

**FIRST AMENDMENT TO  
PROFESSIONAL SERVICES AGREEMENT**

**BETWEEN THE CITY OF CORONA  
AND**

**COMMONWEALTH ASSOCIATES, INC.**

**(ARC FLASH STUDY SERVICES FOR CORONA UTILITIES FACILITIES – RFP 22-045RH)**

**1. PARTIES AND DATE.**

This **First Amendment** to the Professional Services Agreement (“First Amendment”) is made and entered into this \_\_\_\_\_, **2024** by and between the City of Corona (“City”) and Commonwealth Associates, Inc., a Michigan Corporation (“Consultant”). City and Consultant are sometimes individually referred to as “Party” and collectively as “Parties” in this First Amendment.

**2. RECITALS.**

2.1 Agreement. City and Consultant entered into that certain Professional Services Agreement dated November 16, 2022 (“Agreement”), whereby Consultant agreed to provide **professional arc flash study consulting services**.

2.2 Amendment. City and Consultant desire to amend the Agreement for the first time to (1) extend the Term of the Agreement through June 30, 2024, (2) amend the Rates & Total Compensation by \$48,818.00 to \$358,986, (3) replace Exhibit “A” (Scope of Services) with Exhibit “A-1” (Scope of Services) and (4) replace Exhibit “C” (Compensation) with Exhibit “C-1” (Compensation).

**3. TERMS.**

3.1 Term. Section 3.1.2 (Term) of the Agreement is hereby deleted in its entirety and replaced with the following:

“3.1.2 Term. The term of this Agreement shall be from November 16, 2022 to June 30, 2024 (“Term”), unless earlier terminated as provided herein. Consultant shall complete the Services within the Term of this Agreement and shall meet any other established schedules and deadlines. The Parties may, by mutual, written consent, extend the Term of this Agreement one or more times by executing a written amendment pursuant to Section 3.6.8 below (each a “Renewal Term”). The terms “Term” and “Renewal Term” may sometimes be generally and collectively referred to as “Term” in this Agreement.”

3.2 Rates & Total Compensation. Section 3.3.1 (Compensation) and Exhibit “C” (Compensation) of the Agreement are hereby deleted in their entirety and replaced with the following:

“3.3.1 Rates & Total Compensation. Consultant shall receive compensation including authorized reimbursements, for all Services rendered under this Agreement at the rates set for in Exhibit “C-1” attached hereto and incorporated herein by reference. The total compensation, including authorized reimbursements, shall not exceed Three Hundred and Fifty- Eight Thousand, Nine Hundred and Eighty-Six Dollars (\$358,986.00) (“Total Compensation”) without written approval of the City’s Representative. Extra Work may be authorized, as described below, and if authorized, will be compensated at the rates and manner set forth in this Agreement.”

3.3 Exhibit “A-1”. Exhibit “A” (“Scope of Services”) of the Agreement is hereby deleted in its entirety and replaced with Exhibit “A-1” (“Scope of Services”) attached hereto and incorporated herein by reference.

3.4 Continuing Effect of Agreement. Except as amended by this First Amendment, all provisions of the Agreement shall remain unchanged and in full force and effect. From and after the date of this First Amendment, whenever the term “Agreement” appears in the Agreement, it shall mean the Agreement as amended by this First Amendment.

3.5 Adequate Consideration. The Parties hereto irrevocably stipulate and agree that they have each received adequate and independent consideration for the performance of the obligations they have undertaken pursuant to this First Amendment.

3.6 Counterparts. This First Amendment may be executed in duplicate originals, each of which is deemed to be an original, but when taken together shall constitute but one and the same instrument.

**[SIGNATURES ON FOLLOWING PAGE]**


**CITY'S SIGNATURE PAGE  
FOR  
FIRST AMENDMENT TO  
PROFESSIONAL SERVICES AGREEMENT  
BETWEEN THE CITY OF CORONA  
AND  
COMMONWEALTH ASSOCIATES, INC.  
(ARC FLASH STUDY SERVICES FOR CORONA UTILITIES FACILITIES – RFP 22-045RH)**

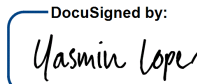
IN WITNESS WHEREOF, the Parties have entered into this First Amendment to Professional Services Agreement as of the date noted on the first page of the Amendment.

