

**INDEPENDENT COST ESTIMATE (ICE) GUIDE
PART I (See Part III, Scope OF Services Checklist)
{GTA "Fueling System" Controls Modifications}**

The attached Scope of Work contains at a minimum the following:

For Materials:	For Consultants:
<input type="checkbox"/> Quantity of items and/or materials required	<input type="checkbox"/> List of responsibilities to be performed by consultant
<input type="checkbox"/> A detailed description of each item required	<input type="checkbox"/> A detailed list of deliverables required from consultant
<input type="checkbox"/> Specifications and/or drawings for materials required	<input type="checkbox"/> Anticipated contract term and start date
<input type="checkbox"/> Date materials are required	<input type="checkbox"/> Location of project
<input type="checkbox"/> Delivery address and Metro's point of contact	<input type="checkbox"/> Project manager's name, phone number, fax number and email address
For Contractors:	
<input checked="" type="checkbox"/> A detailed list of tasks to be performed by the Contractor	<input type="checkbox"/> Anticipated Contract Term and Start Date
<input checked="" type="checkbox"/> Specifications, drawings and/or pictures of job site or projected results of contractor's tasks	<input type="checkbox"/> Location of project
	<input type="checkbox"/> Project Manager Name, phone number, fax number and email address

Note: The above are applicable if a firm-fixed price (FFP) contract is contemplated.

(Insert Scope of Work here)

Estimate Guide
PART II

Construction	<ol style="list-style-type: none">1. Product needed2. Labor (at a minimum use Davis Bacon)3. Materials4. Bonds5. Insurance6. Mobilization7. Equipment8. Mark ups; fringes, overheads, profit9. Completion schedule	<ol style="list-style-type: none">1. "Means Book"2. "Blue Book"3. Davis Bacon Wage Rates www.gpo.gov/davisbacon4. Current or past contracts for the same project5. Project Control/Engineering or Contract Administration staff can assist you in obtaining historical price and cost data
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If federal funds are used cost principles of FAR Part 31 for cost reimbursement type contracts apply. See website <http://www.arnet.gov/far>.



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Submitted By:	Date:	PR#
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**CONSTRUCTION COST ESTMATE WORK SHEET
PART IIb**

Project Name (See previous page):			
Labor Type	# of Hours	Billing Rate*	Total Labor Hours x Billing Rate
Site Supervisor	80	\$41.29	\$ 3,303.20
Journeyman 1	80	\$33.14	\$ 2,651.20
Journeyman 2	80	\$33.14	\$ 2,651.20
Journeyman Assistant	160	\$28.57	\$ 4,571.20
Provide Specific Labor Category:			
Painter	40	\$28.57	\$ 1,142.80
Johnson Controls	40	\$41.29	\$ 1,651.60
Simplex	40	\$41.29	\$ 1,651.60
Pipe Fitter	40	\$41.29	\$ 1,651.60
Other			\$ 0.00
		Total Labor:	\$19,274.40
Other Expenses	Qty.	Unit Rate	Total Cost Hours x Unit Rate
Training	N/A		\$ 0.00
Insurance	1	\$10,000	\$ 10,000.00
Warranty			\$ 0.00
Transportation			\$ 0.00
Equipment (Rental/Lease)	1	\$1,000	\$ 1,000.00
Repair Job			\$ 0.00
		TOTAL ESTIMATED SERVICES INCLUDING LABOR:	\$30,274.40

* Use current prevailing wage rate



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Submitted By:	Date:	PR#
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**EQUIPMENT ESTIMATE SHEET
PART IIc**

Quantity	Item Description	Unit Of Measure (ea, lb., ft., box, gal, crtn., ton.)	Unit Price	Total Price
4	EPO Buttons	Ea.	\$305	\$ 1,220.00
2	3-Pole Shunt Trip Breaker	Ea.	\$880	\$ 1,260.00
13	1-Pole Shunt Trip Breaker	Ea.	\$258.5	\$ 3,282.50
1	Control Wires	Ea.	\$1340	\$ 1,340.00
15	Relays	Ea.	\$232	\$ 3,480.00
15	Low Voltage XFMR's	Ea.	\$85	\$ 1,275.00
8	Fire Alarm Modules	Ea.	\$500	\$ 4,000.00
4	Pipe Fittings	Ea.	\$1000	\$ 4,000.00
	Total Equipment			\$ 19,857.50
	Labor			\$ 30,274.40
	Subtotal			\$ 50,131.90
	O & P at 10%			\$ 5,013.19
	Bond at 1%			\$ 551.45
	Taxes at 7%			\$ 1,390.03
	Total Estimate			\$57,086.57

¹ Multiply the Quantity by the Unit Price to determine the total price



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SCOPE OF SERVICES (SOS) CHECKLIST

PART III

The Scope of Services (SOS) generally consists of a title page and six sections as follows:

- Title Page
- Introduction [Section 1.0]
- Background [Section 2.0]
- Scope [Section 3.0]
- Reference Documents [Section 4.0]
- Technical Requirements [Section 5.0]
- Deliverables/Contract Data Requirements List (CDRL) [Section 6.0]

