305 Fountain Circle
Huntsville, AL 35801

Huntsville, Alabama

Cover Memo

Meeting Type: City Council Regular Meeting **Meeting Date:** 3/26/2026 **File ID:** TMP-6659

Department: Finance

Subject: **Type of Action:** Approval/Action

Resolution authorizing the Mayor to enter into agreements with the low bidders meeting specifications as outlined in the attached Summary of Bids for Acceptance.

Resolution No.

Finance Information:

Account Number: See comments below.

City Cost Amount: **$** Varies based on Contract pricing structures.

Total Cost: **$** Varies based on Contract pricing structures.

Special Circumstances:

Grant Funded: **$** NA

Grant Title - CFDA or granting Agency: N/A

Resolution #: N/A

Location: (list below)

Address: N/A
District: District 1 ☐ District 2 ☐ District 3 ☐ District 4 ☐ District 5 ☐

Additional Comments:
Standard of periodic bid utilized by various departments.

Update of Bid:

Utilicom Supply Associates LLC - Traffic Signal Cabinets (Traffic Engineering)

RESOLUTION NO. 26-_____

BE IT RESOLVED by the City Council of the City of Huntsville, Alabama, the Mayor be, and he is authorized to accept the low bids meeting specifications and effectuate the following agreements on behalf of the City of Huntsville, a municipal corporation in the State of Alabama, which said agreements are substantially in words and figures similar to those certain documents attached hereto and identified herein below. An executed copy of said documents is being permanently kept on file in the office of the City Clerk of the City of Huntsville, Alabama.

AGREEMENT BETWEEN THE CITY OF HUNTSVILLE AND:

VENDOR	COMMODITY/SERVICE	AGREEMENT
Utilicom Supply Associates LLC	Traffic Signal Cabinets	One Year W/Extensions

ADOPTED this the 26th day of March, 2026.

_____
President of the City Council of the City of Huntsville, Alabama

APPROVED this the 26th day of March, 2026.

_____
Mayor of the City of Huntsville, Alabama

HUNTSVILLE

Finance Department
Procurement Services Division

CONTRACT/BID AWARD RECOMMENDATION FORM

TO: Erin Motes **DATE:** 2/24/2026
FROM: James Rogers **DEPT:** Traffic Engineering
BID #: 19-2026-75 **COMMODITY/SERVICE:** Traffic Signal Cabinets

AGREEMENT BETWEEN CITY OF HUNTSVILLE AND Utilicom Supply Associates LLC

RECOMMENDATION: Traffic Engineering has reveiwed the bid and has decided to award the contract to Utilicom Supply Associates LLC.

DESCRIPTION	PRICE	UOM	COMMENT
Complete Cabinet Assembly Model 332A without			
a controller (See bid quantities for full details)	$17,858	each	
Complete Cabinet Assembly Model 336S without			
a controller (See bid quantities for dull details)	$16,746	each	
Additional Auxilliary Output File	$668.00	each	
Additional Advanced Conflict Monitor			
Model 2010 ECL-IP	$1,185.00	each	

INITIAL PURCHASE: As Needed
FUNDING SOURCE: See Below
TERM OF CONTRACT:
- ☐ One Time
- ☑ One Year w/ Additional One Year Extensions as Allowable by State Law
- ☐ One Year
- ☐ Three Months
- ☐ Other (Explain)

APPROVALS:
My staff and I have complied with all laws, regulations, City of Huntsville Procurement Rules, and the provisions of any contract and/or grant agreements applicable to this procurement process. In addition, my staff and I have not sought by collusion with the recommended Proposer/Bidder to obtain any advantage over any other Proposer/Bidder in this procurement.

NICHOLAS NENE Digitally signed by NICHOLAS NENE Date: 2026.02.24 16:08:54 -06'00'
Department Head Date

Tamara M Yancy Digitally signed by Tamara M Yancy Date: 2026.02.25 08:44:29 -06'00'
Procurement Manager 2.25.2026 Date

Email completed form to Procurement@huntsvilleal.gov

HUNTSVILLE

Finance Department
Procurement Services Division

CONTRACT/BID AWARD RECOMMENDATION FORM

Continuation – Page 2

TO: Erin Motes **DATE:** 2/24/2026
FROM: James Rogers **DEPT:** Traffic Engineering
BID #: 19-2026-75 **COMMODITY/SERVICE:** Traffic Signal Cabinets

