TO: **James L. App, City Manager**

FROM: **Doug Monn, Public Works Director**

SUBJECT: **Water Treatment for Ronconi Wells**

DATE: **April 20, 2010**

NEEDS: For the City Council to consider purchase of controls upgrades and final paving associated with the installation of the Microfiltration System for Ronconi Wells

FACTS:

1. In December 2008 the City Council authorized the purchase and installation of the Ronconi Microfiltration system.

2. Installation is almost complete; pending integration of the treatment control system with the existing system and pavement repair along 12th Street due to pipe installation.

3. City Council Authorized $205k for required appurtenances and installation activities. To date, $107K has been spent.

4. Ronconi Wells will contribute approximately 800 gallons per minute (roughly 1-million gallons per day), or about 10% of the City's current production.

ANALYSIS & CONCLUSION: Ronconi well supply is required to help meet seasonal peak demands. Additionally, utilizing the Ronconi Wells will help establish beneficial use of the 4,600 acre-feet Salinas River pumping permit.

Bids for the remaining work were solicited in accordance with City purchasing procedures. Installation of the microfiltration system will be complete by awarding the control-system integration and final paving to the lowest qualified bidders as follows:

Kirk Construction (Paving)	$32,372
DLT&V (Control System Integration)	$54,958

Total Work Reaming …….……$ 87,330
Budget Remaining…….……$ 98,000

POLICY REFERENCE: Integrated Water Resource Management Plan and Title 22 CCR

FISCAL IMPACT: Funding is available in the project budget

OPTIONS: A. That the City Council Adopt Resolution No.10-xx authorizing:
1. A purchase order to Kirk Construction in an amount not to exceed $32,372 for final paving of pipe trenches.

2. Authorizing City staff to issue purchase orders to DLT&V for control system integration in an amount not to exceed $54,958.

B. Amend, modify or reject the above option.

Prepared by: Christopher Alakel, Water Resources Manager

Attachments: (2)
1) Quotations
2) Resolution

RESOLUTION NO. 10-xxx

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PASO ROBLES AUTHORIZING PURCHASE ORDERS TO COMPLETE INSTALLATION OF MICROFILTRATION SYSTEM.

WHEREAS, the Ronconi Wells #1 and #4 can be used to supply an additional 800 gallons per minute of Salinas River Underflow production with appropriate treatment; and

WHEREAS, final installation of the Ronconi microfiltration system is complete pending final paving and control system integration.

THEREFORE, BE IT RESOLVED AS FOLLOWS:

SECTION 1. The City Council of the City of El Paso de Robles does hereby authorize a Purchase Order to Kirk Construction for $32,372 for roadway paving.

SECTION 2. The City Council of the City of El Paso de Robles does hereby authorize a Purchase Order to DLT&V for $54,959 control system integration.

PASSED AND ADOPTED by the City Council of the City of Paso Robles this 16th day of December 2008 by the following votes:

AYES:
NOES:
ABSTAIN:
ABSENT:

_____
Duane Picanco, Mayor

ATTEST:

_____
Lonnie Dolan, Deputy City Clerk

KIRK CONSTRUCTION
8830 Morro Road
Atascadero, CA. 93422
(805) 461-5765 •Office
(805) 461-0071 • Fax
CA. Lic. #810345

Proposal & Contract

FROM
Blair Kirk
Kirk Construction

DATE: 4/2/10

TO: The City of Paso Robles
Water Division

JOB INFO: Pave Back @ 12 th & Paso Robles st. & various patch Back
Owner- City of Paso Robles

CONTACT INFO: Mike Maaser
Cell- 391-6935
E mail-mmaaser@prcity.com

We hereby submit specifications and an estimate for: Demo and Paving in Paso Robles Ca.

Prior to commencement of work the owner or contractor here by certifies that the permits, plans, engineering, soils investigations and report are complete and the scope of work is the same as the original items submitted for bid to Kirk construction. Any ambiguities could result in extra costs above the price of this contract. It is the sole responsibility of the owner or contractor to notify Kirk Construction of any changes prior to start of work.

After acceptance of proposal and permits are obtained by others, Kirk Construction will proceed as follows:

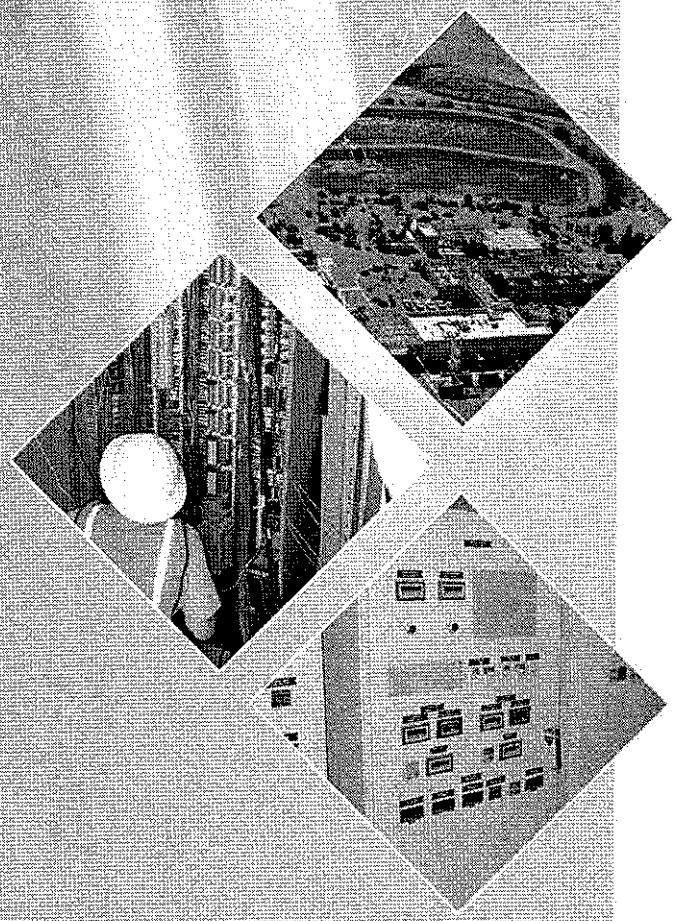
Paso Robles & 12th st. pave back-

- Includes all traffic control
- Includes all saw cutting of existing ac per drawing from Mike Maaser.
- Includes export of all A C pavement & dirt to accommodate new roadway section per Mike Maaser.
- Paso Robles st. section to be 12" of class 2 base under 6" of A C
- 12th st. section to be 12" of class 2 base under 4" of A C
- Includes the placement of any concrete collars around any man holes or G 5 boxes in paving area.
- Includes prevailing wage.
- Excludes any striping.
- Excludes any compaction tests, to be supplied by city.
- (note) This price does not include the purchase of any base or A C pavement, to be purchased by P.R.W.D. Kirk Construction shall supply all delivery of A C and base and all labor and equipment to complete the task mentioned above.(approximately 7400 square ft.)

Price for 12th & Paso Robles St. paving $ 32,372.00

DLT&V
SYSTEMS ENGINEERING

Proposal to City of Paso Robles for Wonderware SCADA System Upgrade



DLT&V Opportunity Number
2010.03.1174

Submitted March 23, 2010

DESIGN CONSTRUCTION INTEGRATION

Problem solved.

DLT&V
SYSTEMS ENGINEERING

IRVINE OFFICE
16 TECHNOLOGY DRIVE • SUITE 100
IRVINE, CALIFORNIA 92618
VOICE 949.273.8773 • FAX 949.273.8775

DESIGN
CONSTRUCTION
INTEGRATION

OCEANSIDE OFFICE
4167 AVENIDA DE LA PLATA • SUITE 118
OCEANSIDE, CALIFORNIA 92056
VOICE 760.560.0675 • FAX 760.560.0675

March 23, 2010

City of Paso Robles
1230 Paso Robles Street
Paso Robles, CA 93446
ATTN: Mike Maaser

Re: DLT&V Systems Engineering City of Paso Robles Wonderware SCADA System Upgrade

Dear Mr. Maaser:

Please find attached our proposal to the City of Paso Robles for Wonderware SCADA System Upgrade project. We are pleased to submit our proposal to provide Engineering, Instrumentation, Controls, and Integration and for this project.

DLT&V Systems Engineering, Inc. (DLT&V) is a privately owned electrical engineering firm providing industrial electrical design, construction phase services, programming, and integration & support services primarily in the water and wastewater industries. We offer these services from our offices in California, Arizona, Nevada, and Colorado. DLT&V provides detailed strategies and services in close liaison with our clients by listening carefully to their needs. You will find that our team has the skill, knowledge, and experience in electrical/ instrumentation and control systems engineering and integration to deliver your projects successfully. We are also specialists in water and wastewater SCADA, having completed hundreds of successful projects in this industry. We pride ourselves on the number of our professional employees who are operator certified. We know that having the appropriate perspective helps us assess, design and build better control systems for you!

DLT&V is one of the largest and most sought after electrical engineering and integration firms in the western United States because of the technical expertise, service and support we provide to our clients. We are proud to have been named one of the Top 40 Electrical Design Firms in the country by *EC&M Magazine* for 2007, 2008, and 2009 and to have been a finalist for *Control Engineering Magazine*'s System Integrator of the Year Award in 2006 and 2007!

Thank you for reviewing our qualifications and proposal. Please feel free to contact me with any questions regarding this proposal.

Sincerely,

Jeff Greinke
Director of Engineering for California
DLT&V Systems Engineering, Inc.
16 Technology Drive, Suite 100
Irvine, California 92618
949.273.8773
jgreinke@dltvse.com

DLT&V
SYSTEMS ENGINEERING

QUALIFICATIONS

DLT&V Systems Engineering, Inc. (DLT&V) is an electrical engineering and systems integration firm, with extensive experience providing assessment, design, construction services, and programming for water and wastewater electrical and control systems. Our specialized expertise in all project phases makes us truly the low-risk solution, enhancing our quality control processes and allowing us to supply turn-key services. Our clients include municipalities, industrial and private utility companies, contractors, and civil engineering firms.