	Item	Yes	No	N/A
A.	TITLE PAGE			
1.	Does the title page include the following:			
	• Name of project/program	X		
	• Date prepared (Date changes as SOS is edited)	X		
	• Name of department preparing SOS	X		
	• Version number in footer of page (If changes have been made)	X		
B.	<u>INTRODUCTION (SECTION 1.0):</u> The introduction section should give the contractor just enough information to recognize what you are buying. It is normally one to three sentences long. The introduction should focus on clarity and content rather than length.	X		
1.	Does the introduction provide a quick reference to what you are buying?	X		
2.	Is the introductory information readily distinguishable from the background and scope sections?	X		
3.	Have work requirements or other redundant information that is contained in other sections of the SOS been removed?	X		
REMARKS:				

	Item	Yes	No	N/A
C.	BACKGROUND (SECTION 2.0): The background section provides historical information which is necessary to understand how and/or why the current requirement evolved and where it is headed, if appropriate. The background section can also provide current information which helps the contractor understand the requirement. If the current requirement is part of a larger program, identify the program and the relationship of this requirement to the overall project.	X		
1.	Does this section summarize historical information which is necessary to understand the current requirement? Will the contractor understand how and/or why the requirement evolved and where the requirement is headed, if appropriate?	X		
2.	Is the background information readily distinguishable from the introduction and scope sections?	X		
3.	Are the facts accurate?	X		
4.	Have all directions to perform specific tasks, specification requirements and deliverables been eliminated from this section? (They belong in other sections of the SOS)		X	

REMARKS:

*We are enhancing the safety of operations.

	Item	Yes	No	N/A
D.	SCOPE (SECTION 3.0): The scope section is an overview of the SOS and should emphasize the most important aspects of the requirement rather than minor details. It should identify the objective or purpose of the requirement; it should help the contractor understand the magnitude of the effort to be performed and it should also define the outside boundaries of the contractor's performance responsibilities. This becomes important during contract performance in determining whether additional tasks or work is considered within the originally planned responsibilities or is considered new work. The scope section should be clear and consistent with the requirements specified in Section 4.0, Technical Requirements. The scope section should be no more than one to two paragraphs.	X		
1.	Will the contractor understand the magnitude of the requirement and have a basic understanding of the requirement?	X		
2.	Is the scope readily distinguishable from the introduction and background sections?	X		
3.	Is the scope consistent with the tasks or activities specified, and with the end result to be obtained?	X		
4.	Does the section emphasize the most important aspects (i.e., an overview) of the technical requirements rather than minor details?	X		
5.	Have all directions to perform specific tasks, specification requirements and deliverables been eliminated from this section? (They belong in other sections of the SOS)	X		

REMARKS:

	Item	Yes	No	N/A
E.	REFERENCE DOCUMENTS (SECTION 4.0): This section lists all documents referenced under Section 5.0, technical requirements, that the contractor will have to comply with in the performance of the SOS (e.g., Agency policies, state and federal laws and specifications, state/city codes, etc.). If the technical requirements section describes your requirements in functional or performance terms (i.e., "what is required" versus "how to do it"), then this section should include only a minimum of documents. Generally, this section is prepared after the technical requirements section is completed. The length of this section will depend on the number of documents cited in the technical requirements section.	X		
1.	Is the applicable document properly cited? (Correct Volume No., date, Revision No. etc.)	X		
2.	If only portions of the document apply, have you clearly stated which portions apply?			X
3.	Are the documents cited really pertinent to the task? (If they are not, they should not be included)	X		
4.	Do any standard specifications or paragraphs apply in whole or in part? (If so, are they properly cited?)	X		
5.	Are documents referenced by: <ul style="list-style-type: none"> • Type (e.g., specification, code, etc.) • Number/version • Title • Date 	X		
6.	Have all directions to perform specific tasks, specification requirements and deliverables been eliminated from this section? (They belong in other sections of the SOS)		X	
REMARKS:				