DESCRIPTION	PRICE	UOM	COMMENT
Additional Advanced Conflict Monitor			
Model 2018 ECL-IP	$1,415.00	each	
Add/delete cost to provide an advanced			
conflict monitor model 2010 ECL-IP	(-$17.00)	each	
Add/delete cost to provide an advnaced			
conflict monitor model 2018 ECL-IP	$270.00	each	
Detector-Oracle 2E by EDI	$365.00	each	
8" Aluminum extender base for 332A cabinets	$375.00	each	
12" Aluminum extender base for 332A cabinets	$385.00	each	
8" Aluminum extender base for 336S cabinets	$258.00	each	
12" Aluminum extender base for 336S cabinets	$325.00	each	
10 percent discount for items not specifically			
listed on the bidder pricing form	10%		
FUNDING SOURCES			
1000-75-75300-515340-00000000-			
3020-75-00000-529000-00000000-			
3020-75-00000-529001-00000000-			

APPENDIX A
BIDDER PRICING FORM

The City reserves the right to make an award in whole or part to one or more Bidders whenever deemed necessary and in the best interest of the City. Per the Advertisement for Bids – Notice to Bidders, bids will be evaluated as a whole. All minimum quantities provided are considered to be estimates only.

Bidder must include in its Bid price all labor, supervision, materials, equipment, and tools of the trade required to meet the Contract requirements. Prices quoted shall be in U.S. Dollars, delivered prices, F.O.B. destination, exclusive of all federal or state excise, sales, and manufacturer's taxes. The City will not accept charges for transportation, handling, packaging, installation or out-of-pocket expense other than as specified in the Bid.

Prices quoted to the City shall remain firm for a minimum of ninety (90) days from the date of opening of the bid, unless so stated differently in the bid. If there are discrepancies between unit prices quoted and extensions, the unit price will prevail. The City will be protected against any increase above the price in the bid. Any bid containing an "Escalator Clause" will not be considered unless so stipulated in the Invitation for Bid. Discounts will be considered in determining the lowest responsible bidder, however, any payment term based on less than 30 days will not be considered. Discounts will be figured from the date of acceptance by the City regardless of date of delivery or invoice.

Bidder shall acknowledge receipt of all addenda in the space provided on the Bidder Pricing Form below. Failure to acknowledge receipt of addenda shall not relieve Bidder of full responsibility for all requirements contained in addenda.

We acknowledge receipt of the following addenda: N/A

I. **COMPLETE CABINET ASSEMBLY MODEL 332A WITHOUT A CONTROLLER, TO INCLUDE AN INSTALLED AUXILLARY OUTPUT FILE AND HARNESS. OUTPUT FILE USED IN SOUTH CAROLINA KNOWN AS #11126SC16 and HARNESS #11126-332 TO INCLUDE FOUR (4) EACH FLASH TRANSFER RELAYS** and six (6) flash programming sockets. The auxiliary output file shall be wired to ensure that all six (6) phases flash correctly during flashing operation where 18 channels are being used so as to NOT allow dark signals during the flashing operation.

Make Swarco Model 332

Delivery Date (8 – 12 weeks requested from date of order): 150 Days ARO

Total Delivered Price Each Cabinet Assembly $ 17,858.00

II. **COMPLETE CABINET ASEEMBLY MODEL 336S WITHOUT A CONTROLLER. TO INCLUDE AN INSTALLED AUXILIARY OUTPUT FILE AND HARNESS. OUTPUT FILE USED IN SOUTH CAROLINA KNOWN AS 11126SC16 AND HARNESS #11126-332 TO INCLUDE FOUR (4) EACH FLASH TRANSFER RELAYS** and six (6) flash programming sockets. The auxiliary output file shall be wired to ensure that all six (6) phases flash correctly during flashing operation where 18 channels are being used so as to NOT allow dark signals during the flashing operation.

Make Swarco Model 336S

Delivery (8 – 12 weeks requested from date of order): 150 Days ARO

Total Delivered Price Each Cabinet Assembly $ 16,746.00

III. ADDITIONAL AUXILLIARY OUTPUT FILE USED IN SOUTH CAROLINA KNOWN AS #1126SC16 AND HARNESS #11126-322 TO INCLUDE FOUR (4) EACH FLASH TRANSFER RELAYS FOR OLDER CABINETS THAT DID NOT INCLUDE AUXILLIARY OUTPUT FILE AND HARNESS and six (6) flash programming sockets. The auxiliary output file shall be wired to ensure that all six (6) phases flash correctly during flashing operation where 18 channels are being used so as to NOT allow dark signals during the flashing operation.

