

EXHIBIT A

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CITY OF TEMPE PUBLIC WORKS DEPARTMENT

PUBLIC WORKS BUILDINGS ELECTRICAL DISTRIBUTION SYSTEM PROJECT PHASE 3

SCOPE OF SERVICES

April 2013

Project Overview

In 2012 Brown and Caldwell (BC) provided an Electrical Distribution System Evaluation (EDS) Report for 43 City of Tempe (City) Public Works Facilities (Facilities) and associated buildings, as shown in Table 1. For each site the report included an evaluation of the existing EDS components (based on visual inspection), an updated single line diagram (SLD) of the EDS, an Arc Flash Hazard Assessment Report (AFHAR) evaluation, and a condition assessment matrix.

The City has reviewed the condition assessment matrix of the EDS and has requested BC's assistance to plan, design and coordinate the repairs of the deficiency items identified for each of the Facilities in Exhibit B. The City also requested that BC hire and coordinate with a third party NETA testing firm to address the setting changes that were recommended to improve EDS coordination. BC will update the Arc Flash Hazard Analysis for each of the two sites that require adjustments or design changes and provide new labels based upon the results of the analysis. BC will coordinate with the City Electrical staff to identify priority sites based on Electrical staff's concerns.

For sites that require BC design document, all design documents will be designed based on the 2012 National Electrical Code (NEC), Institute of Electrical and Electronic Engineers (IEEE) Standards, standard engineering practices, and applicable current City codes as of the date of this contract. The design documents will be reviewed by the City at 30 percent and 90 percent completion and a final review prior to the design documents being submitted for permitting and being released for construction by the City. The specifications for these designs will be listed on the drawings and no formal specification package will be issued. The City has requested that all construction for this project be completed using the Job Order Contracting (JOC) process. The JOC will review and provide detailed cost estimates for each of the sites requiring construction. Construction inspections will be provided by City Engineering and Safety Departments.

The Arc Flash Hazard Analysis updates will be conducted in accordance with the procedures stated in National Fire Protection Association (NFPA) 70E and IEEE Standard 1584. Arc Flash labels shall be provided for equipment as specified in the 2012 NEC Article 110.16. Equipment shall include Service Entrance Section (SES), Motor Control Centers (MCC), Switchgear, Switchboards, Panelboards, Industrial Control Panels and Transformers.

The 2012 consolidated report binder will be maintained by the City during the course of the project. The individual reports for sites requiring updates during this project will be submitted to the City for review and

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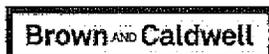


approval. Upon approval the individual reports will be delivered to be inserted into the project binder by the City.

Table 1 Public Work Facilities	
Community Services	
Escalante Building	North Tempe Multi-Generation Center
Tempe Library Complex	West Side Multi-Generation Facility
Fire	
Fire Station #1	Fire Station #2
Fire Station #3 (EDSE & AFHAR)	Fire Station #4 (EDSE & AFHAR)
Fire Station #5 (EDSE & AFHAR)	Fire Station #6 (EDSE & AFHAR)
Fire Maintenance Facility	Fire Training Facility
Golf Courses	
Ken McDonald	Rolling Hills
Historic Properties	
Benjamin B Moeur House	Elisendrath House
Hackett House	Peterson House
Municipal Complexes	
525 Building	City Hall
Performing Arts Complex	Tempe Transportation Center
Non-Owned	
McClintock Sports Facility	
Police and Courts	
Apache Police Substation (EDSE & AFHAR)	South PD Substation (EDSE & AFHAR)
Kiwanis Police Substation	Tempe Police/Court Complex
Court Building	Police Parking Garage
Police Headquarters	Rio Salado Marina
Service Yards	
Bell Butte Radio Facility	EVBO Facility
Hardy Maintenance Yard	Household Product Collection Center
Kiwanis Park Maintenance Yard	Vehicle Maintenance South
Priest Maintenance Yard	Hayden Butte Radio Facility
Traffic Maintenance Facility	
Sports Complexes	
Diablo Stadium	Hardy / Warner Site
Kiwanis Park Sports Facility	

Phase 100 – Contract Management

A project kick-off meeting will be conducted at a City facility after Notice to Proceed is received by BC. The meeting will be used to identify the BC access procedures and to discuss the project Schedule.



BC will develop and submit monthly pay requests in City standard format. A monthly progress report will be attached to the pay request stating the progress on each task performed for that month. BC will provide a breakdown of all labor costs for each task and allowances; the breakdown will include previous paid to date amounts and budget remaining.

BC will submit monthly progress reports to the Project Team. The progress report will state progress on each task performed for that month, a description of additional tasks assigned during that month, and what the intended expected progress is for the following month.

Upon final completion of the recommendations and repairs in the condition assessment matrix, a Final Deliverable meeting will be held at a City facility. BC will review all deliverables with the City Electrical staff and verify that the compilation binder is properly updated.

Additional coordination meetings may be conducted by phone or in person as needed to discuss relevant project concerns or coordination issues.

Deliverables

- Project Kick-off Meeting
- Monthly Pay Requests
- Monthly Progress Reports
- Draft Report Review Meeting
- Final Report Deliverable Meeting

Phase 200 – Condition Assessment Matrix Status and Priority Workshop

BC will conduct a 2-hour workshop at a City facility with the Public Works Electrical staff to identify items on the Condition Assessment Matrix that are a priority for the staff that maintain this equipment. This meeting will also be used to identify items that have already been addressed or that will be addressed in-house by the Electrical staff as well as items that the staff would like assistance with. Exhibit B lists the task assignment assumptions based on condition assessment items. BC will provide meeting minutes based on this workshop to the City Project Manager. BC will also use the priorities discussed to provide a detailed list of the facilities and a proposed schedule to accomplish these tasks.

Adverse safety conditions identified during the field investigation will immediately be brought to the attention of the City representatives as a top priority. Most of these were identified during field investigations and promptly repaired by the Electrical staff at that time.

Deliverables

- Workshop Meeting Minutes provided to the City Project Manager - one electronic copy
- Proposed Schedule provided to City Project Manager and electrical staff - one electronic copy

Phase 300 – Electrical Distribution Design Development

This task prescribes the submittals BC will prepare for City review as progress is made on each Facilities design and preparation of construction drawings and specifications. Deliverables from the Engineer will be reviewed by the City and others during the design development period at 30 percent, 90 percent, and upon final completion prior to issue for construction drawings being released.