	Item	Yes	No	N/A
F.	TECHNICAL REQUIREMENTS (SECTION 5.0): This section should identify <i>what</i> the contractor is required to do and <i>not how</i> the contractor should accomplish the effort. Technical requirements are generally identified as major tasks and sub-tasks. All major tasks and sub-tasks need to be defined in adequate detail so that the contractor knows what is required and the Agency knows when and if the contractor has complied with the requirement(s). The SOS should identify the task, the desired output and the associated performance standard or acceptance criteria.	X		
1.	Are the contractor's responsibilities clearly defined/identified from the introduction, scope and background sections?	X		
2.	Does the SOS identify only minimum requirements? (Have "nice to haves" been eliminated?)	X		
3.	Are the tasks in the SOW presented in chronological order or some logical order?	X		
4.	Is the SOS specific enough to permit you to estimate the probable cost and the contractor to determine the levels of expertise, manpower and other resources needed to accomplish the tasks?	X		
5.	Are sentences written so that there is no question of whether the contractor is obligated to perform specific tasks? (e.g., "the contractor shall do this work," not "this work shall be required")	X		
6.	Are contractor responsibilities stated in such a way that he/she knows what is required and the Agency can tell whether the contractor has complied?	X		
7.	Are the performance standards or acceptance criteria: <ul style="list-style-type: none"> • Necessary? • Realistic? • Specific? • Verifiable? • Objective? • Measurable? 	X		
8.	Have all elements of quality control and assurance been included (inspection, testing and acceptance)?	X		
9.	Does the SOS identify the title of data or other deliverables in parenthesis after the task which generated the data? [e.g. Contract Data Requirement List (CDRL) 001]			X
10.	If the SOS requests data or reports, have all descriptions of that data (e.g., format and content) been eliminated and subsequently included in Section 6.0 (CDRL) of the SOS?	X		
11.	Have all solicitation instructions, evaluation criteria and references to the bidder/proposer been deleted and included in the appropriate solicitation provisions of the RFP/IFB?	X		
12.	Does the SOS identify significant contract milestones?	X		
13.	Have all points of control or decision points, if applicable been included?	X		
14.	Does the SOS require the contractor to get permission from, coordinate with or provide something to someone in the Agency? (if so, have	X		

	specific authorizations and instructions been provided to avoid contractual problems)	X		
15.	If deliver/completion time is used, does it specify either calendar days or work days and is it consistent throughout?	X		
16.	If Agency furnished property or services will be provided, are the nomenclature, location and availability stated in the SOS?		X	
17.	Are requirements specified that are within state-of-the-art industry?	X		
18.	If brand name or equal descriptions are used, are the salient physical and functional characteristics of the brand name included in the SOS with at least two suggested brand name equivalents (brand name justification must accompany the SOS)?		X	
19.	Are performance-type specifications (e.g., "at least 3 HP") used in preference to design-type specifications, when appropriate?	X		

REMARKS:

	Item	Yes	No	N/A
H.	GENERAL COMMENTS (Apply to most sections of the SOS):			
1.	Is the SOS written using the format recommended in this checklist? (If not, provide rationale to the Procurement Department)	X		
2.	Does the SOS create an organizational conflict of interest? <ul style="list-style-type: none"> Will a specific contractor receive an unfair competitive advantage on this requirement or future requirements based on its performance under past or present contracts? (e.g., Is the SOS drafted whereby the contractor will prepare an SOS which will be subsequently competitively procured?) Will the contractor be placed in a position where it cannot provide impartial advice and assistance? (e.g., does the SOS require the contractor to review its own work?) 		X	
3.	Is more than one interpretation (throughout the SOS) possible? (See Attachment 1 to this checklist for a list of phrases to be avoided)		X	
4.	Has the SOW been checked for spelling and grammar?	X		
5.	Are acronyms and abbreviations spelled out the first time they are used and the abbreviated version put in parentheses? SEE REMARKS			
6.	Is the word "shall" used whenever a task or sub-task is mandatory?	X		
7.	Are tasks and sub-tasks written in the active voice rather than the passive voice? (e.g., "The contractor shall establish a program" and not "A program shall be established by the contractor")	X		
8.	Are paragraphs and subparagraphs numbered consecutively within each SOS section using a period to separate the number representing each sublevel? For Example: Requirement 5 1 st Sublevel 5.1 2 nd Sublevel 5.1.1 3 rd Sublevel 5.1.1.1	X		
9.	Are words used in the SOS that properly express the degree of contractor involvement? (See Attachment 2 to this checklist for a list of "work words" that might be appropriate for use in describing your requirement))	X		
10.	Are sentences written in a short, simple and concise form?	X		
11.	Have you included revisions numbers in the footer of the SOS pages as changes/edits were made to the SOS? SEE REMARKS			
12.	Have you provided the following information as appropriate to the s & Procurement Department with this checklist and your SOS attached to the Project Management Checklist? <ul style="list-style-type: none"> Independent cost estimate (ICE) Disadvantaged Business Enterprise (DBE) Goal Proposed delivery schedule Proposed bid schedule Warranty information Method of payment(s) Justification for liquidated damages 	X X X X X X		X

	<ul style="list-style-type: none"> • Brand name or sole source justification • Proposed evaluation criteria for "best value solicitations" • Proposed list of committee members for RFP procurements • Safety requirements (incorporate in Section 5 of SOS) • Plans, drawings, geotechnical reports, etc. 	X		X
		X		X
		X		

REMARKS:

**Independent Cost Estimate
Methodology & Analysis**

*GTA Fueling System Controls Modifications
223 West Meadowview Road
Greensboro, NC 27406*

Prepared for: Greensboro Transit Authority

Prepared by: Moser Mayer Phoenix Associates

Date: March 10, 2014

In January 2014, Moser Mayer Phoenix Associates (MMPA) was contacted by the City of Greensboro to provide Cost Estimating services for the GTA Fueling System Controls Modifications, project being prepared for bidding. The cost estimate was described as being required as a part of the approval process in order for the appropriation of federal funds to be made according to federal regulations. The Independent Cost Estimate (ICE) was provided and this report describes the process and conclusions reached.