We have completed over 1000 projects throughout the West, ranging from brief letter reports to large multi-million dollar design and SCADA system integration projects. Because of our specialization and expertise in control systems engineering and integration for the water/wastewater industry and our reputation as a trusted partner on municipal projects, firms such as AECOM, CH2M Hill, Carollo, Tetra Tech, MWH, CDM, Black & Veatch, and HDR often utilize DLT&V for their control system planning, design and programming work. This is simply one more illustration that DLT&V is highly qualified to perform the necessary tasks for this project. Water and wastewater SCADA is not just another division at DLT&V…it's what we do!

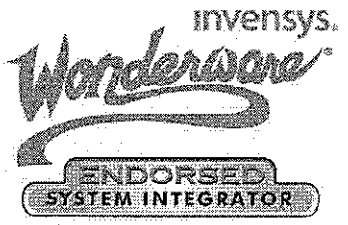
…firms such as AECOM, CH2M Hill, Carollo, Tetra Tech, MWH, and Black & Veatch, often utilize DLT&V for their control system design and programming

DLT&V has become one of the most sought after electrical engineering firms in the Southwest, specializing in electrical design, construction, system integration, and support because of our dedication to our clients. We are proud to have been named to the EC&M Magazine™ list of the Top 40 Electrical Design Firms in the country in 2007, 2008, and 2009, and as a finalist in the Control Engineering Magazine™ System Integrator of the Year competition in 2006 and 2007. As you will see in our personnel section, we have dedicated a highly qualified team of experts to provide leadership for the City of Paso Robles SCADA Upgrade Project. In fact, we pride ourselves on the number of professional employees who are water/wastewater plant operator certified. DLT&V even conducts in-house operator certification training because we know that having an operator perspective improves our control systems planning, design and integration capabilities. In addition to these skilled practitioners, DLT&V employs dozens of professionals in these fields to provide the necessary resources to complete your projects. Although we are one of the largest electrical engineering and integration firms in the Western United States, we are nevertheless, certified by the United States Small Business Administration as a Small Business Enterprise (SBE) for SCADA and control system services.

Our team possesses the knowledge, training and hands-on experience required to meet your control system integration needs. Our core competencies include extensive experience in Electrical/ Instrumentation & Control (E/I&C) design, construction observation, instrument testing and calibration, programming and integration, start-up assistance and commissioning services. Our engineers and programmers come from varied backgrounds. They learned their craft from years in the field where they worked as electricians, instrument technicians, and programmers. We are capable of handling almost any planning, electrical engineering, controls, programming, or support services task.

DLT&V even conducts in-house operator certification training because we know that having an operator perspective improves our control systems planning, design and integration capabilities.

Wonderware, a business unit of Invensys, recently recognized DLT&V as an **'Endorsed'** system integrator (ESI). The selected ESI partners have demonstrated their commitment to providing superior solutions and service to Wonderware customers, and to building a strong Wonderware practice within their businesses. These SIs have been certified for a number of years on ArchestrA technology, and are among the best in class in providing Wonderware customers with comprehensive software solutions that increase customer efficiency, reduce costs and maximize customer profits." (*Wonderware Strengthens Partner Ecosystem by Endorsing Selected Systems Integrators and Awarding the Innovation Achievements*, October 7, 2008). Endorsement requires nomination by Wonderware's regional sales staff, invitation by Wonderware, specific vertical industry capabilities, and a rigorous application and approval process beyond the certification level. DLT&V Systems Engineering is one of only six firms in the United States, and the only firm in California to have successfully completed this process.



Project Description

The goal of this project is to upgrade the City's existing control system with a Wonderware InTouch SCADA system solution, while keeping the same controls and functionality as the existing Paragon control system. Based on DLT&V's evaluation during the site visit on March 18, 2010, multiple phases for upgrading the system have been provided. Along with these multiple phases, DLT&V has also provided two options for each phase based on different hardware selections for the central controller and controllers at each remote site.

Option 1 is based on the standardization of the Programmable Logic Controller (PLC) manufacturer. This option uses the same PLC manufacturer as the existing mobile Water Treatment Plant.

Option 2 is based on selecting a PLC that talks the same protocol as the City's existing radios, which we were told will not be replaced during the upgrades.

Phase 1, Option 1 – Wonderware SCADA System, Allen Bradley (Rockwell Automation) Dual CompactLogix Programmable Logic Controller

Phase 1, Option 2 – Wonderware SCADA System, Schiender Electric Modicon Dual M340 Programmable Logic Controller

Phase 2, Option 1 – Remote Sites Allen Bradley (Rockwell Automation) MicroLogix Programmable Logic Controller

Phase 2, Option 2 – Remote Sites Schneider Electric Modicon Twido Programmable Logic Controller

Scope of Work

Phase 1, Option 1 – Wonderware SCADA System, Allen Bradley (Rockwell Automation) Dual CompactLogix Programmable Logic Controller

1. System Design
   DLT&V's shall provide an overall design and schedule to fully upgrade the SCADA system, which shall include design guidelines for remote sites. DLT&V will work along side the City to ensure the design fully meets their requirements. Refer to Diagram 1 for a preliminary design.