Make Swarco Model M59185

Delivery (8 – 12 weeks requested from date of order): 150 Days ARO

Total Delivered Price Each Additional Auxiliary Output File $ 668.00

IV. **ADDITIONAL ADVANCED CONFLICT MONITOR MODEL 2010 ECL-IP**

Make EDI Model 2010ECLIP

Delivery (8 – 12 weeks requested from date of order): 45 Days ARO

Total Delivered Price Each Advanced Conflict Monitor $ 1,185.00

V. **ADDITIONAL ADVANCED CONFLICT MONITOR MODEL 2018 ECL-IP**

Make EDI Model 2018ECLIP

Delivery (8 – 12 weeks requested from date of order): 45 Days ARO

Total Delivered Price Each Advanced Conflict Monitor $ 1,415.00

VI. **ADD/DELETE COST TO PROVIDE AN ADVANCED CONFLICT MONITOR**

MODEL 2010 ECL-IP INSTEAD OF A MODEL 2010 WITH A COMPLETE NEW 332A or 336S CABINET ASSEMBLY

Make EDI Model 2010ECL-IP

Delivery (8 – 12 weeks requested from date of order): 45 Days ARO

Total Delivered ADD/DELETE Price Each Upgrade to an IP Addressable 2010 Advanced Conflict Monitor in a 332A or 336S Complete Cabinet Assembly $ (-17.00)

VII. ADD/DELETE COST TO PROVIDE **AN ADVANCED CONFLICT MONITOR**

MODEL 2018 ECL-IP INSTEAD OF A MODEL 2010 WITH A COMPLETE NEW 332A or 336S CABINET ASSEMBLY

Make EDI Model 2018ECL-IP

Delivery (8 – 12 weeks requested from date of order): 45 Days ARO

Total Delivered ADD/DELETE Price Each Upgrade to an IP Addressable 2018 Advanced Conflict Monitor in a 332A or 336S Complete Cabinet Assembly $ 270.00

VIII. DETECTOR – ORACLE 2E BY EDI

Make EDI Model Oracle 2E

Delivery (8 – 12 weeks requested from date of order): 45 Days ARO

Total Delivered Price Each Detector Model 2E Oracle/EDI $_____

IX. 8" ALUMINUM EXTENDER BASE FOR 332A CABINETS

Cabinet 332A aluminum extender bases in height of 8" manufactured in the shape and dimensions that match the shape, dimensions and bolt-pattern of each Cabinet Assembly. The appropriate stainless steel hardware (nuts, bolts and washers) shall be included with each extender base to sufficiently mount the base to the Cabinet Assembly.

Make Swarco Model M61035

Delivery (8 – 12 weeks requested from date of order): 150 Days ARO

Total Delivered Price Each 8" 332A Base $ 375.00

X. 12" ALUMINUM EXTENDER BASE FOR 332A CABINETS

Cabinet 332A aluminum extender bases in height of 12" manufactured in the shape and dimensions that match the shape, dimensions and bolt-pattern of each Cabinet Assembly. The appropriate stainless steel hardware (nuts, bolts and washers) shall be included with each extender base to sufficiently mount the base to the Cabinet Assembly.

Make Swarco Model M60560

Delivery 8 – 12 weeks requested from date of order): 150 Days ARO

Total Delivered Price Each 12" 332A Base $ 385.00

XI. 8" ALUMINUM EXTENDER BASE FOR 336S CABINETS

Cabinet 336S aluminum extender bases in height of 8" manufactured in the shape and dimensions that match the shape, dimensions and bolt-pattern of each Cabinet Assembly. The appropriate stainless steel hardware (nuts, bolts and washers) shall be included with each extender base to sufficiently mount the base to the Cabinet Assembly.

Make Swarco Model M79004N

Delivery (8 – 12 weeks requested from date of order): 150 Days ARO

Total Delivered Price Each 8" 336S Base $ 258.00

XII. 12" ALUMINUM EXTENDER BASE FOR 336S CABINETS

Cabinet 336S aluminum extender bases in height of 12" manufactured in the shape and dimensions that match the shape, dimensions and bolt-pattern of each Cabinet Assembly. The appropriate stainless steel hardware (nuts, bolts and washers) shall be included with each extender base to sufficiently mount the base to the Cabinet Assembly.