This project is to be performed by Johnson Controls which requires City Council approval for sole-sourcing the work. If approved, GTA will request approval from FTA for sole-sourcing the work. After all approvals are received, the City of Greensboro will award the contract to Johnson Controls.

Background

The work is required to comply with FTA terms as set forth in FTA Circular 4420.1F as described in the estimate under scope of services, Technical Requirements.

The contractor shall also comply with Buy America Requirements also described under scope of services, Technical Requirements.

An independent cost estimate is required by federal regulations to be prepared by a firm within the construction industry that routinely provides cost estimating services, design or construction services for publicly funded projects, or has similar experience. In this case the work to be performed is related to the original construction of the GTA Bus Maintenance Facility, for which MMPA was the architect of record. Additionally, MMPA has designed many projects which have included the products and installations required for this project for public and private contracts.

The work required to be performed at GTA includes installation of automatic shut-off of fuel dispensing pumps, shut off of pneumatically driven ignitable liquid dispensing pumps, emergency stop switches for outside fuel dispensing pumps, and



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associated relays, wiring and devices. The work is required to address safety concerns.

The cost estimates were provided in advance of seeking City Council approval to sole source the work to Johnson Controls. This report details the methodology and results of the cost estimate and describes the source of the costs assembled as a part of the Independent Cost Estimate.

Methodology

Beginning on Wednesday, January 8, 2014, representatives from the City of Greensboro and Moser Mayer Phoenix visited the GTA site to become familiar with the proposed work. The City of Greensboro provided MMPA drawings, preliminary specifications, and other background and supportive data, which together describes the systems to be protected at the GTA Facility. A copy of the Johnson Controls scope of work was provided from which the overall project's scope was defined. MMPA is in possession of the original construction drawings and specifications for the facility and performed construction administration services. Detailed quantity take-offs for the work were performed for the scope of work required and placed on the construction cost estimate sheet part 2.B of form PM15. Additional discussions with the City of Greensboro provided clarity regarding what the contractor would be asked to do as a part of this project, which allowed MMPA to assign tasks and equipment and establish reasonable percentages for overhead and profit to the work.

The cost information found on the unit costs sheet was collected from the following sources:

1. RS Means Electrical Construction Cost Data
2. Davis Bacon Wage Rates
3. Original Schedule of Values for the construction of GTA Bus Maintenance Facility
4. Recent Schedules of Values for similar publically bid projects
5. Change Order Request for various public projects designed and administered by Moser Mayer Phoenix Associates with complex electrical service requirements
6. Overhead and Profit margins shown for recently bid and constructed public projects designed and administered by Moser Mayer Phoenix Associates

Analysis & Conclusions

The work required to install the fueling system controls will involve Johnson Controls as a primary contractor with subcontractors including Simplex for controls, devices and electrical, subcontract labor with the exception of the specialty devices. The conduit and wiring and installation of receptacles, breakers and other relays are normal to the electrical contracting industry. The labor rates and unit costs for materials and installation are similar to what electrical contractors are charging for similar work. The specialty items for Johnson Controls and Simplex are based upon recent experience with these two material suppliers and subcontractors on other projects that have been performed in the local area. Painting of work is a minor part of the subcontract. A lift has been included as a part of the equipment rental/lease line item due to some items being high overhead.

No allowance has been made for a contractor's office or onsite work area, rather the contractor will be able to use the existing facility or a portion thereof for his temporary office. The overhead and profit rate of 10% represent common mark-ups for electrical work in this area.

**Independent Cost Estimate
Methodology & Analysis Supplement**

*GTA Fueling System Controls Modifications
223 West Meadowview Road
Greensboro, NC 27406*

Prepared for: Greensboro Transit Authority

Prepared by: Moser Mayer Phoenix Associates

Date: March 25, 2014

The following information documents the referenced costs used in preparing the Independent Cost Estimate (ICE) for the above referenced project and serves as a supplement to the previously submitted ICE and Report.

The Independent Cost Estimate has been provided on a form referred to as an Independent Cost Estimate (ICE) Form, Attachment PM15, which is a version of a document that has been used by other jurisdictions and contains certain certifications. In addition to the estimate of probable construction costs, this form was selected in conjunction with the City of Greensboro and GTA in order to provide for detailed information and justification for the work to be performed as well as to provide a detailed cost estimate. A separate narrative in the form of Scope of Services has been provided as a part of the Independent Cost Estimate which also includes references to documents being used by the bidders pursuant to receiving formal bids on the work.

The cost estimates have been provided in advance of receipt of bids. A second document was prepared to describe the methodology, analysis process, and conclusions reached in the ICE. This report provides back up to the second report and describes the costs assembled as a part of the Independent Cost Estimate.

In determining the cost per task entered in the ICE form, MMPA collected information from other sources such as RS Means, Simplex-Grinnell (vendor and engineering service), Johnson Controls (vendor and engineering service), and the Davis-Bacon Wage Determination, and compared the costs with recent projects of similar complexity and quality.