2. System Control Descriptions
   DLT&V shall develop detailed control descriptions of each remote site (i.e. Wells, Booster Station, and Reservoirs) that will be used to program the Central PLC's. DLT&V will work with the City to ensure the Control Descriptions provides the same control and monitoring functionality as the existing system.

3. Programming & Integration
   DLT&V shall provide Central PLC's and SCADA Wonderware programming and integration. Programming will not commence until the City approves the system Control Descriptions. It is anticipated based on the existing system that 30 screens will be developed in the Human Machine Interface (HMI) and 170 Input/Output points will be coming from field devices at remote sites. DLT&V will also develop a maximum of six (6) automatically generated reports. The content of these reports will be identified during the design phase with input from the City.

DLT&V shall work along side the City during the programming effort to ensure the City staff fully understands how the programs were developed. DLT&V will also provide one (1) day of training on the Wonderware software, and one (1) day of training on the PLC software.

4. Hardware Procurement & Installation
   DLT&V will assist the City in installation of the SCADA hardware and Central PLC's. DLT&V will procure the Allen-Bradley CompactLogix PLC, printer, and 24" wide screen monitor. DLT&V will coordinate with the City's IT department to ensure the printer and monitor meets City specifications. The existing test bed PC workstation will be utilized for the new SCADA system. The PLC's will to be installed in the cabinet next to the existing Wonderware test bed. *If desired, the City can procure the PLC's, printer and monitor.*

5. Software Procurement & Installation
   DLT&V will assist the City in installation of the SCADA software on the existing SCADA test bed. DLT&V will procure the Wonderware upgrade software from Wonderware West. The licenses will be assigned to the City of Paso Robles. *If desired, the City can procure the software directly from Wonderware West.*

Phase 1, Option 2 – Wonderware SCADA System, Schiender Electric Modicon Dual M340 Programmable Logic Controller

1. System Design
   DLT&V's shall provide an overall design and schedule to fully upgrade the SCADA system, which shall include design guidelines for remote sites. DLT&V will work along side the City to ensure the design fully meets their requirements. Refer to Diagram 2 for a preliminary design.

2. System Control Descriptions
   DLT&V shall develop detailed control descriptions of each remote site (i.e. Wells, Booster Station, and Reservoirs) that will be used to program the Central PLC's. DLT&V will work with the City to ensure the Control Descriptions provides the same control and monitoring functionality as the existing system.

3. Programming & Integration
   DLT&V shall provide Central PLC's and SCADA Wonderware programming and integration. Programming will not commence until the City approves the system Control Descriptions. It is anticipated based on the existing system that 30 screens will be developed in the Human Machine Interface (HMI) and 170 Input/Output points will be coming from field devices at remote sites. DLT&V will also develop a maximum of six (6) automatically generated reports. The content of these reports will be identified during the design phase with input from the City.

   DLT&V shall work along side the City during the programming effort to ensure the City staff fully understands how the programs were developed. DLT&V will also provide one (1) day of training on the Wonderware software, and one (1) day of training on the PLC software.

4. Hardware Procurement & Installation
   DLT&V will assist the City in installation of the SCADA hardware and Central Programmable Logic Controller (PLC). DLT&V will procure the Modicon M340 PLC's, printer, and 24" wide screen monitor. DLT&V will coordinate with the City's IT department to ensure the printer and monitor meets City specifications. The existing test bed PC workstation will be utilized for the new SCADA system. The PLC will to be installed in the cabinet next to the existing Wonderware test bed. *If desired, the City can procure the PLC's, printer and monitor.*

5. Software Procurement & Installation
   DLT&V will assist the City in installation of the SCADA software on the existing SCADA test bed. DLT&V will procure the Wonderware upgrade software from Wonderware West. The licenses will be assigned to the City of Paso Robles. *If desired, the City can procure the software directly from Wonderware West.*

Phase 2, Option 1 – Remote Sites Allen Bradley (Rockwell Automation) MicroLogix Programmable Logic Controller

A fee has not been idenfied for Phase 2. It is assume this phase will be more clearly defined after Phase 1 has been completed.

1. System Design
   DLT&V's shall identify all design documents for work that is required that the remote site for installation of the PLC's. It is assumed that most of the installation work will be performed by the City. DLT&V will work along side the City to ensure the design fully meets their requirements. Refer to Diagram 3 for a preliminary design.

2. Revise Existing System Control Descriptions
   DLT&V shall revise existing control descriptions of each remote site (i.e. Wells, Booster Station, and Reservoirs) that will be used to program the new PLC at the remote sites. DLT&V will work with the City to ensure the Control Descriptions provides the same control and monitoring functionality as well as and additional items they want to incorporate at the sites.

3. Programming & Integration
   DLT&V shall provide Central PLC and SCADA Wonderware programming modifications if required. It is assumed most of this work will be completed by the City. DLT&V shall provide programming assist for the remote PLC's if required.

4. Hardware Procurement & Installation
   DLT&V will assist the City in installation of the PLC's at the remote sites. DLT&V will procure the PLC enclosure and Allen-Bradley Micrologix PLCs. It is assume the City will install all wiring, conduit, terminations at each remote site. *If desired, the City can procure the PLC enclosure and all associate miscellaneous equipment.*

Phase 2, Option 2 – Remote Sites Schneider Electric Modicon Twido Programmable Logic Controller

A fee has not been idenfied for Phase 2. It is assume this phase will be more clearly defined after Phase 1 has been completed.