Preparation of construction drawings and technical specifications will be as follows:

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1. Drafting Standards: The organization and preparation of construction drawings shall be in accordance with the City drafting guidelines in place at the time of Notice to Proceed.
2. Electronic Drawings: Electronic drawings shall be prepared in accordance with the City CADD standards in place at the time of Notice to Proceed.
3. Technical Specifications: At the request of the City specifications will be located on the drawings. There will not be a formal specifications package issued for the design.

BC will prepare progress submittal packages when the design, drawings and specifications are considered 30 percent and 90 percent complete as described in this Scope of Work. Two copies of the progress submittal packages will be included with each submittal for City review. The level of detail on the drawings in each progress submittal should be as given below unless the City needs other information to complete its review.

Task 301 – Electrical Distribution Preliminary Design Services

BC will use the SLDs and the arc flash power system model of sites identified on Exhibit B with design recommendation to verify that the EDS has not changed since the evaluation. BC will visit each site prior to starting the detailed design to collect all necessary measurements and information related to the design. When applicable the Electrical staff shall be present as a reference to the scope of the design as well as to notify BC of design changes so that they can coordinate the review process.

Task 302 – 30 Percent Design Submittal

BC will provide 30 percent design documents for review by the City based on the following criteria. The drawings and specifications for each discipline are coordinated and have progressed where the design intent is established and must show the work in sufficient detail that a builder can recognize general building elements and requirements for construction. The set of drawings will include a cover sheet and an index sheet.

1. Civil: Not Applicable
2. Landscaping: Not Applicable
3. Structural:
 - Other plans and sections are partially complete.
 - Design calculations are partially complete.
 - Structural detailing is partially complete.
4. Mechanical: Not Applicable
5. Electrical:
 - SLDs and motor control diagrams are partially complete.
 - Power and control plans are partially complete.
 - Panel, light fixtures and cable/conduit schedules are partially complete.
 - Duct bank and pull box details are partially complete.
 - Lighting and receptacle plans are partially complete.
 - Design calculations are partially complete.
6. Instrumentation: Not Applicable

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Task 303 – 90 Percent Design Submittal

BC will provide 90 percent design documents for review by the City based on the following criteria. Drawings and details in all disciplines should be complete. Design calculations in all disciplines shall be essentially complete and checked.

Comments from 30 percent review by City staff, any constructability reviews, and review comments from regulatory agencies must have appropriate responses or actions.

The 90 percent progress submittal will be used by the City JOC to provide detailed construction costs.

Task 304 – Final Design Submittal

BC will provide the final design documents for the City to do a final review, submit to Community Development Department for review and permitting, and issue for construction. Drawings and specifications will be complete at that time and all comments from previous reviews will be addressed or have appropriate responses.

Deliverables

- 30 Percent Review Documents - two 11 x 17 hard copies delivered to the City Project Manager
- 90 Percent Review Documents - two 11 x 17 hard copies delivered to the City Project Manager
- Final Percent Review Documents - two Mylar and one bond full size hard copies delivered to the City Project Manager
- Final Percent Review Documents - two electronic copies in CADD format delivered to the City Project Manager

Phase 400 – Detailed Construction Cost Estimate

BC will prepare a detailed construction cost estimate at 90 percent design completion for each facility. These cost estimates will be as detailed as possible at the time considering 90 percent design completion. BC will use in-house personnel to complete these estimates using the criteria and assumptions listed below.

BC's estimates are prepared using quantity take-offs, vendor quotes, and equipment pricing furnished by the design team or by the estimator. The estimate includes direct labor costs, including a shift differential if applicable, and anticipated productivity adjustments to labor and equipment. Where possible, estimates for work anticipated to be performed by specialty subcontractors are used.

Construction labor crew and equipment hours are calculated from production rates contained in documents and electronic databases published by R.S. Means, and from the estimator's experience.

Estimates are prepared using BC's estimating system, which consists of a Windows-based commercial estimating software engine using BC's material and labor database, historical project data, the latest vendor and material cost information, and other costs specific to the locale of the project.

BC's estimates assume that an adequate labor pool, both in quality and quantity exists in the area and no additional costs are normally included for unusual circumstances such as overtime, shift work, or bussing in workers.

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Phase 500 – Recommended Settings and NETA Breaker Testing

Based on the original arc flash analysis reports, BC, with the NETA subconsultant, will provide implementation of the recommended breaker setting changes for a maximum of 38 overcurrent protection devices, and where required, testing and maintenance services, and provide a condition assessment and testing report. BC will witness all recommended breaker setting changes. If required, City shall de-energize and energize all circuits. City Lock-out/Tag-out procedures will be implemented by City personnel. BC and/or the NETA subconsultant will install locks in conjunction with City locks.

Objectives

1. BC/Subconsultant will institute the recommended breaker setting changes listed in the condition assessment matrix and the AFHAR to improve coordination and lower incident energy levels.
2. Perform field testing and maintenance services on equipment identified in the condition assessment matrix and the AFHAR.

Phase 600 – Arc Flash Hazard Analysis Updates

BC will provide an updated AFHAR for each of the 17 sites requiring design changes and for the Elsiendrath House, to include a short circuit study, a protective device coordination study and an Arc Flash Analysis Study.

The overall project objectives of this task are to provide electrical engineering services in order to achieve the following:

- Determine if the installed equipment bussing is rated equal or greater than the available fault current at each bus.
- Visit the Elsiendrath House and determine if an Arc Flash Analysis is needed based on size of the service and the requirements of the NFPA 70E and IEEE 1584 Standards.
- The EDS is selectively coordinated based upon the Arc Flash priority.
- BC will use the Power system Software to determine proper breaker manufactures and size to allow for maximum coordination for facilities with design changes.
- Based on the updated reports, label all affected equipment with the new information to verify compliance with Arc Flash requirements per NFPA 70E.

The AFHAR will be conducted in accordance with the procedures stated in NFPA 70E and the IEEE Standard 1584. Arc Flash labels shall be provided for equipment as specified in the 2008 NEC Article 110.16. Equipment shall include SES, MCC, Switchgear, Switchboards, Panelboards, Industrial Control Panels and Transformers.