Cost information taken from RS Means 2008 edition has been adjusted by an inflation index based upon various online reports such as the National Institute of Statistics and Economic Studies and the NRCS index. These figures were then compared to the current costs from recent projects and a professional judgment made regarding the appropriateness of this factor. Our daily work includes cost estimating for all public projects and the full service Construction Administration we provide requires us to know costs, trends, availability of subcontractors in the area,



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capabilities, and the general state of the commercial construction industry. This familiarity allows us to make minor intuitive judgments on unit costs to adjust for intangibles.

Fueling and Wash Bay Service Lane Modifications

Costs for modifications to the Fueling and Wash Bay controls are based upon the requirement for adding an automatic shut-down for the diesel fuel dispensing pumps. The automatic shut-down is initiated upon receiving a signal from the fire alarm panel. The existing fuel pump circuit breakers are manually-activated. In order to provide the automatic shut-down, the existing circuit breakers have to be replaced with shunt-trip circuit breakers. The shunt-trip function is accomplished by providing a signal to each circuit breaker from the fire alarm system. This requires an addressable relay module, compatible with the existing fire alarm system, to activate each shunt-trip breaker. In addition, the existing emergency power off, EPO, button is to remain and an additional EPO button is to be provided.

Each EPO button has to be mounted inside an enclosure which is a NEMA-rated control station. Costs from RS Means show an EPO button with control station at a material cost of \$182/ea. Including overhead and profit, (O&P), the total cost of the EPO station is \$214.00/ea.

Each shunt-trip breaker has to be mounted inside the existing power distribution panel. Costs from RS Means show a single-pole shunt-trip breaker at a material cost of \$175.00 per breaker. A 3-pole shunt-trip breaker is at a material cost of \$605.00 per breaker. Including O&P the cost of each single-pole and 3-pole breaker is \$305.00 and \$880.00 respectively.

The shunt-trip breaker is activated by an addressable module from the fire alarm system. Costs from RS Means show an addressable module at a material cost of \$205.00 per module. Control wiring is required from the fire alarm panel to the module, and from the module to the shunt-trip breaker, and is included below.

Pneumatically-Driven Ignitable Pumps

Costs for modifications to the pneumatically-driven ignitable pumps are based upon the requirement for providing a fast-acting solenoid to prevent air from being delivered to the pumps upon signal from the fire alarm panel. The existing pneumatic fuel pumps are manually-activated. In order to provide the automatic shut-down, a solenoid has to be provided in each air line to the pumps. An addressable relay module, compatible with the existing fire alarm system, has to be provided to activate each solenoid. In addition, a control panel with time relays and low voltage control power transformers has to be provided to prevent dumping total system information.

Each control relay will be mounted inside a control panel enclosure along with the control power transformer. Costs from RS Means show an enclosed control relay at a material cost of \$207.00 per contactor. Including O&P the cost of each contactor is \$232.00.

Each piping system will require a fast-acting solenoid to be installed. The retrofit for this will require pipe fittings to accommodate each solenoid. Pricing from the system's contractor indicated that each solenoid and pipe fitting retrofit would have a material cost of \$1,000.00 per retrofit.

Control wiring is required from the fire alarm panel to the solenoid and is included below.

Work Bay

Costs for modifications to the work bay controls are based upon the requirement for adding an automatic disconnection of power for the fuel dispensing pumps. The automatic disconnection is initiated upon receiving a signal from the fire alarm panel. In order to provide the automatic disconnection, pump contactors have to be added to the pump power feeders. The disconnecting function is accomplished by providing a signal to each contactor from the fire alarm system. This requires an addressable relay module, compatible with the existing fire alarm system, to activate each contactor.

Each relay contactor has to be mounted inside a NEMA enclosure. Costs from RS Means show an enclosed contactor at a material cost of \$207.00 per contactor. Including O&P the cost of each contactor is \$232.00.

A lift will be required in the work bay for each of two (2) crews to access the fire alarm wiring. According to RS Means Electrical Cost Data, equipment rental for a scissor lift for five (5) days was \$240 per week. Inflation brings the total cost for equipment rental to \$1,000.00.

Control wiring is required from the fire alarm panel to the contactor, and is included below.

Outdoor Fuel Tank Area

Costs for modifications to the outdoor fuel tank area controls are based upon the requirement to modify the existing EPO button to control additional fuel tanks and associated dispensing equipment. In order to provide the additional shut-down requirements, relays have to be provided in the existing dispensing equipment feeders to interrupt power whenever the EPO button is activated.

Each relay contactor has to be mounted inside a NEMA enclosure. Costs from RS Means show an enclosed contactor at a material cost of \$207.00 per contactor. Including O&P the cost of each contactor is \$232.00.

Control wiring is required from the EPO station to each contactor and is included below.

General Services

All services listed above require Simplex Grinnell engineering design (for fire alarm panel programming), technical labor, and installation. They also require Johnson Controls to

coordinate and supervise all fuel system control modifications. These are labor-only figures which are taken from discussions with those vendors.