1. System Design
   DLT&V's shall identify all design documents for work that is required that the remote site for installation of the PLC's. It is assumed that most of the installation work will be performed by the City. DLT&V will work along side the City to ensure the design fully meets their requirements. Refer to Diagram 4 for a preliminary design.

2. Revise Existing System Control Descriptions
   DLT&V shall revise existing control descriptions of each remote site (i.e. Wells, Booster Station, and Reservoirs) that will be used to program the new PLC at the remote sites. DLT&V will work with the City to ensure the Control Descriptions provides the same control and monitoring functionality as well as and additional items they want to incorporate at the sites.

3. Programming & Integration
   DLT&V shall provide Central PLC and SCADA Wonderware programming modifications if required. It is assumed most of this work will be completed by the City. DLT&V shall provide programming assist for the remote PLC's if required.

4. Hardware Procurement & Installation
   DLT&V will assist the City in installation of the PLC's at the remote sites. DLT&V will procure the PLC enclosure and Modicon Twido PLCs. It is assume the City will install all wiring, conduit, terminations at each remote site. *If desired, the City can procure the PLC enclosure and all associate miscellaneous equipment.*

Assumptions

- Dual PLC's shall be installed at the Central location, but only one PLC will be active at any given time. The failover to the other PLC shall be performed manually by the City staff.

- At this time there is not redundancy at the HMI level. If required, additional Wonderware licenses and computer hardware will need to be procured if HMI redundancy is required.

- The existing radio communication will not be replaced or modified. DLT&V shall use the existing communications with the new SCADA system.

Task No.	Task Description	Personnel Hours: Project Manager	Engineer/Senior Integrator	Integrator	Clerical	Total Hours	Budget: Labor	Non-Labor Cost	Total
Phase 1, Option 1 - Wonderware SCADA System, Dual Allen Bradley CompactLogix PLC									
1.0	**System Design**								
1.0 A	Kick-off Meeting (Via Tele-Conference)	1		1		2	$ 250	$ -	$ 250
1.0 B	Develop Overall Detailed Design Diagram	1	4			5	$ 684	$ -	$ 684
1.0 C	Develop Design Guidelines	2	8	8		18	$ 2,184	$ -	$ 2,184
	Subtotal	4	12	9	0	25	$ 3,118	$ -	$ 3,118
2.0	**System Control Descriptions**								
2.0 A	Develop Control Descriptions		2	8	1	11	$ 1,139	$ -	$ 1,139
2.0 B	Review Control Descriptions with City (Via Tele-Conference)		1	1		2	$ 236	$ -	$ 236
2.0 C	Finalize Control Descriptions		1	2	0.5	3.5	$ 366	$ -	$ 366
	Subtotal	0	4	11	1.5	16.5	$ 1,741	$ -	$ 1,741
3.0	**Programming & Integration**								
3.0 A	(2) Central CompactLogix PLC's Software Development		32	58		90	$ 10,204	$ -	$ 10,204
3.0 B	PLC Network Configuration		6	6		12	$ 1,416	$ -	$ 1,416
3.0 C	Wonderware HMI Database Configuration		8	16		24	$ 2,704	$ -	$ 2,704
3.0 D	Wonderware HMI Graphics Development		12	56		68	$ 7,320	$ -	$ 7,320
3.0 E	Wonderware HMI Testing			8		8	$ 816	$ -	$ 816
3.0 F	Wonderware HMI Trends			6		6	$ 612	$ -	$ 612
3.0 G	Wonderware HMI Historical Data			6		6	$ 612	$ -	$ 612
3.0 H	Wonderware HMI Alarm Configuration			4		4	$ 408	$ -	$ 408
3.0 I	Wonderware HMI Reports		8			8	$ 1,072	$ 259	$ 1,331
3.0 J	Field Testing and Commissioning		16			16	$ 2,144	$ 709	$ 2,853
3.0 K	HMI/PLC Training & Preparation		16	6		22	$ 2,756	$ 300	$ 3,056
3.0 L	O&M Manual		8	28	4	40	$ 4,148	$ -	$ 4,148
	Subtotal	0	106	194	4	304	$ 34,212	$ 1,267	$ 35,479
4.0	**Hardware Procurement & Installation**								
4.0 A	PLC and SCADA Hardware Installation		2			2	$ 268	$ -	$ 268
	(2) CompactLogix PLC's and Misc. Equipment Procurement Cost (Not Including Shipping and Tax)						$ -	$ 8,623	$ 8,623
	SCADA Printer Procurement Cost (Not Including Shipping and Tax)						$ -	$ 320	$ 320
	24" Wide Screen Monitor Procurement Cost (Not Including Shipping and Tax)						$ -	$ 340	$ 340
	DLT&V Software Markup (10%)						$ -	$ 928	$ 928
	Subtotal	0	2	0	0	2	$ 268	$ 10,211	$ 10,211
5.0	**Software Procurement & Installation**								
5.0 A	SCADA Software Installation		2			2	$ 268	$ -	$ 268
	Wonderware Ethernet/IP Driver (Not Including Shipping and Tax)						$ -	$ 860	$ 860
	RSLogix 5000 PLC Software Procurement Cost (Not Including Shipping and Tax)						$ -	$ 2,905	$ 2,905
	DLT&V Software Markup (10%)						$ -	$ 377	$ 377
	Subtotal	0	2	0	0	2	$ 268	$ 4,142	$ 4,410
	OVERALL TOTAL	4	126	214	5.5	349.5	$ 39,607	$ 15,620	$ 54,958