**CITY OF CORONA**

By: \_\_\_\_\_  
Tom Moody  
Director of Utilities

Reviewed By:   
\_\_\_\_\_  
Katie Hockett  
Assistant Director of Utilities

Reviewed By:   
\_\_\_\_\_  
Aftab Hussain  
Maintenance Manager

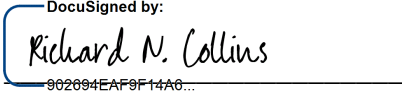
Reviewed By:   
\_\_\_\_\_  
Yasmin Lopez  
Purchasing Manager

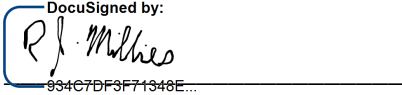
Attest:  
\_\_\_\_\_  
Sylvia Edwards, City Clerk  
City of Corona, California

**CONSULTANT’S SIGNATURE PAGE  
FOR  
FIRST AMENDMENT TO  
PROFESSIONAL SERVICES AGREEMENT  
BETWEEN THE CITY OF CORONA  
AND  
COMMONWEALTH ASSOCIATES, INC.  
(ARC FLASH STUDY SERVICES FOR CORONA UTILITIES FACILITIES – RFP 22-045RH)**

IN WITNESS WHEREOF, the Parties have entered into this First Amendment to Professional Services Agreement as of the date noted on the first page of the Amendment.

**COMMONWEALTH ASSOCIATES, INC.**  
a **Michigan** corporation

By:   
Richard Collins  
President & CEO

By:   
Robert J. Millies  
Secretary

## **EXHIBIT “A-1” SCOPE OF SERVICES**

Consultant promises and agrees to furnish to the City all labor, materials, tools, equipment, services, and incidental and customary work necessary to fully and adequately supply the professional **arc flash study** consulting services necessary for the Project. The Services are more particularly described herein.

### **A. Background:**

There are approximately 63 offsite or remote locations that the awarded Consultant will study during the on-site field analysis portion of the Scope of Work. The sites are listed in “Attachment A” as part of this RFP and incorporated herein by this reference. Attachment A lists the offsite facilities by their name and address.

### **B. Goal/Purpose:**

The City of Corona, Utilities Department is accepting proposals from experienced arc flash analysis contractors/consultants to perform electrical engineering services and analysis for 480v systems at City facilities in a variety of environments.

These services shall include, but are not limited to:

- Short circuit analysis
- Protective device coordination analysis
- Arc flash hazard analysis
- Interrupt rating analysis
- Customized electrical safety program
- Arc flash and shock hazard warning labels
- Create single drawing & formal drawing package
- Equipment is properly rated
- Identify potential hazards
- Breaker rating including trip point
- Labeling and PPE

The purpose of the work to be performed under this contract is to identify electrical arc flash hazards, remove and/or mitigate identified electrical arc flash hazards, to label appropriate electrical equipment, to provide safe work zones, provide recommendations to reduce the hazard risk, identify the appropriate personnel protective equipment (PPE) and provide a customized Electrical Safety Program, all in compliance with the latest National Fire Protection Association (NFPA) 70E.

The City reserves the right to contract with the awarded Consultant to perform additional arc flash analysis and other related services as mutually agreed by the parties.

### C. Scope of Work Description:

This scope of work establishes the minimum requirements for providing Citywide Utilities Facilities Arc Flash Study Consulting Services to the City of Corona. The Contractor is required to meet all specifications listed herein, as minimum, and is required to submit a firm fixed cost for all commodities/services. The Contractor shall fully and timely provide all deliverables described herein in strict accordance with the terms, covenants, and conditions of the Contract and all applicable Federal, State, and local laws, rules, and regulations. The Contractor shall perform all work in accordance with current ANSI/ NETA MTS – 2019 or current - Section 9 for each facility to produce an Arc Flash Risk Assessment and a Shock Risk Assessment. Provide a report for all items surveyed and include photographs of each deficient item. The report shall be in accordance with NFPA 70E - 2021, IEEE 1584 - 2018 for calculations and label information. ANSI Z535.4 for arc flash and shock hazards warning labels. If standards have been updated use most current version. Contractor shall provide all labor, materials, and equipment to complete the Citywide Utilities Facilities Arc Flash Study Consulting Services for the City.

Permissible work hours are 7am to 5pm Monday through Thursday excluding City observed holidays. Any deviations will need to be pre-approved by the City's Representative.

(RFP) No.22-045RH Citywide Utilities Facilities Arc Flash Study Consulting Services:

#### Task 1 - Field Collection of Data

1. Determine arc flash incident energy levels and flash protection boundary distances for all listed facilities based on the results of the short circuit and coordination studies. Perform the arc flash analysis as per industry standards for arc flash conditions and all modes of operation.
2. All necessary information shall be gathered, and all electrical systems analyzed from the utility connection point to all equipment connections. All field technicians and/or service engineers shall be trained in electrical and arc flash safety and shall utilize their own PPE.
3. Services for each facility shall include but not limited to the following:
  - a. Perform field collection of data
    - The Consultant is required to collect all data on the existing facilities electrical equipment and is NOT to assume that any drawings or documentation exist to aid in the collection or analysis.
    - The Consultant shall verify single line diagrams, if available. If not available, the Consultant shall generate the appropriate detailed and accurate single line diagrams. Discrepancies found in the drawings shall be brought to City's Representative attention as a drawing markup.
4. Single Line Diagrams information shall include but not be limited to:
  - a. Electrical Structures
  - b. Voltages at each point
  - c. Short circuit available at each point
  - d. Horsepower ratings of each motor
  - e. Identify City, Utilities Department panels and equipment with standard name