Make Swarco Model M61716N

Delivery (8 – 12 weeks requested from date of order): 150 Days ARO

Total Delivered Price Each $ 325.00

XIII. A discount percentage must be specified for items not specifically listed on the Bidder Pricing Form.

Discount Percentage 10%

XIV. Quotes must be submitted for all items not specifically listed in the bid. All quotes must contain the list price, the discount percentage and the discounted price.

This Price Bid Form is hereby submitted by the undersigned. I affirm that I understand and agrees that any form of electronic signature, including but not limited to signatures via facsimile, scanning, or electronic mail, may substitute for the original signature and shall have the same legal effect as the original signature.

Utilicom Supply Associates LLC
Printed legal name of Bidder

Tammy Coggins
Signature

Tammy Coggins - Chief Estimator
Printed name of individual/corporate officer/general partner/joint venturer AND Title

February 9, 2026
Date

APPENDIX B
DETAILED REQUIREMENTS CHECKLIST

The following specifications are being provided to potential bidders as guidelines which describe the minimum type and quality of product the City of Huntsville is requiring. The Bidder must indicate compliance or list exceptions to each specification item for consideration and/or acceptance. **Failure** to comply with this provision shall be cause for rejection of the bid as non-responsive.

	SPECIFICATIONS	VENDOR COMPLIANCE	
	I. General Requirements	**YES**	**NO**
1.1	All equipment furnished shall be new and meet the requirements of the following:	X	
a.	Underwriter's Laboratory Incorporated (UL)		
b.	Electronic Industries Association (EIA)		
c.	National Electric Code (NEC)		
d.	American Society of Testing and Materials (ASTM)		
e.	American National Standards Institute (ANSI)		
f.	International Municipal Signal Association (IMSA)		
g.	National Electrical Manufacturers Association (NEMA)		
1.2	In all cases of conflict, the specifications herein shall take precedence over and/or supplement CALTRANS Specifications.		
1.3	Apparent Low Bidder shall be prepared to provide a sample cabinet if requested within 30 days of the bid for review and inspection by City of Huntsville, Alabama, to determine that the cabinet meets the specifications.		
	II. Cabinet Assembly Configuration	**YES**	**NO**
2.1	Cabinet assemblies to be supplied shall be Model 332A (Panel Termination Option), and Model 336S ("Stretch"), per CALTRANS Specifications, except as supplemented herein.	X	
2.2	Cabinet assemblies shall include the following additional components in cabinet at time of delivery, per each cabinet model:		
2.2.1	Model 332A Cabinet Assembly to include AN INSTALLED AUXILLARY OUTPUT FILE AND HARNESS. OUTPUT FILE USED IN SOUTH CAROLINA KNOWN AS #11126SC16 and HARNESS #11126-322 TO INCLUDE FOUR (4) EACH FLASH TRANSFER RELAYS and six (6) flash programming sockets. The auxiliary output file shall be wired to ensure that all six (6) phases flash correctly during flashing operation where 18 channels are being used so as to NOT allow dark signals during the flashing operation.		
2.2.1.1	NO CONTROLLER		
2.2.1.2	One (1) each Model 2010 (ECL or equivalent) Conflict Monitor		
2.2.1.3	Eight (8) each flash transfer relays		
2.2.1.4	Two (2) each Model 204 Flashers		
2.2.1.5	Twelve (12) each Model 200 Switch Pack		
2.2.1.6	Four (4) each Model 242 DC Isolator in Slot 14 of Upper Input File – GDI or EDI. PDC not acceptable.		
2.2.1.7	Lower Input field termination panel		
2.2.1.8	One (1) each Model 420 Auxiliary Output File used in South Carolina known as #11126SC16		
2.2.1.9	One each Harness #11126-322		
2.2.1.10	Six (6) Detectors EDI/Oracle Model 2E		
2.2.1.11	CALTRANS Specified Switcher Power Supply		
2.2.2	Model 336S ("Stretch") Cabinet Assembly to include AN INSTALLED AUXILLARY OUTPUT FILE AND HARNESS. OUTPUT FILE USED IN SOUTH CAROLINA KNOWN AS #11126SC16 and HARNESS #11126-322 TO INCLUDE FOUR (4) EACH		