Task No.	Task Description	Personnel Hours					Budget		
		Project Manager	Engineer/Senior Integrator	Integrator	Clerical	Total Hours	Labor	Non-Labor Cost	Total
Phase 1, Option 2 - Wonderware SCADA System, Dual Modicon M340 PLC									
1.0	**System Design**								
1.0 A	Kick-off Meeting (Via Tele-Conference)	1		1		2	$ 250	$ -	$ 250
1.0 B	Develop Overall Detailed Design Diagram	1	4			5	$ 684	$ -	$ 684
1.0 C	Develop Design Guidelines	2	8	8		18	$ 2,184	$ -	$ 2,184
	Subtotal	**4**	**12**	**9**	**0**	**25**	**$ 3,118**	**$ -**	**$ 3,118**
2.0	**System Control Descriptions**								
2.0 A	Develop Control Descriptions		2	8	1	11	$ 1,139	$ -	$ 1,139
2.0 B	Review Control Descriptions with City (Via Tele-Conference)		1	1		2	$ 236	$ -	$ 236
2.0 C	Finalize Control Descriptions		1	2	0.5	3.5	$ 366	$ -	$ 366
	Subtotal	**0**	**4**	**11**	**1.5**	**16.5**	**$ 1,741**	**$ -**	**$ 1,741**
3.0	**Programming & Integration**								
3.0 A	(2) Central M340 PLC's Software Development		32	58		90	$ 10,204	$ -	$ 10,204
3.0 B	PLC Network Configuration		6	6		12	$ 1,416	$ -	$ 1,416
3.0 C	Wonderware HMI Database Configuration		8	16		24	$ 2,704	$ -	$ 2,704
3.0 D	Wonderware HMI Graphics Development		12	56		68	$ 7,320	$ -	$ 7,320
3.0 E	Wonderware HMI Testing			8		8	$ 816	$ -	$ 816
3.0 F	Wonderware HMI Trends			6		6	$ 612	$ -	$ 612
3.0 G	Wonderware HMI Historical Data			6		6	$ 612	$ -	$ 612
3.0 H	Wonderware HMI Alarm Configuration			4		4	$ 408	$ -	$ 408
3.0 I	Wonderware HMI Reports		8			8	$ 1,072	$ 259	$ 1,331
3.0 J	Field Testing and Commissioning		16			16	$ 2,144	$ 709	$ 2,853
3.0 K	HMI/PLC Training & Preparation		16	6		22	$ 2,756	$ 300	$ 3,056
3.0 L	O&M Manual		8	28	4	40	$ 4,148	$ -	$ 4,148
	Subtotal	**0**	**106**	**194**	**4**	**304**	**$ 34,212**	**$ 1,267**	**$ 35,479**
4.0	**Hardware Procurement & Installation**								
4.0 A	PLC and SCADA Hardware Installation		2			2	$ 268	$ -	$ 268
	(2) M340 PLC's and Misc. Equipment Procurement Cost (Not Including Shipping and Tax)						$ -	$ 5,784	$ 5,784
	SCADA Printer Procurement Cost (Not Including Shipping and Tax)						$ -	$ 320	$ 320
	24" Wide Screen Monitor Procurement Cost (Not Including Shipping and Tax)						$ -	$ 340	$ 340
	DLT&V Software Markup (10%)						$ -	$ 644	$ 644
	Subtotal	**0**	**2**	**0**	**0**	**2**	**$ 268**	**$ 7,088**	**$ 7,088**
5.0	**Software Procurement & Installation**								
5.0 A	SCADA Software Installation		2			2	$ 268	$ -	$ 268
	Unity Pro PLC Software Procurement Cost (Not Including Shipping and Tax)						$ -	$ 1,986	$ 1,986
	DLT&V Software Markup (10%)						$ -	$ 199	$ 199
	Subtotal	**0**	**2**	**0**	**0**	**2**	**$ 268**	**$ 2,185**	**$ 2,453**
	OVERALL TOTAL	**4**	**126**	**214**	**5.5**	**349.5**	$ 39,607	$ 10,540	$ 49,879