## Task 2 - Arc Flash Analysis

1. Consultant will be responsible to perform the short circuit, coordination, and interrupt rating studies which will proceed the Arc Flash analysis.
2. Consultant will determine the level of incident energy at each switchboard, motor control center (MCC), panel board and other electrical equipment requiring analysis.
3. Consultant shall determine if motor control buckets can be hot swapped and indicate as such on MCC arc flash 70E labels or specify on general use electrical safety labels.
4. OSHA 29 CFR-1910 Subpart S and NFPA 70E require that arc-flash hazard analysis be performed in incremented five-year periods or sooner whenever design implementations occur or circuit power arrangements are changed.
5. Indicate problems discovered while performing the studies. It must include the following:
  - a. Recommendations to mitigate arc flash hazards above Category 2
  - b. Identification of circuit protective devices with insufficient interrupt ratings
  - c. Identification of circuits not properly coordinated
  - d. One-Line drawings of all equipment surveyed
  - e. Table of calculated arc flash data
  - f. Coordination curves
  - g. And any other pertinent data
6. Per IEEE 1584, "Equipment below 208/240V need not be considered unless it involves at least one 125kVA or larger low-impedance transformer in its immediate power supply." Arc Flash calculations shall not be done on systems below 208/240V down stream of 125kVA and smaller transformers.
7. Arc Flash hazard labels for equipment needed are a product of the analysis. Labels provide qualified workers the information to determine the personal protective equipment (PPE) required to work on a given piece of equipment, or when the hazard level exceeds a safe work condition. Contractor shall submit a sample warning label to City's Representative within 20 calendar days of Notice of Award for approval.
8. Provide labor and materials to:
  - a. Affix labels to all 70E Rated Category 1 and above equipment.
  - b. Labels shall at a minimum indicate the following:
    1. Arc Flash Boundary
    2. Restricted Approach Distance
    3. Limited Approach Distance
    4. Glove Class
    5. Incident Energy

6. PPE Category
7. Calorie Rating
8. Nominal Voltage
9. Upstream over-current protective device
10. Device name and assessment date

- c. Labels shall be required for all electrical equipment per referenced codes.
- d. Arc Flash labels on Motor Control Centers shall indicate if MCC buckets can be hot swapped.



## **Deliverables**

1. After completion of the analysis, provide the following:
  - a. Submit three initial draft copies of each report to City's Representative for review. The Consultant shall incorporate City's review comments and submit three copies of the final draft reports to City's representative within 30 days following completion of facility testing for final review.
  - b. The Contractor shall submit to the City's Representative separate soft and hard copy of the report for each facility which shall contain, at a minimum, the following:
    - An introduction describing the background, objectives and the scope of the study.
    - Basis of analysis
    - An executive summary with clearly written conclusions and recommendations. The recommendations will refer to reducing the arc flash hazard category to two or below and any other ways to enhance worker safety.
    - Coordination plots and protective device curves
    - Single line diagrams
    - In tabulation format list device, device name, bus name, bus kV, protective, bus bolted fault, protective device arc fault, trip/delay time, duration of arc, arc type, arc flash boundary, working distance, required limited and restricted approach, incident energy, cal/cm<sup>2</sup>, conduit sizes, switchgear data, and required PPE
    - Hazard/Risk Categories for the calculated incident energy levels
    - The flash protection boundary of the equipment involved/evaluated.
2. A complete report for all the facilities in both electronic flash drive and in bound hard copy document form shall be submitted to the City's Representative.

### **Task 3 - Customized Electrical Safety Program**

Consultant is to develop a written Electrical Safety Program that will be compliant with the latest NFPA 70E publication. The Electrical Safety Program shall incorporate the City's facilities referenced in Attachment A. The Electrical Safety Program should include the necessary language to implement but not be limited to the following elements:

1. Maintenance
  - a. Document the maintenance conditions of the equipment and its components and/or parts
2. Awareness and Self-Discipline
  - a. Document how employees must follow the policies and effectively implement the new safety procedures
3. Electrical Safety Program Controls
  - a. Document how the Electrical Safety Program shall identify the controls from which it is measured and monitored
  - b. Document which metrics could be used
4. General Risk Assessment