	FLASH TRANSFER RELAYS and six (6) flash programming sockets. The auxiliary output file shall be wired to ensure that all six (6) phases flash correctly during flashing operation where 18 channels are being used so as to NOT allow dark signals during the flashing operation.	X	
2.2.2.1	NO CONTROLLER		
2.2.2.2	One (1) each Model 2010 (ECL or equivalent) Conflict Monitor		
2.2.2.3	Eight (8) each Flash Transfer relays		
2.2.2.4	Two (2) each Model 204 Flashers		
2.2.2.5	Eight (8) each Model 200 Switch Pack		
2.2.2.6	Four (4) each Model 242 DC Isolator in Slot 14 of Input File – GDI or EDI, PDC not acceptable		
2.2.2.7	One (1) each Auxiliary Output File used in South Carolina known as #11126SC16		
2.2.2.8	One each Harness #11126-322		
2.2.2.9	One (1) each aluminum cover plate for cabinet bottom (pole mount only)		
2.2.2.10	Two (2) each exterior pole-mounting brackets		
	Six (6) Detectors EDI/Oracle Model 2E		
	CALTRANS Specified Switcher Power Supply		
	III. Bid Pricing	**YES**	**NO**
3.1	Bid pricing shall be provided by the bidder for the following cabinet assemblies:	X	
3.1.1	Model 332A (priced per each) with specified equipment to include installed auxiliary output file and harness as specified		
3.1.2	Model 336S (priced per each) with specified equipment to include installed auxiliary output file and harness as specified		
3.2	Bid pricing shall be provided by the bidder for the following individual components:		
3.2.1	Additional AUXILIARY OUTPUT FILE, to include AN INSTALLED AUXILLARY OUTPUT FILE AND HARNESS. OUTPUT FILE USED IN SOUTH CAROLINA KNOWN AS #11126SC16 and HARNESS #11126-322 TO INCLUDE FOUR (4) EACH FLASH TRANSFER RELAYS and six (6) flash programming sockets. The auxiliary output file shall be wired to ensure that all six (6) phases flash correctly during flashing operation where 18 channels are being used so as to NOT allow dark signals during the flashing operation. These additional auxiliary output files are for existing older cabinets that were not ordered with the auxiliary output file already installed.		
3.2.2	Model 2010 Conflict Monitor		
3.2.3	Model 2018 Conflict Monitor		
3.2.4	Model 2010 Conflict Monitor IP Addressable		
3.2.5	Model 2018 Conflict Monitor IP Addressable		
3.2.6	Detector - ORACLE 2E BY EDI		
3.2.7	Base for cabinet 332A		
3.2.8	Base for cabinet 336S		
3.3	"Lowest bid" is defined as that bid that is the lowest price per line item. City reserves the right to award to multiple vendors per line item.		
3.4	Award will be made to the lowest bid that satisfies the requirements described below in Sections 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14 and 15.		
	IV. Delivery Schedule / Quantity	**YES**	**NO**
4.1	Cabinet assembly hardware shall be fabricated and shipped such that receipt by the City of Huntsville is no later than 8 – 12 weeks ARO.	X	
4.2	Once award is selected, for each order placement, the supplier will be required to reply via a written commitment to the City, stating that the order will be processed within the time outlined in requirement 4.1. If the supplier is unwilling or unable to make this written commitment, the City reserves the right to select the next lowest responsible bidder for that order.		