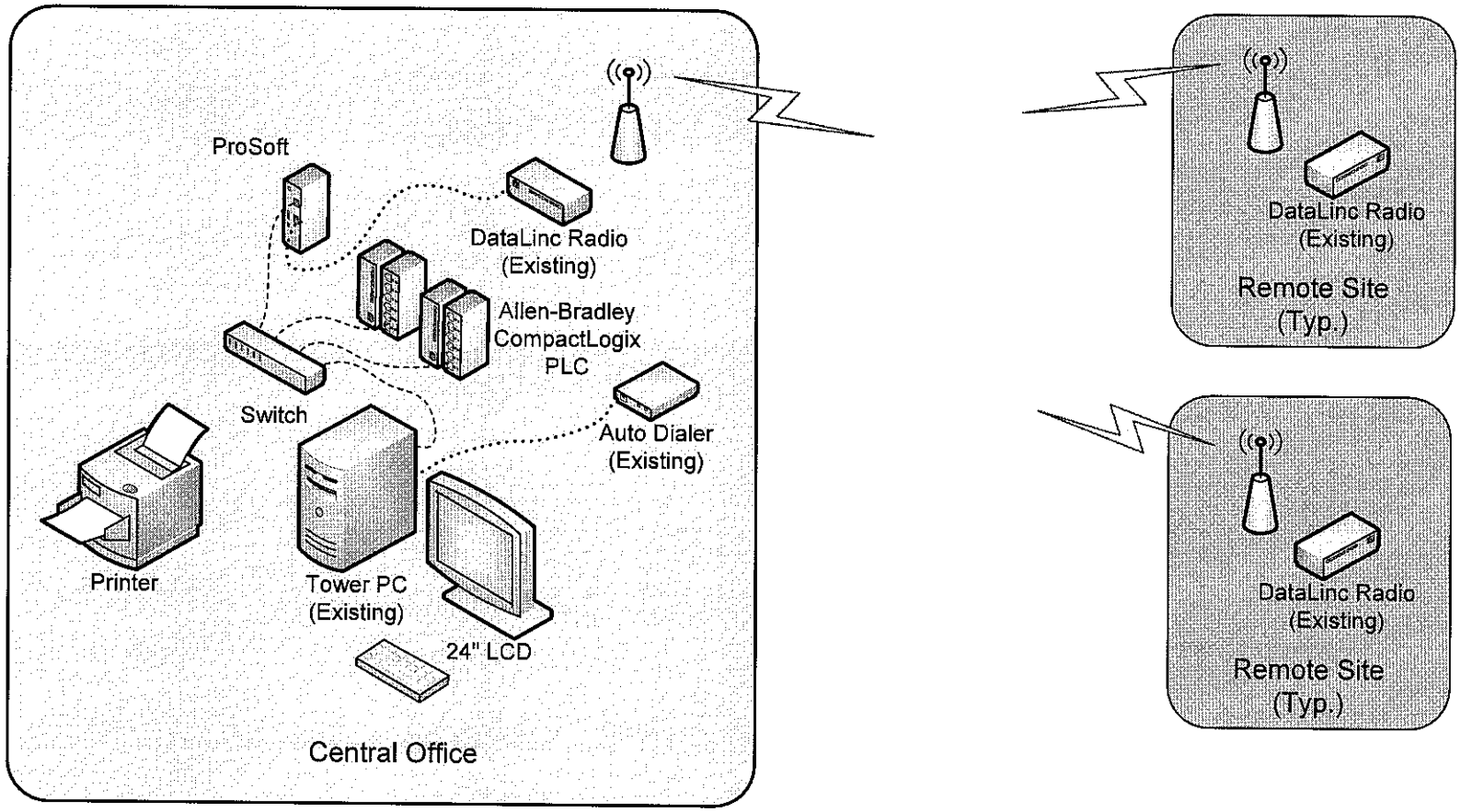


Diagram 1: Phase 1 (Option 1)