- a. The Electrical Safety Program should identify the steps that employees must take where the risk of injury from electrical hazards are unacceptable.
5. Job Briefing
    - a. Specify how the employee shall perform job briefing when starting each new project. The briefing information to include the potential hazards associated with the equipment installation, required PPE and special precautions working in the vicinity of electrical installations.
  6. Electrical Safety Auditing
    - a. Document how the Electrical Safety Program shall be audited to verify that the procedures and principles within the program are in compliance with NPFA 70E.
    - b. Document how field work shall be audited to verify the requirements within the safety program are being followed.
  7. Training Requirements
    - a. Evaluation of current City Program
    - b. Specify how often employees shall be trained to identify and understand the relationship between electrical hazards and the possibility of injury.
    - c. State the types of training that will be required.
      - Classroom Arc Flash training
      - Emergency Response Training (contact release, first aid, etc.)
      - Qualification for electrical work
      - Training verification and documentation by the employer
  8. Clarification on the difference between unqualified and qualified personnel
  9. Outside contractor obligations in relation to the City's, Utilities Department Electrical Safety Program
  10. Document alerting techniques and methods for the notification of approach and flash boundaries
  11. Documentation for the use of personal protective equipment (PPE) by qualified employees.
  12. Documentation for energized electrical work permit policies and procedures
  13. Document protocols for de-energizing equipment and/or system
  14. Electrical safety requirements for any special equipment in use at City facilities
  15. Any other items that will be needed to be in compliance with the latest codes and Cal OSHA regulations

#### Mandatory Requirements

- All Contractors and their subcontractors shall meet all safety requirements of current codes and standards.
- Contractors shall require all employees and subcontractors to wear appropriate PPE while performing work at city facilities.
- Contractors shall provide a list of all owned testing equipment with this proposal

- All testing equipment needs to be calibrated and Contractors shall provide annual equipment testing results from third party at the beginning of contract and in June at the end of the fiscal year.

## APPENDIX

City Facility Locations ..... Attachment A

CITYWIDE UTILITIES FACILITIES ARC FLASH STUDY LOCATIONS		
Type Facility	Description	Address
<b>Water Treatment Plant (WTP) Facilities</b>		
WTP	LESTER-WTP	2970 RIMPAU AVE
WTP	SDO-WTP	2940 WILDERNESS CIR
WTP	DESALTER-WTP	745 CORPORATION YARD WAY
WTP	HG ION EXCHANGE WTP	410 RIMPAU AVE
<b>Water Reclamation Facilities (WRF)</b>		
WRF	WRF#1-RAILROAD	2205 RAILROAD STREET
WRF	WRF#2-HARRISON	650 E HARRISON
WRF	WRF#3-TEMESCAL	3997 TEMESCAL CYN
<b>Boosters</b>		
Booster	ZONE 6 @ EAGLE GLEN	1602 FAIRWAY
Booster	EAGLE GLEN ZONE 4/5	4255 EAGLE GLEN
Booster	AQUINO-BOOSTER	1030 AQUINO CIR
Booster	BORDER-BOOSTER	2290 BORDER AVE
Booster	CHASE/LESTER (raw) -BOOSTER	1315 E. CHASE DR.
Booster	CRESTA VERDE-BOOSTER	2005 PROMENADE
Booster	GREENRIVER-BOOSTER	4130 GREENRIVER DR
Booster	KRAFT RANCH-BOOSTER	1725 OAKRIDGE DR
Booster	MABEY CYN-BOOSTER	2643 BORDER AVENUE
Booster	MONTANA RANCH-BOOSTER	2930 WILDERNESS CIR
Booster	PAYETTE-BOOSTER	881 PAYETTE AVE
Booster	SDO-BOOSTER (raw water)	1670 MONTANA RANCH
Booster	SERFAS CLUB-BOOSTER	1290 SERFAS CLUB DR
Booster	ZONE 4 @ LESTER-BOOSTER	2930 WILDERNESS CIR
Booster	ZONE 5 @ LESTER-BOOSTER	2970 RIMPAU
Booster	HARLAN HILLS	3440 BONNIEVIEW CIRCLE
Booster	MORITA	755 MORITA
Booster	SIERRA BELLA BOOSTER	2690 HIDDEN HILLS WAY
<b>RW Booster</b>	BORDER	2525 BORDER AVE
<b>RW Booster</b>	WRF 1 RECLAIMED BOOSTER	2201 RAILROAD STREET

**APPENDIX**

City Facility Locations ..... Attachment A

Wells		
Well	WELL 3	24650 GLEN IVY RD
Well	WELL 7A	917 CIRCLE CITY DR
Well	WELL 8A	219 S. JOY
Well	WELL 9A	505 S. VICENTIA
Well	WELL 11	1865 POMONA RD
Well	WELL 12A	523 MAPLE ST
Well	WELL 13	1018 COTTONWOOD
Well	WELL 14	1200 W. 10TH ST
Well	WELL 15	100 N. LINCOLN
Well	WELL 17A	1052 QUARRY
Well	WELL 19	219 W. GRAND
Well	WELL 20	25225 MAITRI RD
Well	WELL 21	24650 GLEN IVY RD
Well	WELL 22	405 SIERRA VISTA AVE
Well	WELL 25	310 S. VICENTIA
Well	WELL 26	730 CORP. YARD WAY
Well	WELL 27	2581 MANGULAR
Well	WELL 28	202 N. BUENA VISTA
Well	WELL 29	902 RAILROAD
Well	WELL 31	211 N. BUENA VISTA
Well	WELL 33	3822 GRANT ST