4.3	An average of fifteen (15) cabinet assemblies will be needed by the City of Huntsville per fiscal year; however, where specific monies are allocated for technology upgrades, as many as fifty (50) cabinet assemblies may be required in a fiscal year.	X	
	V. Cabinet Assembly Electrical Requirements	**YES**	**NO**
5.1	Upon leaving any cabinet switch- or conflict monitor-initiated flashing operation, the controller shall start in the programmed start -up phases and start-up interval.	X	
5.2	Two (2) sets of non-fading cabinet wiring diagrams and schematics shall be provided, in a clear, sealable, water tight plastic bag and placed in the cabinet drawer.		
5.3	Moisture resistant coating shall be provided on all circuit boards.		
5.4	Surge suppression shall be provided in the cabinet for each type of cabinet device. Surge protection shall be provided for the full capacity of the cabinet input file.		
5.5	All cabinet assemblies shall be furnished with a surge protector on the AC service input, which meets or exceeds the following performance requirements:		
5.5.1	Multi-stage Hybrid Design		
5.5.2	Series induction filtering		
5.5.3	Thermally protected Metal Oxide Varistors (TMOV's)		
5.5.4	Operating Voltage of 120 VAC		
5.5.5	Clamping Voltage of 395 VAC		
5.5.6	Operating Current 15 A		
5.5.7	Peak surge Current of 45 kA/Phase, 60 kA/Total		
5.5.8	Operating Frequency of 47-63 Hz		
5.5.9	EMI Attenuation of 50 dB typical		
5.5.10	SPD Technology of TMOV's with L-C Filter		
5.5.11	Modes of Protection are L-N, L-G, N-G		
5.5.12	Status Indication of Power On & TMOV's Functional		
5.5.13	Connection Type is ¼-20 Stainless Steel Stud, plug-in module operating		
5.5.14	Operating Temperature of -40 degrees C to + 85 degrees C		
5.6	One (1) V150LA20 MOV or equivalent protection shall be provided between each load switch field terminal and earth ground.		
5.7	A terminal mounted loop surge suppressor device shall be provided for each set of loop terminals in the cabinet. For a 10x700 microsecond waveform, the device shall withstand a minimum of 25 peak surge current occurrences at 100 A, in both differential and common modes. Maximum break over voltage shall be 170 V and maximum on-state clamping voltage shall be 40 V. A maximum response time of less than 5 nanoseconds shall be provided. Off-state leakage current shall be less than 10 microamperes. A nominal capacitance of less than 220 Pico farads shall be provided, for both differential and common modes.		
5.8	Surge suppression shall be provided on each communications line entering or leaving cabinet. The communications surge suppressor shall be capable of withstanding at least 80 occurrences of an 8x20 microsecond waveform at 2000 A and a 10x700 microsecond waveform at 400 A. The maximum clamping voltage shall be suited to the protected equipment. Maximum response time shall be less than 1 nanosecond. Nominal capacitance shall be less than 1500 Pico farads and series resistance shall be less than 15 ohms.		
5.9	Surge suppression shall be provided on each DC input channel in the cabinet. DC input channel surge suppressor shall be capable of withstanding a peak surge current of at least 10,000 A in the form of an 8x20 microsecond waveform and at least 100 occurrences of an 8x20 microsecond waveform at 2000 A. Maximum clamping voltage shall be 30 V. A maximum response time of less than 1 nanosecond shall be provided. A series resistance of less than 15 ohms per line shall be provided.		
5.10	Protection for each preemption or 120 Vrms single-phase signal input shall be provided by an external stud-mounted surge protector. A minimum stud size of 1/3 inch shall be provided. Minimum Number 14 AWG wire leads with 1 foot minimum lengths shall be provided. Peak surge trip point shall be less than 890 V nominal for a 600 V rise per		

	microsecond impulse, and 950 V nominal for a 3000 V per microsecond rise impulse. Maximum surge response time shall be less than 200 nanoseconds at 10 kV per microsecond. The AC isolation channel surge suppressor shall withstand at least 25 occurrences of an 8x20 waveform of 10,000 A and a peak single pulse 8x20 microsecond waveform of 20,000 A. A maximum clamping voltage of 30 V shall be provided. Maximum response time shall be less than 1 nanosecond. The discharge voltage shall be under 200 V at 1000 A and the insulation resistance shall be 100 mega ohms. The absolute maximum operating line current shall be 1 A at 120 Vrms.		X	
5.11	Conductors shall be provided for surge protection wiring that are of sufficient size to withstand maximum over currents which might occur before protective device thresholds are attained and current flow is interrupted.			
5.12	Each cabinet shall include two (2) LED lighting fixtures, one mounted inside the top-front portion of the cabinet and one mounted inside the top-rear portion of the cabinet. Both fixtures shall include a LED bright white light LED that is equal to a 15 watt fluorescent. The fixtures shall provide sufficient light to illuminate all terminals, labels, switches and devices in the cabinet. The fixtures shall be conveniently located so that they do not interfere with a technician's ability to perform work on any devices or terminals in the cabinet. A protective diffuser shall be provided to cover exposed bulbs. Door-actuated switches shall be installed to turn on the cabinet lights when either the front or rear doors are opened.			
5.13	The door actuated switches shall not be located on the hinge, but shall be located high as to not hinder the installation of the controller.			
5.14	Furnish a thermostat-controlled, dual-fan (100CFM minimum rating per fan) ventilation system in all Cabinet Assemblies. The cabinet thermostat is to be factory set to 90 degrees in all cabinet assemblies. The cabinet thermostat and thermostat temperature setting shall be easily accessible and adjustable from the front of the cabinet assembly. Terminals on the cabinet thermostat shall be insulated to prevent accidental electrical shock. For more maintenance friendly access to the fan/thermostat fuse(s) in the 332/336 cabinets, to avoid having to remove a secured controller to access the fan/thermostat wiring, and to avoid cutting the wiring cable ties on hot wires and to avoid short/shock, there shall be a secure area to remove the fuse for replacement. This shall be similar to a Safetran 330 cabinet where there is a secured area			
5.15	Cabinet fan and light shall be fed from 15 amp equipment breaker.			
5.16	A police panel shall be furnished with a police panel door. Police panel door shall permit access to the police panel when the main door is closed. Rainwater shall not be permitted to enter the cabinet when the police panel door is open. The police panel door shall be hinged on the right side as viewed from the front. A police panel door lock shall be provided that is keyed to a standard police/fire call box key.			
5.17	Cabinet shall be furnished with a connector and terminal assembly designated as P20 (Magnum part number 722120 or equivalent) for monitoring the absence of any valid AC+ signal display (defined here as red, yellow or green) input on any channel of the conflict monitor. Terminal shall be connected through a 3 ½ feet, 20-wire ribbon cable which mates on the other end to a connector (3M-3428-5302 or equivalent) installed in the front of the Type 2010 conflict monitor. The female connector, which mates with the connector on the conflict monitor, shall be "keyed" to ensure proper connection. The cabinet shall enter the flash mode if the ribbon cable is not properly connected.			
5.18	The ribbon cable shall be terminated at the P20 connector and terminal assembly. The P20 connector and mating ribbon cable connector shall be "keyed" to prevent the cable from being improperly installed. The P20 connector shall be wired to the traffic signal red displays to provide inputs to the conflict monitor as follows:			