Results of the Arc Flash Hazard Analysis are used to define the Arc Flash protection boundary and the incident energy levels in the work areas of the power distribution system as defined by the Scope of Work. Upon completion of the Arc Flash Study, power distribution equipment cabinet labels will be installed that specify the hazard levels, the work distances and the Personal Protection Equipment (PPE) clothing needed to perform work on the energized equipment.

PPE will be recommended based upon the guidelines in NFPA 70E with safe working distances identified for energized equipment and the calculated Arc Flash boundary.

The SKM model will be used to conduct device trip coordination studies, fault current calculations and Arc Flash Hazard calculations. Upon completion of the updated Arc Flash Study, component labels specifying



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the hazard levels, distance and PPE needed to perform work on the electrical equipment will be installed by BC personnel. Generic labels will be provided for all equipment that falls outside of the IEEE 1584 study parameters, but may be required by Article 110.16 of the NEC.

Results of the Arc Flash Hazard Analysis Study are used to define the flash protection boundary and the incident energy levels in the work areas of the EDS as defined by the Scope of Work. PPE will be suggested based upon the guidelines in NFPA 70E. If the calculated incident energy at some locations reveals hazard risk levels that may be unacceptable for this facility and cannot be reduced by selectivity adjustments, then further investigation outside the scope of this study is recommended to determine the most effective means of reducing the incident energy while maintaining the highest desired degree of reliability.

BC will provide an updated Arc Flash report, for facilities affected by the repairs or corrections to the equipment listed in the condition assessment matrix and the AFHAR, to the City that will meet the Arc Flash labeling requirements per NFPA 70E and NEC.

Deliverables

- Individual Draft AFHARs for each Facility where design changes or equipment changes under this scope take place – one hard copy.
- Individual Final AFHARs for each Facility, where design changes or equipment changes take place under this scope– one hard copy, one electronic copy.
- Updated labels for sites requiring an analysis update.

Level of Effort

The costs for this Scope of Work, including allowances, shall be a “Not to Exceed” amount of \$160,000 per Exhibit C. Although items are estimated by task, BC may transfer funds between tasks as project developments require.

Schedule

The schedule shall be 180 days from receipt of Notice to Proceed.



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EXHIBIT B

City of Tempe - Public Works Facilities

Building	Name of Equipment	BC OBSERVATION	Electrical Task Assignment	Priority
ESCALANTE BUIDLING	Panel HA	Several screws missing	COT	
ESCALANTE BUIDLING	Panelboard SWBD-1	Weather seals are missing from the pool distribution. Some screws are missing from enclosure panels	COT	
ESCALANTE BUIDLING	SES	Contains dirt and debris	COT	
ESCALANTE BUIDLING		The area that houses the electrical equipment for the pool area is a wet/damp location. The equipment enclosures are rusting	COT	
ESCALANTE BUIDLING	SES Main	System Reliability Compromised -Recommend changing the breaker settings to improve electrical system reliability and electrical staff safety. BC will subcontract Southwest Energy Systems to perform breaker setting changes and testing. Southwest Energy will provide test results and proof of breaker setting changes.	BC	
NORTH TEMPE MULTI- GENERATIONAL CENTER	Panel LB	Branch circuit conductors spliced or wire nuts installed on spare conductors inside the panel	COT	
NORTH TEMPE MULTI- GENERATIONAL CENTER	Panel LC	Branch circuit conductors spliced or wire nuts installed on spare conductors inside the panel	COT	
NORTH TEMPE MULTI- GENERATIONAL CENTER	T-1	Transformer T-1 feeding LA and LB is labeled the same as the 75 kVA transformer feeding LC and LD	COT	
NORTH TEMPE MULTI- GENERATIONAL CENTER	SES	Contains dirt and debris	COT	
NORTH TEMPE MULTI- GENERATIONAL CENTER		Two electrical rooms that house electrical equipment do not have the proper working clearance in front of the equipment	COT	



Building	Name of Equipment	BC OBSERVATION	Electrical Task Assignment	Priority
NORTH TEMPE MULTI- GENERATIONAL CENTER	PD-3	System Reliability Compromised -Recommend changing the breaker settings to improve electrical system reliability and electrical staff safety. BC will subcontract Southwest Energy Systems to perform breaker setting changes and testing. Southwest Energy will provide test results and proof of breaker setting changes.	BC	
LIBRARY	Panel L1A	Install proper listed seal for unused conduit openings	COT	
LIBRARY	Panel H1AA	Install proper name tags	COT	
LIBRARY	Panel SH	Install proper lockout/tagout device on breaker	COT	
LIBRARY	Panel PP1	Install proper name tags	COT	
LIBRARY	Panel PB1	Install proper name tags	COT	
LIBRARY	Panel P1BB	Install proper name tags	COT	
LIBRARY	Panel P1B	Install proper listed seal for unused conduit openings	COT	
LIBRARY	Panel P1BA	Install proper listed seal for unused conduit openings	COT	
LIBRARY	VFD	Install cover	COT	
PYLE ADULT CENTER		No Adverse Observations		
HISTORICAL MUSEUM	Panel FDP	This is the SES for the Edna Vihel Community Center and should be labeled SWGR-FDP and clearly identify its destination.	COT	
HISTORICAL MUSEUM	Panel B	Main disconnect switch in the SES has three different fuses installed	COT	
HISTORICAL MUSEUM	Panel A	Missing breaker blanks in the dead front cover	COT	
HISTORICAL MUSEUM	Conduit Transition (LB)	Missing the cover and wires are hanging out above Panel L and Panel M	COT	
EDNA VIHEL	Air Conditioning unit disconnects	The air conditioning unit disconnects located in Panel FDP are not clearly identified	COT	
EDNA VIHEL	ACU-G	Two different types of fuses are installed	COT	
EDNA VIHEL	Dimmer Panel Disconnect	Two different types of fuses are installed	COT	
EDNA VIHEL	Panel FDP	This is a switchboard and should be labeled SWGR-FDP	COT	
EDNA VIHEL	Unlabeled switchboard	This is lacking identification labeling	COT	
EDNA VIHEL	Panel G	Miscellaneous items improperly stored in front of electrical equipment creating a fire hazard	COT	