Lift Stations		
Lift Station	ARTISAN - LIFT STATION	211 W. RINCON STREET
Lift Station	AHMANSON - LIFT STATION	11763 CHADWICK RD
Lift Station	AIRPORT - LIFT STATION	1973 AVIATION DR
Lift Station	GRIFFIN WAY - LIFT STATION	2680 GRIFFIN
Lift Station	JOY & PARKRIDGE - LIFT STATION	495 E. PARKRIDGE
Lift Station	MCKINLEY - LIFT STATION	109 MCKINLEY
Lift Station	PRADO - LIFT STATION	4225 PRADO
Lift Station	SDO - LIFT STATION	3851 PALISADES
Lift Station	SMITH & RINCON - LIFT STATION	1500 W RINCON
Lift Station	STAGECOACH - LIFT STATION	2220 STAGECOACH
Lift Station	SUNKIST - LIFT STATION	650 E. HARRISON
Lift Station	N MAIN - LIFT STATION	718 N MAIN STREET
Lift Station	GREENRIVER - LIFT STATION	4776 GOLDEN RIDGE DRIVE
Lift Station	ARANTINE HILLS - LIFT STATION	2590 BEDFORD CANYON RD

Blending Stations		
Blending	GARRETSON BOOSTER/BLENDING/WST	506 E. ONTARIO AVE

## **Proposed work plan from Consultant**

### **Process 1 – Kick-off Meeting and Data Gathering Site Visit**

Upon authorization to begin, Consultant will schedule a kick-off meeting with California State University staff to review project requirements and firm up project schedule and target dates. Discussions will take place of preferences for labeling and the proposed locations for identifying arc flash hazards. Consultant will discuss with staff possible operating conditions that may impact short-circuit duties which would have an impact on the potential arc flash hazard.

### **Process 2 – Data Gathering**

The first step in performing an arc flash study is to gather information. This will be accomplished with the help of subcontracted C-10 licensed technicians from Cal Express Electric, Inc. These professionals will gather data across all facilities.

Consultant has a culture of quality. As part of this a detailed checklist of required data will be developed and utilized previous to site investigation. The developed software model will require accurate utility equivalent data provided by the local utility for each studied location. Consultant has strong utility experience that assists us in gathering this sometimes hard to obtain data.

### **Process 3 – Software Modeling**

Consultant will utilize the latest utilize industry standard engineering software, for example ETAP 20.5, to accurately model the electrical system being studied for this project with the information gathered in process 2. In order to effectively perform the study, Consultant will need to build an engineering software based single-line model with all relevant protective devices, line impedances, transformers, motors, and network equivalents. Consultant will develop the model to include the university 12 kV medium voltage system and building 480 V and 240/120 V equipment.

Consultant will attempt to reduce the model where appropriate to avoid redundancy. This will be done by modeling the largest protective device at each 480 V panel, as well as any items that may have arc flash hazard potential, such as 240/120 V main breakers, loads with long cable feeds, slow clearing protective devices, etc. This technique can help reduce model size and complexity and provide clear and concise results.

### **Process 4 – Arc Flash Study**

Upon completion of the ETAP or SKM model, the maximum three-phase symmetrical and half-cycle fault currents will be calculated for each city building or facility. The maximum fault current will be used to verify interrupting ratings at all devices. The arc currents will be estimated based on the three-phase, half-cycle fault currents, which will consider arcing resistance for typical fault conditions. The arc currents will then be used to determine the clearing times associated with each studied protective device at the each of the relevant equipment lineup. The clearing times and the arc fault current will be used to calculate arc flash incident energy. Consultant will use the three-phase symmetrical fault current

(Per the IEEE 1584 standard) at each protective device to determine the clearing time. The clearing time is a key item in arc flash calculation and, in many cases, can be the most significant factor contributing to the arc flash hazard.

At each studied protective device location, the ETAP or SKM model will be used to determine the incident energy level associated with an arc flash. The arc flash calculations will be done in accordance with IEEE 1584-2018 (Guide for Performing Arc Flash Hazard Calculations) and NFPA 70E – 2021 and will determine the flash protection boundary distance and the required PPE for working on energized equipment.