					X	

Pin Number	Function	Pin Number	Function
1	Channel 15 Red	11	Channel 9 Red
2	Channel 16 Red	12	Channel 8 Red
3	Channel 14 Red	13	Channel 7 Red
4	GND	14	Channel 6 Red
5	Channel 13 Red	15	Channel 5 Red
6	Special Function 2	16	Channel 4 Red
7	Channel 12 Red	17	Channel 3 Red
8	Special Function 1	18	Channel 2 Red
9	Channel 10 Red	19	Channel 1 Red
10	Channel 11 Red	20	Red Enable

5.19	A Red Enable Board with dip switches shall be provided to jumper 120 VAC from the signal load switch AC+supply bus to any channel Red input to the P20 connector in order to tie unused red inputs high. Easy access shall be provided to the dip switches on the back side of the cabinet. The dip switches connecting to all 16 channel Red inputs shall be located on the same circuit board. For each channel red input terminal, a companion terminal shall be provided supplying AC+from the signal bus. "Jumpers" shall not be acceptable. No tools shall be required to change a phase to red monitoring.			
5.20	Neither the Special Function 1 nor the Special Function 2 monitor input shall be connected to the red monitor card.			
5.21	The removal of the P20 ribbon cable shall cause the monitor to recognize a latching fault condition and place the cabinet into flashing operation. This also shall be implemented in the conflict monitor software (Section 9).			
5.22	Removal of the conflict monitor from the cabinet shall cause the cabinet to revert to flashing operation.			
5.23	The Output File Assembly shall implement a hinged, clear, plastic cover to protect the Red Enable Board during normal operation. This cover shall be hinged on the left or right side. When closed, the side opposite the hinge shall be secured to the Output File Assembly without the use of any hardware or tool. When fully opened, the cover shall not inhibit the removal, replacement or configuration of the Red Enable Board. Removal/replacement of the Red Enable Board shall not require the removal of the protective cover.			
5.24	To prevent accidental, electrical contact between the Cabinet Assembly and Conflict Monitor Unit, the entire side panel with the Output File Assembly that is directly adjacent to the solder-side of the Conflict Monitor shall be insulated with non-conductive sheeting. This sheeting shall not degrade over time and shall remain attached to the Output File Assembly throughout the life of the Cabinet Assembly. This sheeting shall be of minimal thickness as to not impede the insertion and/or removal of the Conflict Monitor Unit.			
5.25	Wiring in the Output File Assembly must be color coded so that individual wires correspond to their specific traffic signal outputs (ES: Red, Yellow, and Green). This will enhance the traceability of wires between termination points for technicians who are			