Building	Name of Equipment	BC OBSERVATION	Electrical Task Assignment	Priority
EDNA VIHEL	Panel F	Miscellaneous items improperly stored in front of electrical equipment creating a fire hazard	COT	
TEMPE CENTER FOR ARTS	SES	Not protected by service disconnecting means- This poses a dangerous risk to the electrical and maintenance staff by having high arc flash hazard levels. Recommendation for further engineering analysis to design a service disconnecting means and lower the arc flash hazard levels	BC	
TEMPE CENTER FOR ARTS	SES	Full of dirt and debris	COT	
TEMPE CENTER FOR ARTS	Panels	Multiple panels are missing engraved nameplates	COT	
TEMPE CENTER FOR ARTS	Panels	Most panels missing panel schedules	COT	
TEMPE CENTER FOR ARTS	DBLDS MAIN	System Reliability Compromised -Recommend changing the breaker settings to improve electrical system reliability and electrical staff safety. BC will subcontract Southwest Energy Systems to perform breaker setting changes and testing. Southwest Energy will provide test results and proof of breaker setting changes.	BC	
TEMPE CENTER FOR ARTS	LDPA MAIN	System Reliability Compromised -Recommend changing the breaker settings to improve electrical system reliability and electrical staff safety. BC will subcontract Southwest Energy Systems to perform breaker setting changes and testing. Southwest Energy will provide test results and proof of breaker setting changes.	BC	
TEMPE CENTER FOR ARTS	LDPB MAIN	System Reliability Compromised -Recommend changing the breaker settings to improve electrical system reliability and electrical staff safety. BC will subcontract Southwest Energy Systems to perform breaker setting changes and testing. Southwest Energy will provide test results and proof of breaker setting changes.	BC	

Building	Name of Equipment	BC OBSERVATION	Electrical Task Assignment	Priority
TEMPE CENTER FOR ARTS	DBHS MAIN	System Reliability Compromised -Recommend changing the breaker settings to improve electrical system reliability and electrical staff safety. BC will subcontract Southwest Energy Systems to perform breaker setting changes and testing. Southwest Energy will provide test results and proof of breaker setting changes.	BC	
TEMPE CENTER FOR ARTS	DBLDM MAIN	System Reliability Compromised -Recommend changing the breaker settings to improve electrical system reliability and electrical staff safety. BC will subcontract Southwest Energy Systems to perform breaker setting changes and testing. Southwest Energy will provide test results and proof of breaker setting changes.	BC	
TEMPE CENTER FOR ARTS	DBH1 BKR	System Reliability Compromised -Recommend changing the breaker settings to improve electrical system reliability and electrical staff safety. BC will subcontract Southwest Energy Systems to perform breaker setting changes and testing. Southwest Energy will provide test results and proof of breaker setting changes.	BC	
TEMPE CENTER FOR ARTS	EDPH1 MAIN	System Reliability Compromised -Recommend changing the breaker settings to improve electrical system reliability and electrical staff safety. BC will subcontract Southwest Energy Systems to perform breaker setting changes and testing. Southwest Energy will provide test results and proof of breaker setting changes.	BC	
TEMPE CENTER FOR ARTS	EDPH2 MAIN	System Reliability Compromised -Recommend changing the breaker settings to improve electrical system reliability and electrical staff safety. BC will subcontract Southwest Energy Systems to perform breaker setting changes and testing. Southwest Energy will provide test results and proof of breaker setting changes.	BC	
WEST SIDE MULTI GENERATIONAL FACILITY	Panel H1	Conduit is missing a bushing, creating a sharp edge that rests against the main feeder conductors creating a potential hazard. BC will inspect with COT electrical staff and recommend corrective action.	BC	

Building	Name of Equipment	BC OBSERVATION	Electrical Task Assignment	Priority
WEST SIDE MULTI GENERATIONAL FACILITY	Facility Transformers	Lack identification labels	COT	
WEST SIDE MULTI GENERATIONAL FACILITY		Two electrical rooms that house electrical equipment do not have the proper working clearance in front of the equipment	COT	
FIRE STATION 1	T-1	There are three transformers labeled as T-1	COT	
FIRE STATION 1	Panel E	Further Engineering Analysis should be done to evaluate the over current protection. There is a 100A breaker in Panel E feeding a 125A main circuit breaker in Panel SHE that feeds a 200A fuse in disconnect D-2	BC	
FIRE STATION 1	SES	Lacks main overcurrent protection - Recommend further analysis and design to protect the electrical system and lower arc flash hazard levels.	BC	
FIRE STATION 2		No adverse observations		
FIRE STATION 3	Panel C	Does not close properly	COT	
FIRE STATION 3	Generator	Leaking oil BC will evaluate with COT staff and recommend corrective action	BC	
FIRE STATION 3	SES	Lacks main overcurrent protection - Recommend further analysis and design to protect the electrical system and lower arc flash hazard levels.	BC	
FIRE STATION 4	SES	Water damage is present on the enclosure BC will inspect and review with the COT electrical staff cause of water damage and recommend repairs if necessary.	BC	
FIRE STATION 5		No adverse observations		
FIRE STATION 6		No adverse observations		
FIRE MAINTENANCE FACILITY	Panels A, B, C, D, AA	Panel Schedules are old and may be outdated	COT	