### **Process 5 – Protective Device Coordination Study**

Consultant will plot each device on Time Current Curve (TCC) plots to ensure proper selective coordination is achieved. There is a tradeoff between perfect coordination and low arc flash risk. Consultant will work with the City of Corona to determine preferences and make suggestions where we can improve the balance between protective device coordination and arc flash hazard mitigation.

### **Process 6 – Arc Flash Report**

Consultant will provide an electronic pdf and (3) printed hard copies of the final report that covers introduction, executive summary, assumptions, analysis, and the results of the study. Detailed input and output data will be provided in the electronic versions only.

Included will be a system one-line diagram that shows the arc flash and short circuit current values and equipment sizing, as well as TCC plots of key electrical protective devices. If requested, Consultant can also perform a load flow study to verify equipment loadability and ensure voltage drops are within specifications. This could be included in our scope of work for an additional cost as outlined in the rate table.

The study will include all information agreed upon for each major equipment, such as:

- Device or bus name.
- Bolted and arcing fault current levels.
- Flash protection boundary distances.
- Personal-protective equipment classes.
- Incident Energy Exposure in Cal/cm<sup>2</sup> at 18” for 600 volts and less.
- Incident Energy Exposure in Cal/cm<sup>2</sup> at 36” for all medium voltage equipment.

Where appropriate, the report will provide recommendations for reducing exposure levels by modifying protective device settings or replacement of existing fuses.

The arc flash report will include custom PPE levels based on actual / recommended clothing levels in use at each plant. This will need to be specified at project award to be accommodated. The arc flash study results will be tabulated in the submitted report for each building 480 V and 240/120 V equipment including the largest 480 V and 240/120 V feeder breaker on a panel. Consultant will submit a draft report summarizing the results of the arc flash hazard analysis to the City of Corona.

Consultant will comment on any arc flash hazard levels with incident energy exceeding category 2, or where arc flash hazards are excessive for the equipment being studied. Consultant may discuss potentially problematic areas with City of Corona staff. Consultant Associates can attempt to mitigate potential areas.

All supporting data will be included in appendices. After a City of Corona review cycle, a meeting will be scheduled to discuss the results and recommendations. Consultant will incorporate comments received from the City of Corona into the draft report and submit a final report along with the arc flash and shock hazard warning labels.

### **Process 7 – Arc Flash and Shock Hazard Labels**

Consultant will provide arc flash and shock hazard sample labels on indoor/outdoor vinyl tape as required for each piece of equipment in each facility for City of Corona review. Upon acceptance of the arc flash and shock hazard label format, Consultant will work with our C-10 licensed business partner to create and deliver the arc flash labels for key electrical equipment locations that have an arc flash hazard category of 1 or greater.

### **Process 8 – Electrical Safety Program**

Consultant is an expert at providing electrical safety training and the development of electrical safety programs. Consultant will start the development of this process by gathering the existing safety documentation for the city, a site walkdown of city facilities (in conjunction with the arc flash survey) and interviews with city safety managers.

After a thorough review of the gathered information, Consultant can develop an electrical safety risk assessment, solutions, and improvements to the city's electrical safety program. In particular, Consultant finds it very effective to integrate the electrical safety program with an electrical work order program. This ensures compliance to electrical safety protocols for any electrical project work and would likely fit very well with the criteria below, specified by the city.

The electrical safety program that Consultant will develop entails the following:

- Maintenance
  - o The electrical safety program that Consultant will create will document the maintenance conditions of the equipment and its components and/or parts.
- Awareness and Self-Discipline
  - o The electrical safety program that Consultant will create will document how employees must follow the policies and effectively implement the new safety procedures.
- Electrical Safety Program Controls
  - o The electrical safety program that Consultant will create will document how the Electrical Safety Program shall identify the controls from which it is measured and monitored.
  - o The electrical safety program that Consultant will create will document which metrics could be used.
- General Risk Assessment
  - o The Electrical Safety Program will identify the steps that employees must take where the risk of injury from electrical hazards are unacceptable.

- Job Briefing

- o The electrical safety program that Consultant will create will document will specify how the employee shall perform job briefing when starting each new project. The briefing information to include the potential hazards associated with the equipment installation, required PPE and special precautions working in the vicinity of electrical installations.

- Electrical Safety Auditing

- o The electrical safety program that Consultant will create will document how the Electrical Safety Program will be audited to verify that the procedures and principles within the program are in compliance with NPFA 70E.
- o The electrical safety program that Consultant will create will document how field work shall be audited to verify the requirements within the safety program are being followed.