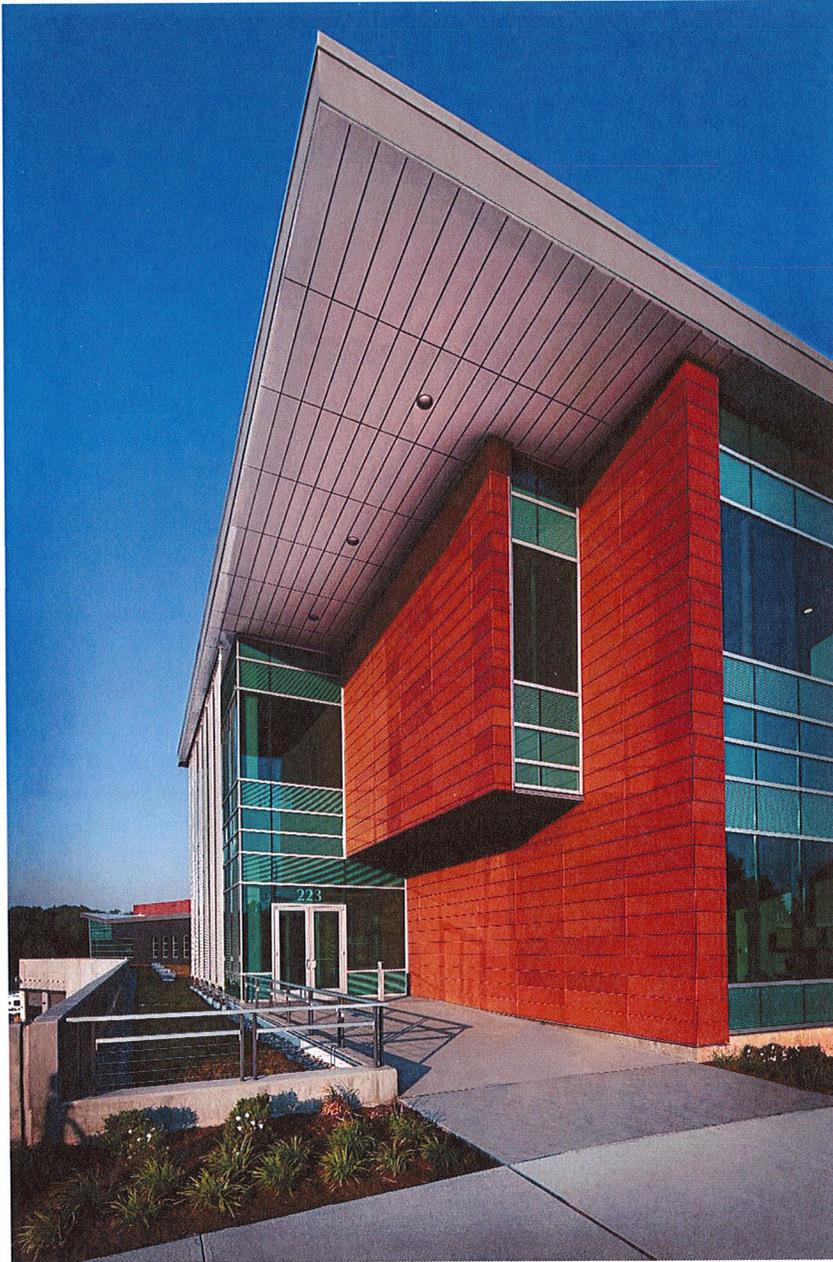
Control wiring, to include cables, control power transformers, and control relays, has to be provided for the Johnson Controls interfaces and for the Simplex Grinnell fire alarm interfaces. The project will require approximately 4,000 feet of control wiring, (15) low-voltage relays, and (15) control power transformers. According to RS Means, control wiring is \$315.00 per 1000 feet. Including O&P, the cost for the control wiring is \$1,340.00.

Insurance, Bond, and overhead and profit

These multipliers are directly from the change orders that have been approved for recent projects in Greensboro, North Carolina, and other locations in North Carolina. Bidding the work may realize a slight savings for the profit margins but it was our recommendation to use the full 15% for the combined markup.

GTA FUEL SYSTEM CONTROLS MODIFICATIONS

Scope of Services



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COMPLETE
FACILITIES
SOLUTIONS

Architecture

Engineering

Interior Design

Site Services

3 2 8 E a s t
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S u i t e 2 0 0
G r e e n s b o r o
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Prepared by Moser Mayer Phoenix Associates

February 7, 2014

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01. INTRODUCTION

The purpose of this project is to modify the Fuel System Controls for the Transit Authority facility to provide emergency fuel system shut-off for safety purposes. Johnson Controls is to provide Fuel System Controls along with Emergency Push Off Buttons and tie-ins to the existing fire alarm system. The pricing for this work is based on a quote from Johnson Controls and we are looking to first obtain City Council approval to sole-source this work to Johnson Controls, then following Council approval the next step would be for GTA to submit the same to FTA for their approval to sole-source this work. After all approvals, The City will award a contract.