Building	Name of Equipment	BC OBSERVATION	Electrical Task Assignment	Priority
FIRE MAINTENANCE FACILITY	Panel C & Panel D	The metal workshop where these panels are located is in disarray and filled with cut sheet metal slabs and metal shards	COT	
FIRE TRAINING FACILITY	SES-SWITCHBOARD	Nametags for the feeder circuits have fallen off.	COT	
FIRE TRAINING FACILITY	SES-SWITCHBOARD	The door will not latch close	COT	
FIRE TRAINING FACILITY	SES-SWITCHBOARD	The mechanisms used to access the fuses are not working	COT	
FIRE TRAINING FACILITY	SES-SWITCHBOARD	Lacks main overcurrent protection - Recommend further analysis and design to protect the electrical system and lower arc flash hazard levels.	BC	
KEN MCDONALD MAINTENANCE BLDG	Pad Mounted Transformer	The enclosure is heavily rusted. BC will inspect and review with COT electrical staff and recommend corrective action	BC	
KEN MCDONALD MAINTENANCE BLDG	Meter Can	Paint is peeling off	COT	
KEN MCDONALD MAINTENANCE BLDG	Fused Disconnect	Not Labeled	COT	
KEN MCDONALD MAINTENANCE BLDG	Panel A	Not Labeled and the panel schedule does not appear to have been recently updated. The room that houses Panel A is cluttered with maintenance equipment.	COT	
KEN MCDONALD MAINTENANCE BLDG	Disconnect Switch	The insulation of the conductor connected to the middle lug has bubbles in it and the connection is corroded. This item is to be addressed by the COT electrical staff ASAP.	COT	
KEN MCDONALD MAINTENANCE BLDG	400A disconnect switch	The room that houses the 400A disconnect switch is cluttered with maintenance equipment.	COT	
KEN MCDONALD PUMPING STATION	Pump Control Panel	The conductors are not properly sized. The fuse is sized accordingly to carry the load of the downstream motors but the conductors are not properly protected	BC	
KEN MCDONALD PUMPING STATION	Lighting Panel	Panel schedule does not appear to have been recently updated	COT	
KEN MCDONALD PUMPING STATION	Gas containment and dispensing area	Conduit has broken away from the junction box	COT	
KEN MCDONALD PRO SHOP AND RESTAURANT	Panel PA	Panel Schedule does not appear to have been recently updated	COT	

Building	Name of Equipment	BC OBSERVATION	Electrical Task Assignment	Priority
KEN MCDONALD PRO SHOP AND RESTAURANT	Panel KA	Panel Schedule does not appear to have been recently updated	COT	
KEN MCDONALD PRO SHOP AND RESTAURANT	Panel LA	Panel Schedule does not appear to have been recently updated	COT	
KEN MCDONALD PRO SHOP AND RESTAURANT		The Pro Shop electrical room is cluttered with old golf clubs, field and workbench tools.	COT	
KEN MCDONALD PRO SHOP AND RESTAURANT	SES	Lacks main overcurrent protection - Recommend further analysis and design to protect the electrical system and lower arc flash hazard levels.	BC	
ROLLING HILLS GOLF COURSE RESTAURANT	Panels E, K and B	The door latches are in need of adjustment or replacement	COT	
ROLLING HILLS GOLF COURSE RESTAURANT		Equipment and boxes stored in front of electrical equipment violating fire code regulations	COT	
BENJAMIN B. MOEUR HOUSE	Panels	The electrical rooms are being used for storage.	COT	
EISENDRATH HOUSE		No adverse observations at the time of this analysis This house has been completely remodeled and should be revisited	BC	
ELIAS RODRIGUEZ HOUSE	Panel B	The electrical room that houses Panel B is being used for storage.	COT	
HACKETT HOUSE	SES	The service is rusted	COT	
HACKETT HOUSE	Panel A	No panel schedule. There is no access, blocked by shelving and store products	COT	
HACKETT HOUSE	Panel B	No panel schedule. There is no access, blocked by shelving and store products	COT	
PETERSON HOUSE	Main Disconnect Switch	The grounding lug is corroded. Bushes are beginning to cover the main disconnect switch	COT	

Building	Name of Equipment	BC OBSERVATION	Electrical Task Assignment	Priority
525 BUILDING - MUNICIPAL OFFICE - TENANT SPACE	SES	Lacks main overcurrent protection - Recommend further analysis and design to protect the electrical system and lower dangerous arc flash hazard levels.	BC	
525 BUILDING - MUNICIPAL OFFICE - TENANT SPACE	Panels	Most of the panels are missing the panel schedules	COT	
525 BUILDING - MUNICIPAL OFFICE - TENANT SPACE	DPH3	The bucket that contains the fuses to provide overcurrent protection for the ATS has two fuses and one piece of 1/2 inch conduit inserted as a fuse.	COT	
CITY HALL	HL-1	Missing panel schedule, install proper listed knockout seals in unused openings in panel	COT	
CITY HALL	LP-1	Missing panel schedule, missing screws in cover, install proper listed knockout seals in unused openings in panel	COT	
CITY HALL	EM-P	Missing panel schedule		
CITY HALL	DP-3	Missing screws in cover	COT	
CITY HALL	DS-2	Missing screws in cover	COT	
CITY HALL	PNL OL	Missing screws in cover	COT	
CITY HALL	PNL P	Missing screws in cover, install proper listed knockout seals in unused openings in panel	COT	
CITY HALL	Panel 3B	Install properly operating safety latch	COT	
CITY HALL	Transformer TC	Missing screws in cover	COT	
CITY HALL		Remove storage material from electrical rooms	COT	
PERFORMING ARTS COMPLEX	Panel PP-1	Provide fuses for overcurrent protection	COT	
PERFORMING ARTS COMPLEX	Panel MAMA	Remove conductors and replace cover on conduit fitting	COT	
PERFORMING ARTS COMPLEX		Missing panel schedules	COT	
PERFORMING ARTS COMPLEX	SES	Lacks main overcurrent protection - Recommend further analysis and design to protect the electrical system and lower arc flash hazard levels.	BC	



Building	Name of Equipment	BC OBSERVATION	Electrical Task Assignment	Priority
PERFORMING ARTS COMPLEX	SWBD-DS1	Further engineering analysis to replace feeder breaker with instantaneous setting to lower arc flash hazard levels	BC	
TEMPE TRANSPORTATION CENTER	Panel 1B	Missing breaker blanks	COT	
TEMPE TRANSPORTATION CENTER	Panel R-1A	Lacks proper clearance	COT/BC	
TEMPE TRANSPORTATION CENTER	Panel E701-2A	Missing breaker blanks	COT	
TEMPE TRANSPORTATION CENTER	Panel 2H1	Modify transformer rack to free up workspace in front of panel to comply with the National Electrical Code	BC	
TEMPE TRANSPORTATION CENTER	PNL E701-BA BKR	System Reliability Compromised -Recommend changing the breaker settings to improve electrical system reliability and electrical staff safety. BC will subcontract Southwest Energy Systems to perform breaker setting changes and testing. Southwest Energy will provide test results and proof of breaker setting changes.	BC	
TEMPE TRANSPORTATION CENTER	PNL E701-BA MAIN	System Reliability Compromised -Recommend changing the breaker settings to improve electrical system reliability and electrical staff safety. BC will subcontract Southwest Energy Systems to perform breaker setting changes and testing. Southwest Energy will provide test results and proof of breaker setting changes.	BC	
TEMPE TRANSPORTATION CENTER	SES MAN BKR	System Reliability Compromised -Recommend changing the breaker settings to improve electrical system reliability and electrical staff safety. BC will subcontract Southwest Energy Systems to perform breaker setting changes and testing. Southwest Energy will provide test results and proof of breaker setting changes.	BC	