- Training Requirements

- o The electrical safety program that Consultant will create will specify how often employees shall be trained to identify and understand the relationship between electrical hazards and the possibility of injury and State the types of training that will be required. This training will be:

- Classroom Arc Flash training
- Emergency Response Training (contact release, first aid, etc.)
- Qualification for electrical work
- Training verification and documentation by the employer

- The electrical safety program that Consultant creates will clarify on the difference between unqualified and qualified personnel.
- The electrical safety program that Consultant creates will clarify on the difference between outside contractor obligations in relation to the City's, Utilities Department.
- The electrical safety program that Consultant creates will include document alerting techniques and methods for the notification of approach and flash boundaries.
- The electrical safety program that Consultant creates will include documentation for the use of personal protective equipment (PPE) by qualified employees.
- The electrical safety program that Consultant creates will include documentation for energized electrical work permit policies and procedures.
- The electrical safety program that Consultant creates will discuss document protocols for de-energizing equipment and/or system.
- The electrical safety program that Consultant creates will specify electrical safety requirements for any special equipment in use at City facilities.



## Add On Services

### 1. Arc Flash On-Site Safety Training:

Consultant's arc flash expert, Ian Hutt to provide City with one (1) day of on-site training, which includes:

- Two (2) hour presentation
- Topics related to electrical safety
- Arc flash awareness and procedure.
- A PowerPoint with video sections that will be provided for future use.
- City to record and use the presentation for future internal use.

The target date for this presentation is estimated for first week of March 2024.

This change order is offered on a T&M basis under the same contract as the current work for arc flash study services.

#### **Impact on Budget and Schedule:**

- Increased amount by **\$17,940**
- Increased project completion by **15 days**

*\* The increased amount includes the Consultant's presenters a week of presentation preparations, travel, and onsite training hours.*

### 2. Arc Flash Label Application Service:

Consultant's City site expert William Turkovich to apply the arc flash labels at all studied sites. With assistance from the City to access each site as completed in the past during the data gathering portion of the project.

- Site visits take roughly half the time to complete as the original data gathering.
- Visit all 64 sites to apply labels, escorted by City staff (less time to be spent at each site)
- Only a single Consultant's engineer will apply labels.

**Note that the actual labels (1355 labels) are already included in the original scope of work (reference work plan: Process 7) so a per-label cost is not included here.**

The target date for completion of this work is the middle of November 2023, assuming Consultant receives all data from SCE to complete the arc flash study by the end of August 2023. This change order is offered on a T&M basis under the same contract as the current work for arc flash study services.

#### **Impact on Budget and Schedule:**

- Increased amount by **\$24,338**
- Increased project completion by **21 days**

*\*The increased amount includes the Consultant's labor for three weeks, preparation, and travel for the label application service.*

**Expected Schedule: March 4th through March 22nd, 2024.**

**3. Additional Meeting and Project Management Time:**

Due to delays Consultant will have additional status update meetings and project management. Time, which will be scheduled through March.

Labor for extended project management time: \$3,705

2024 rate adjustment: \$915

**Impact on Budget and Schedule:**

- Increased amount by **\$4,620**
- Increased project completion by **180 days**

**EXHIBIT “C-1”  
COMPENSATION**

Consultant shall receive compensation, including authorized reimbursements, for all Services rendered under this Agreement at the rates set forth herein.

Task	Hours	Cost
Data Gathering & expenses		\$86,000
System Modeling	663	\$84,218
Arc Flash	332	\$42,109
Protective device coordination	332	\$42,109
Electrical Safety Program	180	\$25,932
Project Management	200	\$29,800
<b>Total</b>	<b>1707</b>	<b>\$310,168</b>

Consultant will invoice City of Corona for actual labor hours spent and project expenses, based on Consultant’s business month.