02. BACKGROUND INFORMATION

The City of Greensboro is asking Johnson Controls to make Modifications to Fuel System Controls for the Transit Authority facility. The system will provide emergency Fuel System Controls at the Greensboro Transit Authority (GTA), 223 West Meadowview Road, Greensboro, NC 27406. The City's transit facility currently houses buses as well as City contracted public transportation. The fuel system modifications will provide controls for the existing Wash Bay, Pneumatically Driven Ignitable Liquid Pumps, Work Bay and the Outdoor Fuel Tank Area. These controls will address safety concerns at the existing Greensboro Transit Authority Facility.

03. SCOPE OF WORK

Provide a turn-key solution that includes labor, material and equipment to provide, install and maintain Fuel System Controls for the existing Wash Bay, Pneumatically Driven Ignitable Liquid Pumps, Work Bay and the Outdoor Fuel Tank Area. Provide on-site supervision and coordination of all trades. Provide all required permits (Fire Alarm, Electrical, and Mechanical). Complete submittal package to present affiliated fuel maintenance, approval and review. Conduct owner and insurance agent testing to assure all items function properly.

Work may be performed during normal working hours. Compressed air is required on site to repair operations 24/7. The contractor shall limit downtime on installation of new valves. Bypass switch to be installed on fire alarm control panel to prevent these work items from activating alarm while testing new operations. Lift will be required/covered by the contractor to access fire alarm control wiring in the work bay. New fuel controls system should leverage existing wiring, conduit, and associated hardware for a complete and usable system. All wiring must be hidden as much as possible and installed in a manner to provide maximum protection from weather conditions and vandalism. All new conduit shall be painted to match the finishes of the surrounding areas.

All hardware specifications sheets are required, including annual maintenance/support costs, estimated useful life of hardware, manufacturer make and model, and a full technical specification associated with the fuel system.

The scope of work for the Service Lane of the Fueling and Wash Bays includes but is not limited to the following:

- Provide and install fire alarm relay modules to shut down fuel dispensing pump power when the fire alarm system is in alarm.
- The existing emergency stop switch shall remain and provide an additional manual shut down of the dispensing pumps in the event of an incident to provide added safety.
- Simplex Grinnell diesel fuel dispensing pumps shut down via a shunt trip breaker and all associated installation materials associated with this installation.
- Simplex Grinnell engineering design services, technical labor and installation.
- Johnson Controls coordination and supervision of all fuel system control modifications.
- All materials and equipment shall be standard, regularly manufactured equipment. All systems and components shall be thoroughly tested and proven in actual field use.

The scope of work for the Pneumatically Driven Ignitable Liquid Pumps is not limited to but includes the following:

- Provide and install fast acting solenoids on the compressed air system to shut down and prevent air distribution to ignitable liquid pumps upon fire system alarm.
- The installation shall include a Simplex Grinnell fire alarm relay and all other Simplex Grinnell required installation materials.
- (2) 120 volt AC electrically operated solenoid valves shall be installed.
- 2" schedule pipe, valves, and fittings for air compression relief shall be installed. Provide all required brackets to support new pipes required for this installation. Provide an Outdoor Screen guard for relief piping.
- Provide a Johnson Controls control panel with time relays to prevent dumping total system information.
- Simplex Grinnell engineering design services, technical labor and installation.
- Systems contractor's services associated with the mechanical installation.
- Johnson Controls interface, wiring, engineering, and necessary programming required to provide a turn-key system.
- Johnson Controls coordination and supervision of all fuel system control modifications.
- All materials and equipment shall be standard, regularly manufactured equipment. All systems and components shall be thoroughly tested and proven in actual field use.

The scope of work for the Work Bay is not limited to but includes the following:

- The installation shall include a Simplex Grinnell fire alarm relay and all other Simplex Grinnell required installation materials.
- Provide a Johnson Controls control panel with time relays to prevent dumping total system information.
- Provide (3) pump contactors and associated wiring to interlock control of all fuel pumps in the work bay area.
- Simplex Grinnell engineering design services, technical labor and installation.
- Systems contractor's services associated with the mechanical installation.

- Johnson Controls interface, wiring, engineering, and necessary programming required to provide a turn-key system.
- Johnson Controls coordination and supervision of all fuel system control modifications.
- All materials and equipment shall be standard, regularly manufactured equipment. All systems and components shall be thoroughly tested and proven in actual field use.

The scope of work for the Outdoor Fuel Tank Area is not limited to but includes the following:

- Modify the existing manual emergency stop switch located at the outdoor diesel tank fuel yard to control additional outdoor fuel tanks and dispensing equipment. Provide shunt trip circuit breakers for a complete turn-key system.
- The installation shall include the wiring required to interlock the existing fuel pumps.
- Johnson Controls interface, wiring, engineering, and necessary programming required to provide a turn-key system.
- Johnson Controls coordination and supervision of all fuel system control modifications.
- All materials and equipment shall be standard, regularly manufactured equipment. All systems and components shall be thoroughly tested and proven in actual field use.

Warranty:

- The system shall be fully warranted for (1) year from the date of acceptance by the Owner.