Building	Name of Equipment	BC OBSERVATION	Electrical Task Assignment	Priority
TEMPE TRANSPORTATION CENTER	SWBD DSA MAIN	System Reliability Compromised -Recommend changing the breaker settings to improve electrical system reliability and electrical staff safety. BC will subcontract Southwest Energy Systems to perform breaker setting changes and testing. Southwest Energy will provide test results and proof of breaker setting changes.	BC	
TEMPE TRANSPORTATION CENTER	PNL 2B BKR	System Reliability Compromised -Recommend changing the breaker settings to improve electrical system reliability and electrical staff safety. BC will subcontract Southwest Energy Systems to perform breaker setting changes and testing. Southwest Energy will provide test results and proof of breaker setting changes.	BC	
MCCLINTOCK SPORTS FACILITY - SWIMMING POOL		Equipment enclosures are rusted and hinges corroded with chlorine	COT	
MCCLINTOCK SPORTS FACILITY - SWIMMING POOL	SES	SES is dirty and cluttered with dirt and debris.	COT	
MCCLINTOCK SPORTS FACILITY - TENNIS COURTS	SES	Poorly labeled	COT	
MCCLINTOCK SPORTS FACILITY - TENNIS COURTS	XFMR TL	Front end is damaged recommend further inspection of transformer for damage.	BC	
MCCLINTOCK SPORTS FACILITY - TENNIS COURTS	SES	Lacks main overcurrent protection - Recommend further analysis and design to protect the electrical system and lower arc flash hazard levels. install overcurrent protective device	BC	
ORCHID HOUSE OFFICE SPACE	Transformer ML2C	Blocked by combustible material and lacks proper clearances	COT	
APACHE POLICE STATION		No adverse observations		

Building	Name of Equipment	BC OBSERVATION	Electrical Task Assignment	Priority
APACHE POLICE STATION	PD-SES-SWITCHBOARD	System Reliability Compromised -Recommend changing the breaker settings to improve electrical system reliability and electrical staff safety. BC will subcontract Southwest Energy Systems to perform breaker setting changes and testing. Southwest Energy will provide test results and proof of breaker setting changes.	BC	
APACHE POLICE STATION	PD-DB-B1 -PHASE	System Reliability Compromised -Recommend changing the breaker settings to improve electrical system reliability and electrical staff safety. BC will subcontract Southwest Energy Systems to perform breaker setting changes and testing. Southwest Energy will provide test results and proof of breaker setting changes.	BC	
APACHE POLICE STATION	PD-DB-B1-ATS-B1	System Reliability Compromised -Recommend changing the breaker settings to improve electrical system reliability and electrical staff safety. BC will subcontract Southwest Energy Systems to perform breaker setting changes and testing. Southwest Energy will provide test results and proof of breaker setting changes.	BC	
APACHE POLICE STATION	PD-DB-B1-EDP-B1	System Reliability Compromised -Recommend changing the breaker settings to improve electrical system reliability and electrical staff safety. BC will subcontract Southwest Energy Systems to perform breaker setting changes and testing. Southwest Energy will provide test results and proof of breaker setting changes.	BC	
APACHE POLICE STATION	PD-DB-A1 -PHASE	System Reliability Compromised -Recommend changing the breaker settings to improve electrical system reliability and electrical staff safety. BC will subcontract Southwest Energy Systems to perform breaker setting changes and testing. Southwest Energy will provide test results and proof of breaker setting changes.	BC	

Building	Name of Equipment	BC OBSERVATION	Electrical Task Assignment	Priority
APACHE POLICE STATION	PD-DB-A1-ATS-A1	System Reliability Compromised -Recommend changing the breaker settings to improve electrical system reliability and electrical staff safety. BC will subcontract Southwest Energy Systems to perform breaker setting changes and testing. Southwest Energy will provide test results and proof of breaker setting changes.	BC	
APACHE POLICE STATION	PD-BP1-TX-1	System Reliability Compromised -Recommend changing the breaker settings to improve electrical system reliability and electrical staff safety. BC will subcontract Southwest Energy Systems to perform breaker setting changes and testing. Southwest Energy will provide test results and proof of breaker setting changes.	BC	
APACHE POLICE STATION	PD-BP1-VFD CHWP-3	System Reliability Compromised -Recommend changing the breaker settings to improve electrical system reliability and electrical staff safety. BC will subcontract Southwest Energy Systems to perform breaker setting changes and testing. Southwest Energy will provide test results and proof of breaker setting changes.	BC	
APACHE POLICE STATION	PD-BP1-VFD CHWP-4	System Reliability Compromised -Recommend changing the breaker settings to improve electrical system reliability and electrical staff safety. BC will subcontract Southwest Energy Systems to perform breaker setting changes and testing. Southwest Energy will provide test results and proof of breaker setting changes.	BC	
APACHE POLICE STATION	PD-BP-1	System Reliability Compromised -Recommend changing the breaker settings to improve electrical system reliability and electrical staff safety. BC will subcontract Southwest Energy Systems to perform breaker setting changes and testing. Southwest Energy will provide test results and proof of breaker setting changes.	BC	

