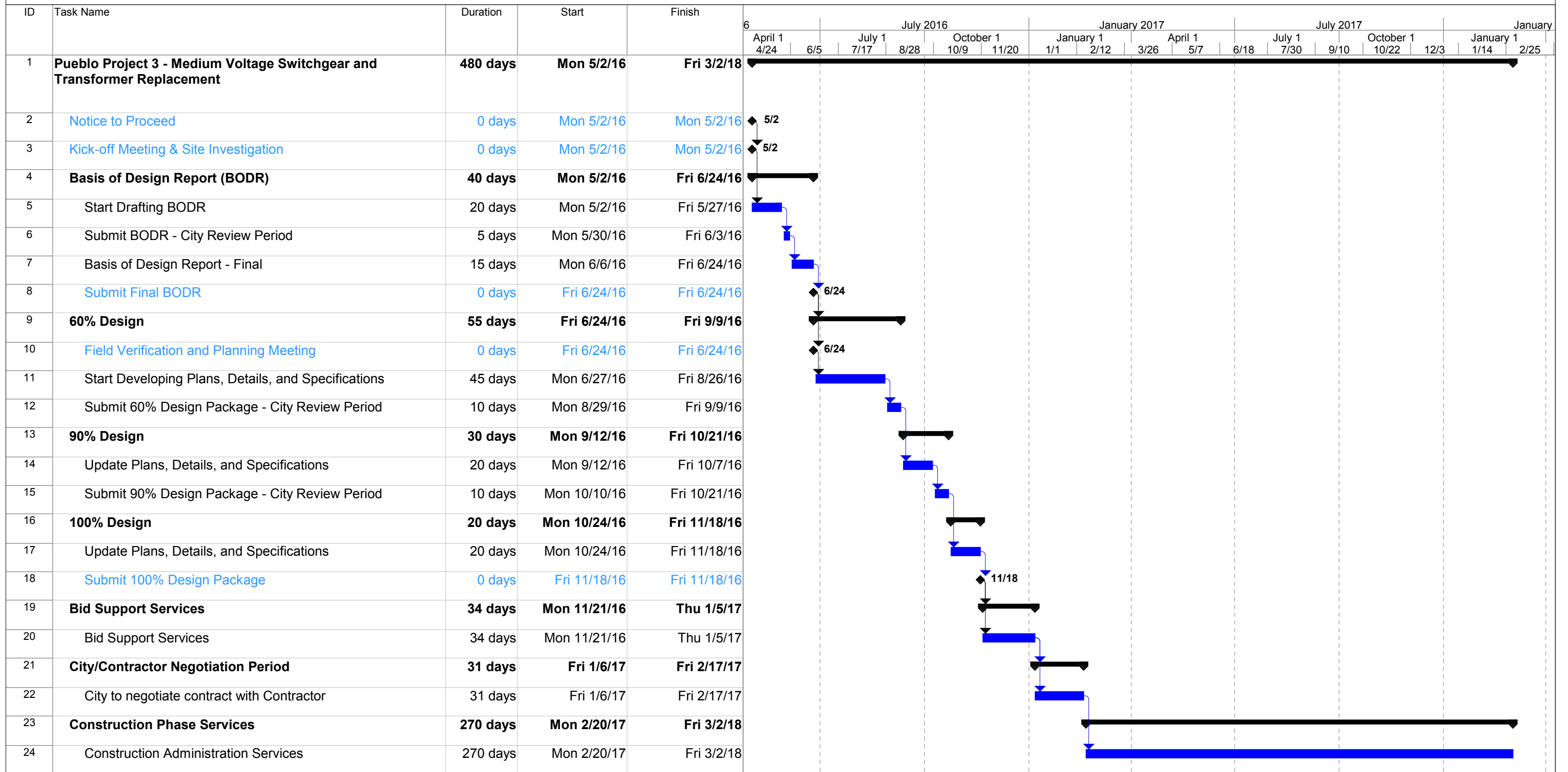
10% markup on ODC's

Mileage charges at \$0.54/mile



SCHEDULE 3  
SCHEDULE

City of Pueblo Wastewater Department  
 Project 3 - Medium Voltage Switchgear and Transformer Replacement  
 Design and Construction Services  
 SCHEDULE



Project: City of Pueblo Ph3 Schedule_ Date: Wed 4/13/16	Task		Project Summary		Inactive Summary		Manual Summary		External Milestone	
	Split		External Tasks		Manual Task		Start-only		Progress	
	Milestone		External Milestone		Duration-only		Finish-only		Deadline	
	Summary		Inactive Milestone		Manual Summary Rollup		External Tasks			