Installation:

- All wire and cable will be appropriately labeled and marked at termination points, clearly identifying the line and its intended use. All mid-point terminal or junction points will be labeled appropriately. Any punch-through, or other breaches in fire separation barriers, will be appropriately re-sealed upon completion of the wire runs.
- Prior to termination, contractor will verify, by industry recognized standards and manufacturer's recommendations, the reliability of wire runs, testing for opens, shorts, ground-loops, etc.

- Prior to initial start-up of the system, Contractor will ensure all components are appropriately grounded and shielded according to manufacturer's recommendations and industry standards. Contractor will be responsible for all initial programming of the system including naming all points in the system, establishing basic recording parameter and time schedules and any other parameters in order to make the system operational. All wires and cable shall be located within walls and above ceilings whenever possible. In the event cable or wire cannot be concealed in existing structural areas, wire and cable will be routed in conduit. Conduit or similar protected chases will be utilized on all vertical runs to surface-mounted devices. All wires and cables shall be code compliant for the application, location and manner in which the cable is used and installed.
- All equipment, components, wire, cable and mounting hardware are to be provided and installed as required to meet manufacturer's specifications and documented installation procedures. Whenever components are included from sources other than the manufacturer, the Contractor shall demonstrate and verify that the components are compatible, prior to system acceptance and shall verify to City that such components will not void any part of the system or equipment warranty.
- Control devices shall be rack-mounted as applicable by manufacturer's recommendation. Surface mount panels, if any, shall be mounted utilizing appropriate bracing and anchoring. All terminal blocks, control panels, wire junction points, etc., will be fully enclosed in manufacturer's recommended enclosures. Exterior-mounted devices shall be mounted in NEMA-rated enclosures as applicable.

04. REFERENCE DOCUMENTS

There will be no reference documents included with this package. Site survey of existing conditions was required to price the work described in this report.

05. TECHNICAL REQUIREMENTS

A. FEDERAL TRANSIT ADMINISTRATION REQUIREMENTS

Incorporation of Federal Transit Administration (FTA) Terms -The RFP and resulting contract include, in part, certain Standard Terms and Conditions required by DOT, whether or not expressly set forth in the contract provisions. All contractual provisions required by DOT, as set forth in FTA Circular 4220.1F, are hereby incorporated by reference. Anything to the contrary herein notwithstanding, all FTA mandated terms shall be deemed to control in the event of a conflict with other provisions contained in this Contract. The Contractor shall not perform any act, fail to perform any act, or refuse to comply with any City requests which would cause City to be in violation of the FTA terms and conditions.

B. EVALUATIONS AND SELECTION PROCESS

The City based on the following criteria will evaluate proposals:

- Functionality.
- Completeness of Proposal.
- Total cost including acquisition, implementation and installation.
- Timeliness of project plan schedule.
- Ease of operation.
- Client references.

C. BUY AMERICA REQUIREMENTS

The contractor agrees to comply with 49 U.S.C. 5323(j) and 49 CFR Part 661, to the extent those regulations are consistent with SAFETEA-LU provisions, and subsequent amendments to those regulations that may be promulgated. The Contractor also agrees to comply with FTA directives to the extent those directives are consistent with SAFETEA-LU provisions, except to the extent that FTA determines otherwise in writing. Buy America requirements state that Federal funds may not be obligated unless steel, iron, and manufactured products used in FTA-funded projects are produced in the United States, unless a waiver has been granted by FTA or the product is subject to a general waiver. General waiver requirements are listed in 49 CFR 661.7. Appendix A grants a general public interest waiver from the Buy America requirements that apply to microprocessors, computers, microcomputers, or software, or other such devices, which are used solely for the purpose of processing or storing data. This general waiver does not extend to a product or device that merely contains a microprocessor or microcomputer and is not used solely for the purpose of processing or storing data. Small purchases (currently less than \$100,000) made with capital, operating, or planning funds are also exempt from the Buy America requirements.

The Buy America requirements flow down from FTA recipients and subrecipients to first tier contractors, who are responsible for ensuring that lower tier contractors and subcontractors are in compliance.

Effective July 24, 1995 small purchases (under the \$100,000 threshold) made with FTA funds will not be subject to the Buy America requirement.

The value of small purchases should be determined by using "contract price" and not "unit price".

These regulations require, as a matter of responsiveness, that the Bidder or Contractor submit to the purchaser the appropriate Buy America certification (Attachment B or C) with all bids where FTA funds are provided, except those subject to a general waiver or less than \$100,000.

BIDS OR OFFERS THAT ARE SUBMITTED WITHOUT THE COMPLETED BUY AMERICA CERTIFICATION MUST BE REJECTED AS NONRESPONSIVE. BIDDERS ARE ADVISED THAT SUBMISSION OF BOTH CERTIFICATIONS WITH THE BID IS ALSO CONSIDERED NONRESPONSIVE AND WILL RESULT IN REJECTION OF THE BID; ONLY ONE CERTIFICATION (either B or C) SHALL BE SUBMITTED. The certification requirement does not apply to lower tier subcontractors.

6. **DELIVERABLES/CONTRACT DATA REQUIREMENTS** (Please refer to Attachment PM15 for information)