Building	Name of Equipment	BC OBSERVATION	Electrical Task Assignment	Priority
APACHE POLICE STATION	PD-MSCP PANEL	System Reliability Compromised -Recommend changing the breaker settings to improve electrical system reliability and electrical staff safety. BC will subcontract Southwest Energy Systems to perform breaker setting changes and testing. Southwest Energy will provide test results and proof of breaker setting changes.	BC	
KIWANIS POLICE SUBSTATION	Disconnects in the Switchboard	Not properly labeled	COT	
KIWANIS POLICE SUBSTATION	Panel A	Needs to have the panel schedule verified and typed. It is also missing a screw in the deadfront cover	COT	
KIWANIS POLICE SUBSTATION	SES	Missing covers on the interior	COT	
KIWANIS POLICE SUBSTATION	Event Outlets	The event outlets are double tapped off of the load side lugs for Panel C disconnect in the SES	BC	
KIWANIS POLICE SUBSTATION	ATS	Load side conductors have been removed and the feeder disconnect is in the off position	COT	
KIWANIS POLICE SUBSTATION	SES	Lacks main overcurrent protection - Recommend further analysis and design to protect the electrical system and lower arc flash hazard levels.	BC	
TEMPE SOUTH POLICE SUBSTATION	ATS	The outdoor enclosure is rusted	COT	
TEMPE SOUTH POLICE SUBSTATION	T1	The release mechanism of the disconnect switch could not be operated	COT	
TEMPE SOUTH POLICE SUBSTATION	SES	The main door for section 3 could not be closed properly without excessive force	COT	
TEMPE SOUTH POLICE SUBSTATION	Generator	Unable to unlock the doors	COT	
TEMPE SOUTH POLICE SUBSTATION	H2	Has a hinged outer cover to facilitate accessing panel interior. However, the panel is mounted too close to the adjacent wall such that the cover can not be opened due to the light switch for the room. The entire cover has to be removed in order to access the inside of the enclosure.	BC	

Building		Name of Equipment		BC	OBSERVATION		Electrical Task Assignment	Priority
TEMPE SOUTH POLICE SUBSTATION	PD-SES-1	System Reliability Compromised -Recommend changing the breaker settings to improve electrical system reliability and electrical staff safety. BC will subcontract Southwest Energy Systems to perform breaker setting changes and testing. Southwest Energy will provide test results and proof of breaker setting changes.			BC			
TEMPE POLICE AND COURT COMPLEX	Generator Main Breaker	Missing screws in cover			COT			
TEMPE POLICE AND COURT COMPLEX	2H1	Modify the transformer rack to fit the transformer and free up the working space			BC			
TEMPE POLICE AND COURT COMPLEX	3H3A	Install breaker blanks			COT			
TEMPE POLICE AND COURT COMPLEX		Post signage at all accessible panels to warn staff to keep them clear of obstructions and materials			COT			
TEMPE POLICE AND COURT COMPLEX		Remove all combustible and storage materials from the electric rooms.			COT			
TEMPE POLICE AND COURT COMPLEX	80 kW UPS System	Install over current protection device between UPS and transformer to improve system protection			BC			
RIO SALADO MARINA		No adverse conditions						
BELL BUTTE RADIO FACILITY	Panel A	Replace with a single phase Nema 3R panelboard to comply with the			BC			
BELL BUTTE RADIO FACILITY		Label electrical equipment with proper identification using the SLD naming convention			COT			
EVBO AND MAINTENANCE FACILITY		No adverse conditions found						
EVBO AND MAINTENANCE FACILITY	SWBD SGP1 MAIN	System Reliability Compromised -Recommend changing the breaker settings to improve electrical system reliability and electrical staff safety. BC will subcontract Southwest Energy Systems to perform breaker setting changes and testing. Southwest Energy will provide test results and proof of breaker setting changes.			BC			

Building	Name of Equipment	BC OBSERVATION	Electrical Task Assignment	Priority
EVBO AND MAINTENANCE FACILITY	SWBD SDP3 MAIN	System Reliability Compromised -Recommend changing the breaker settings to improve electrical system reliability and electrical staff safety. BC will subcontract Southwest Energy Systems to perform breaker setting changes and testing. Southwest Energy will provide test results and proof of breaker setting changes.	BC	
EVBO AND MAINTENANCE FACILITY	SDP3 BKR	System Reliability Compromised -Recommend changing the breaker settings to improve electrical system reliability and electrical staff safety. BC will subcontract Southwest Energy Systems to perform breaker setting changes and testing. Southwest Energy will provide test results and proof of breaker setting changes.	BC	
EVBO AND MAINTENANCE FACILITY	ATS-1 BKR	System Reliability Compromised -Recommend changing the breaker settings to improve electrical system reliability and electrical staff safety. BC will subcontract Southwest Energy Systems to perform breaker setting changes and testing. Southwest Energy will provide test results and proof of breaker setting changes.	BC	
EVBO AND MAINTENANCE FACILITY	SWBD SGP2 MAIN	System Reliability Compromised -Recommend changing the breaker settings to improve electrical system reliability and electrical staff safety. BC will subcontract Southwest Energy Systems to perform breaker setting changes and testing. Southwest Energy will provide test results and proof of breaker setting changes.	BC	
EVBO AND MAINTENANCE FACILITY	SDP2 BKR	System Reliability Compromised -Recommend changing the breaker settings to improve electrical system reliability and electrical staff safety. BC will subcontract Southwest Energy Systems to perform breaker setting changes and testing. Southwest Energy will provide test results and proof of breaker setting changes.	BC	



Building	Name of Equipment	BC OBSERVATION	Electrical Task Assignment	Priority
EVBO AND MAINTENANCE FACILITY	SWBD SGP2 MAIN	System Reliability Compromised -Recommend changing the breaker settings to improve electrical system reliability and electrical staff safety. BC will subcontract Southwest Energy Systems to perform breaker setting changes and testing. Southwest Energy will provide test results and proof of breaker setting changes.	BC	
EVBO AND MAINTENANCE FACILITY	SATS-2 BKR	System Reliability Compromised -Recommend changing the breaker settings to improve electrical system reliability and electrical staff safety. BC will subcontract Southwest Energy Systems to perform breaker setting changes and testing. Southwest Energy will provide test results and proof of breaker setting changes.	BC	
EVBO AND MAINTENANCE FACILITY	DP2B BKR	System Reliability Compromised -Recommend changing the breaker settings to improve electrical system reliability and electrical staff safety. BC will subcontract Southwest Energy Systems to perform breaker setting changes and testing. Southwest Energy will provide test results and proof of breaker setting changes.	BC	
EVBO AND MAINTENANCE FACILITY	SWBD DP1 MAIN	System Reliability Compromised -Recommend changing the breaker settings to improve electrical system reliability and electrical staff safety. BC will subcontract Southwest Energy Systems to perform breaker setting changes and testing. Southwest Energy will provide test results and proof of breaker setting changes.	BC	
EVBO AND MAINTENANCE FACILITY	DP1 BKR	System Reliability Compromised -Recommend changing the breaker settings to improve electrical system reliability and electrical staff safety. BC will subcontract Southwest Energy Systems to perform breaker setting changes and testing. Southwest Energy will provide test results and proof of breaker setting changes.	BC	
HARDYD HARDY MAINTENANCE YARD	SES	Lacks main overcurrent protection - Recommend further analysis and design to protect the electrical system and lower dangerous arc flash hazard levels.	BC	