\*\*Billing Rates on the following page\*\*

BILLING CATEGORY	TITLE	LABOR BILLING RATE PER HOUR
<b>EXEMPT EMPLOYEES</b>		
42	ENGINEER X	298
40	ENGINEER IX, LAND SERVICE SPECIALIST IX, PROJECT MANAGER IX, FIELD PROJECT REPRESENTATIVE IX	257
38	ENGINEER VIII, ENGINEERING SPECIALIST VIII, CONSULTANT VIII, LAND SERVICES SPECIALIST VIII, PROJECT MANAGER VIII, FIELD PROJECT REPRESENTATIVE VIII	218
36	ENGINEER VII, ENGINEERING SPECIALIST VII, ENVIRONMENTAL SPECIALIST VII, LAND SERVICES SPECIALIST VII, ADMINISTRATIVE SPECIALIST VII, PROJECT MANAGER VII, FIELD PROJECT REPRESENTATIVE VII	201
32	ENGINEER VI, ENGINEERING SPECIALIST VI, ENVIRONMENTAL SPECIALIST VI, LAND SERVICES SPECIALIST VI, ADMINISTRATIVE SPECIALIST VI, PROJECT MANAGER VI, FIELD PROJECT REPRESENTATIVE VI	178
30	ENGINEER V, ENGINEERING SPECIALIST V, ENVIRONMENTAL SPECIALIST V, LAND SERVICES SPECIALIST V, LAND SERVICES SUPERVISOR, PURCHASING AGENT V, ADMINISTRATIVE SPECIALIST V, PROJECT MANAGER V, FIELD PROJECT REPRESENTATIVE V	160
28	ENGINEER IV, ENGINEERING SPECIALIST IV, ENVIRONMENTAL SPECIALIST IV, LAND SERVICES SPECIALIST IV, TECHNICAL EDITOR IV, PURCHASING AGENT IV, ADMINISTRATIVE SPECIALIST IV, PROJECT MANAGER IV, FIELD PROJECT REPRESENTATIVE IV	149
26	ENGINEER III, ENGINEERING SPECIALIST III, ENVIRONMENTAL SPECIALIST III, LAND SERVICES SPECIALIST III, CARTOGRAPHER III, PROGRAMMER III, TECHNICAL EDITOR III, PURCHASING AGENT III, ADMINISTRATIVE SPECIALIST III, PROJECT MANAGER III, FIELD PROJECT REPRESENTATIVE III	136
25	ENGINEER II, ENGINEERING SPECIALIST II, ENVIRONMENTAL SPECIALIST II, LAND SERVICES SPECIALIST II, CARTOGRAPHER II, PROGRAMMER II, TECHNICAL EDITOR II, PURCHASING AGENT II, ADMINISTRATIVE SPECIALIST II, PROJECT MANAGER II, FIELD PROJECT REPRESENTATIVE II	126
21	ENGINEER I, ENGINEERING SPECIALIST I, ENVIRONMENTAL SPECIALIST I, LAND SERVICES SPECIALIST I, CARTOGRAPHER I, PROGRAMMER I, TECHNICAL EDITOR I, PURCHASING AGENT I, ADMINISTRATIVE SPECIALIST I, PROJECT MANAGER I, FIELD PROJECT REPRESENTATIVE I	113
<b>NONEXEMPT EMPLOYEES</b>		
19	ADMINISTRATIVE ASSISTANT V, CADD OPERATOR V, DESIGNER V, TECHNICIAN V	118
17	ADMINISTRATIVE ASSISTANT IV, CADD OPERATOR IV, DESIGNER IV, TECHNICIAN IV	101
16	ADMINISTRATIVE ASSISTANT III, CADD OPERATOR III, DESIGNER III, TECHNICIAN III	91
15	ADMINISTRATIVE ASSISTANT II, CADD OPERATOR II, DESIGNER II, TECHNICIAN II	75
11	ADMINISTRATIVE ASSISTANT , CADD OPERATOR , DESIGNER , TECHNICIAN	59

- Notes: <sup>1</sup> Individuals may move between categories at time of promotion  
<sup>2</sup> Rates are based on Net 30. Invoices paid after Net 30 may be assessed a 1.5% late fee per month.  
<sup>3</sup> If any government entity takes a legislative action that imposes new taxes, fees or charges on services provided by Commonwealth or its subcontractors, then Commonwealth may invoice such new taxes, fees or charges at actual cost incurred without an additional markup.  
<sup>4</sup> These rates will be updated on an annual basis.  
<sup>5</sup> Billing rates are subject to change at any given time.

**COMMONWEALTH ASSOCIATES, INC.  
EXPENSE BILLING RATE SUMMARY**

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<b>OUTSIDE REPRODUCTION</b>	---	At cost
<b>EPRI SOFTWARE</b>	---	EPRI royalty fee for non EPRI members (if use requested by client)
<b>SPECIALTY ENGINEERING SOFTWARE (NOTE 2)</b>	Such as ASPEN, CAPE, CAPTOR, CDEGS, EMTP, ETAP, ThermoFlow, WinIGS	\$100.00 Per Run
<b>VEHICLE USAGE</b>	---	Mileage at GSA rates
<b>TRAVEL, LODGING AND MEALS</b>	---	At cost or specified per diem
<b>MAIL DELIVERY SERVICES</b>	Fed-Ex, UPS, USPS, etc.	At cost
<b>SUBCONTRACTORS</b>	---	Cost plus 10%
<b>OTHER MISC. CLIENT OR PROJECT REQUIRED EXPENSES</b>	---	At cost

## Notes:

1. No charge for reproduction unless the total number of reproduced sheets is greater than 100.
2. Engineering software: The engineering software fee is a charge for high-end, speciality software and also covers the expense of maintaining expertise in systems analysis.

**Project Cost Increase Breakdown:**

Term extension due to delays (120 days)	\$1,920
On site training cost (15 days)	\$17,940
Label application cost (21 days)	\$24,338
Additional status update meetings and time (180 days)	\$4,620
<b>Total Increased Project Cost</b>	<b>\$48,818</b>

Consultant's not to exceed Fee for engineering studies is \$358,986. The pricing provided by the Consultant is T&M and includes approximately \$86,000 for subcontractor support gathering data.