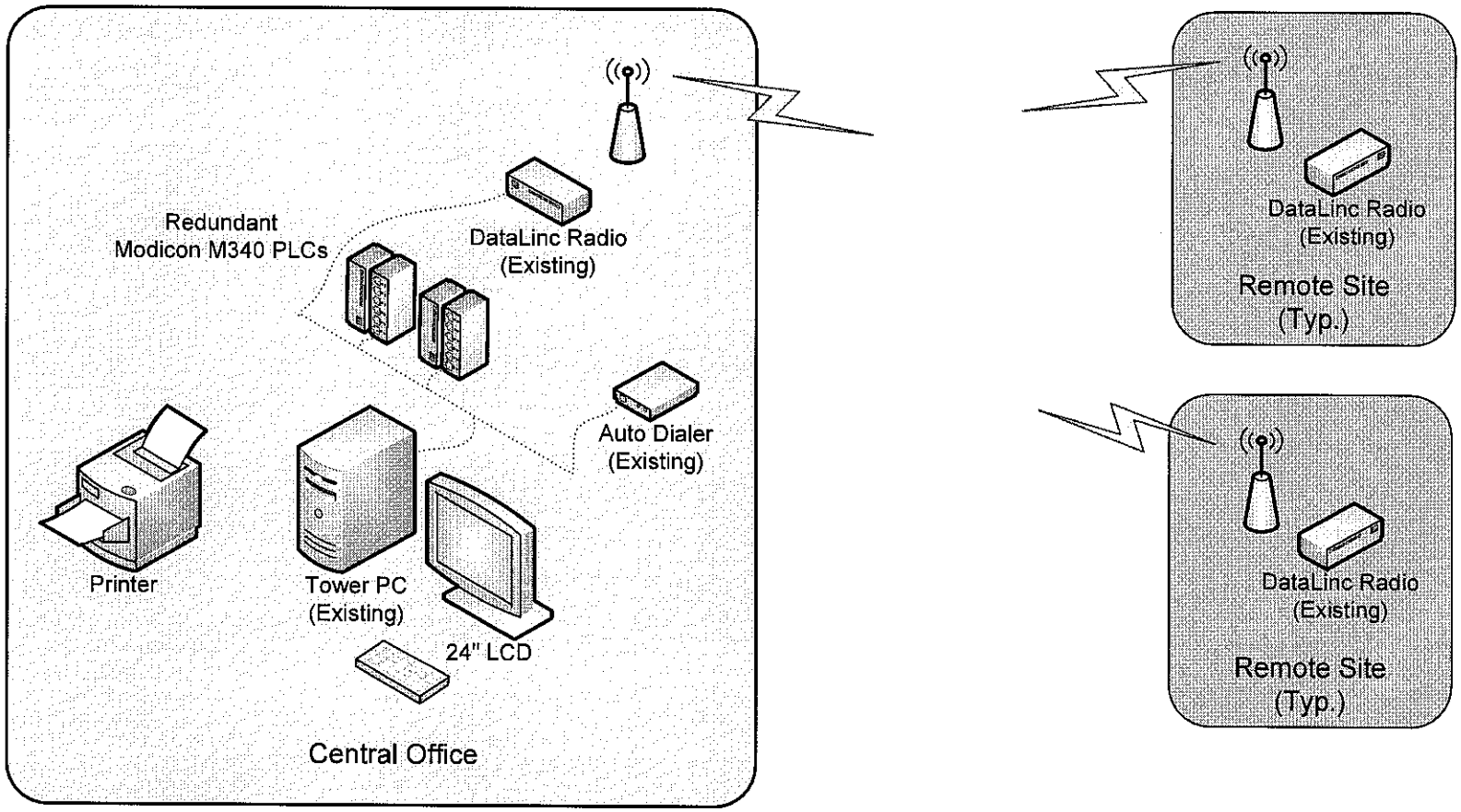
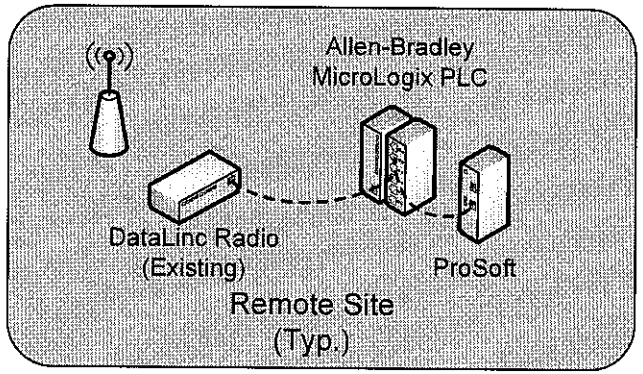


Diagram 2: Phase 1 (Option 2)



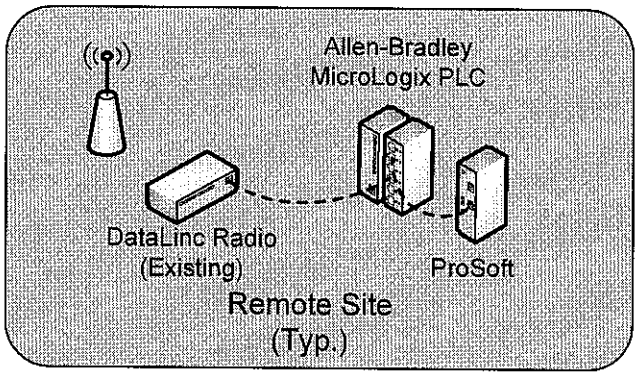
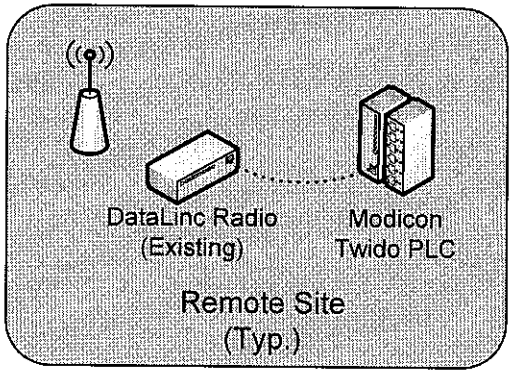


Diagram 3: Phase 2 (Option 1)



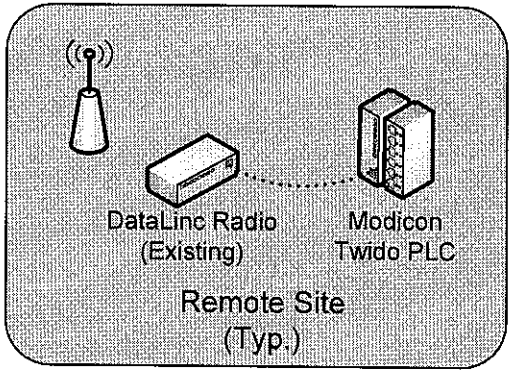


Diagram 4: Phase 2 (Option 2)