Building	Name of Equipment	BC OBSERVATION	Electrical Task Assignment	Priority
HARDYD HARDY MAINTENANCE YARD	Panels	Several panels do not have the proper clearance as required by NEC Article 110.26(B). Rooms are being used for storage.	COT	
HPCC HOUSEHOLD PRODUCT COL CTR	Panel A	The electrical room that houses Panel A is being used for storage.	COT	
KIWANIS PARK MAINTENANCE - VEHICLE MAINTENANCE SOUTH		No adverse observations		
KIWANIS PARK MAINTENANCE - VEHICLE MAINTENANCE SOUTH		Lacks main overcurrent protection - Recommend further analysis and design to protect the electrical system and lower dangerous arc flash hazard levels.	BC	
KIWANIS PARK MAINTENANCE - PARK MAINTENANCE	Panels	Update panel schedules and affix to the panels	COT	
KIWANIS PARK MAINTENANCE - EQUESTRIAN BUILDING	Panels	Update panel schedules and affix to the panels	COT	
PRIEST YARD	Transformer	Rusted and nameplate is unreadable		
PRIEST YARD	North of SES	There is a J-Box missing a cover	COT	
PRIEST YARD	Panel EML	Branch conductors are spliced in panel	COT	
PRIEST YARD		Equipment stored in front of electrical equipment	COT	
PRIEST YARD	N. Yard SES	Lacks main overcurrent protection - Recommend further analysis and design to protect the electrical system and lower dangerous arc flash hazard levels.	BC	
HAYDEN BUTTE RADIO FACILITY		Equipment lacks proper identification	COT	

Building	Name of Equipment	BC OBSERVATION	Electrical Task Assignment	Priority
TRAFFIC MAINTENANCE FACILITY	SES	Lacks main overcurrent protection - Recommend further analysis and design to protect the electrical system and lower dangerous arc flash hazard levels.	BC	
TRAFFIC MAINTENANCE FACILITY	Panels	Most panels are missing the panel schedules	COT/BC	
TRAFFIC MAINTENANCE FACILITY	ATS	The ATS has a set of wires capped off in the cabinet and tucked behind other conductors that could potentially become energized at the ATS via the switch located in the SES.	BC	
TRAFFIC MAINTENANCE FACILITY	Panel A	The feeders are not properly protected recommend further analysis and design to properly protect the conductors.	BC	
DIABLO STADIUM - STADIUM	SES	Fuses not clearly marked	COT	
DIABLO STADIUM - STADIUM		Electrical equipment room is cluttered with dirt and debris	COT	
DIABLO STADIUM - STADIUM		Lacks main overcurrent protection - Recommend further analysis and design to protect the electrical system and lower dangerous arc flash hazard levels.	BC	
DIABLO STADIUM - SCOREBOARD	SES	Poorly labeled	COT	
HW_SITE HARDY/ WARNER SKATE PARK	125A spare circuit breaker	Not labeled	COT	
HW_SITE HARDY/ WARNER RESTROOM NORTH	150 kVA Transformer	Being used as a shelf and a majority of the vents were covered. It was hot to touch.	COT	
HW_SITE HARDY/ WARNER RESTROOM NORTH	LP C	Items in the electrical room obstruct the 3-foot clearance required by NEC Article 110.26	COT	
HW_SITE HARDY/ WARNER RESTROOM NORTH	Panels S1 thru S7	Items in the electrical room obstruct the 3-foot clearance required by NEC Article 110.26	COT	

Building	Name of Equipment	BC OBSERVATION	Electrical Task Assignment	Priority
HW_SITE HARDY/ WARNER RESTROOM AND CONCESSIONS	150 kVA Transformer	Items in the electrical room obstruct the 3-foot clearance required by NEC Article 110.26. Equipment is covered with chalk	COT	
HW_SITE HARDY/ WARNER RESTROOM AND CONCESSIONS	Panel A	Items in the electrical room obstruct the 3-foot clearance required by NEC Article 110.26. Equipment is covered with chalk	COT	
KIWANIS PARK SPORTS FACILITY - REC CENTER		Improper storage of materials in electrical room	COT	
KIWANIS PARK SPORTS FACILITY - BALL FIELD CONCESSION	Transformer	Combustible material on top of transformer	COT	
KIWANIS PARK SPORTS FACILITY - BATTING CAGES		Improper storage of materials in electrical room	COT	

EXHIBIT C

Tempe, City of (AZ) – Elect. Dist. Sys. Project Phase 3													Professional Fees (Architect, Engineer, Contract Admin.)	Professional Fees (Other)	Subcontract Energy Efficiency Measurements and Commissioning	Other Costs	Total Costs	Total Fees	Total Costs		
Item	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	
Contract Management	69	18	1	0	1	0	0	0	0	0	0	89	10,766	0	0	0	0	0	0	500	11,266
Cond. Assess. Matrix Workshop	4	0	2	0	0	0	0	0	0	0	0	6	926	0	0	0	0	0	0	0	826
EDS Design	306	0	1	110	1	30	0	181	19	648	85,832	500	500	0	0	0	0	0	500	86,332	
Detailed Construction Cost Estimate	6	0	0	6	0	0	80	0	0	82	19,060	0	0	0	0	0	0	0	0	0	19,060
Breaker Setting Changes	25	0	0	0	0	10	0	0	0	35	4,500	0	0	0	0	20,000	20,000	0	0	20,000	24,500
Arc Flash Hazard Analysis	75	0	0	24	14	0	0	24	0	137	17,716	700	700	0	0	0	0	0	0	200	17,916
GRAND TOTAL	485	18	4	140	16	40	80	205	19	1,007	138,800	1,200	1,200	20,000	20,000	21,200	160,600				

Hours and Dollars are rounded to nearest whole number. To display decimals, change the format of the cells.