	troubleshooting a cabinet while referencing the cabinet print. The wires shall be #14 AWG stranded wire.	X	
5.26	The Power Distribution Assembly shall be equipped with a solid state relay. The equipment receptacle shall not be tied to the GFI.		
5.27	Card guides shall be integrated into assemblies where Load Switch, Flasher and Input File hardware may be installed. The card guide slots shall be of sufficient depth to support pluggable devices when they are not fully inserted into the electrical receptacles, and the installation or removal of pluggable devices shall not require excessive force.		
5.28	Additional commons/terminals separating them individually for 2P/4P and 6P/8P terminations are required. To further describe as example of issue that requires Terminal block 8-6 (TB8-6) shares commons between 2P/4P and all cables are home run to cabinet (4 terminations) making it difficult /impossible to terminate on one terminal. Two terminations per terminal (including factory wiring) shall be the maximum allowed.		
	VI. Cabinet Assembly Physical Requirements	**YES**	**NO**
6.1	Cabinet exterior shall have a bare aluminum finish.		
6.2	Main cabinet door shall be equipped with locks that accept No. 2 Corbin keys. Two (2) sets of keys shall be provided with each cabinet. One (1) set of keys is defined as one (1) No. 2 key and one (1) police panel key.	X	
6.3	Model 332A cabinet assemblies, unless otherwise specified, shall be equipped for base mounting. No additional mounting hardware is required in this case.		
6.4	Model 336S cabinet assemblies, unless otherwise specified, shall be equipped for pole mounting, and shall be supplied with two (2) exterior pole mounting brackets that allow for mounting on steel, concrete, and timber poles, and one (1) aluminum cover plate for the cabinet bottom.		
6.5	All Cabinet Assemblies shall have BOTH doors ventilated and are to include steel mesh screen filters that are secured in place, yet easily removed for replacement.		
6.6	Front and rear door handles for all cabinet assemblies shall turn away from the door lock/key to open the cabinet door.		
6.7	A surge protection panel shall be provided with sixteen (16) loop protection devices and designed to allow sufficient free space for wire connection / disconnection and surge protection device replacement. Three (3) additional slots shall be protected with six (6) AC+ interconnect surge devices and two (2) slots shall be protected by four (4) DC surge protection devices. No protection devices shall be provided on Slot 14.		
6.8	For pole-mounted cabinets, surge protection devices for the AC+ interconnect cable inputs, inductive loop detector inputs, and low voltage DC inputs, shall be mounted on a fold-down panel assembly on the rear side of the input files. The surge protection devices shall be fabricated from sturdy aluminum and shall incorporate a swing-down back panel to which the surge protection devices are attached. The swing-down panel shall be attached to the assembly using thumbscrews. The surge protection devices shall be mounted horizontally on the panel and soldered to the feed through terminals of four (4) 14-position terminal blocks with #8 screws mounted on the other side.		
6.9	For base-mounted cabinets, separate surge protection termination panels shall be attached to each side of the cabinet rack assembly. The surge protection termination panel for AC isolation devices shall be mounted on the same side of the cabinet as the AC service inputs. The surge protection termination panel for DC terminals and loop detector terminals shall be installed on the opposite side of the cabinet from the AC service inputs. Each panel shall be attached to the rack assembly with bolts, and shall be easily removable. The surge protection devices shall be mounted in horizontal rows on each panel and shall be soldered to the feed-through terminals of 14-position terminal blocks with #8 screws mounted on the other side. The terminals shall be wired to the rear of a standard input file, using spade lugs for input file protection.		
6.10	Permanent labels shall be provided that indicate the slot and the pins connected to each terminal that may be viewed from the rear cabinet door. The terminals shall be labeled and oriented so that each pair of inputs is grouped and located together. The top row of		

	terminals shall be connected to the upper slots and the bottom row of terminals is connected to the bottom slots. The slot number (1-14) and the terminal pins of the input slots (D & E for Upper; J & K for Lower) shall be indicated on the labeling.	X	
6.11	All grounds from the surge protection shall be terminated on a 15-position copper equipment ground bus attached to the rear swing-down panel. A Number 4 AWG green wire shall connect the surge protection panel assembly ground bus to the main cabinet equipment ground. A standard input file and surge protection panel assembly, which fit outside and behind the input file, shall be provided. The fold –down panel shall allow for easy removal of the input file without removing the surge protection panel assembly or its parts.		
6.12	Cabinet Assemblies shall have a hinged, aluminum shelf and integrated storage compartment installed on the front door, inside the Cabinet Assembly. In order to allow better ventilation throughout the cabinet and rack, a sliding shelf/drawer within the rack assembly shall not be permitted. The shelf shall have a smooth, non-slip surface, sufficient for use as a writing platform. The shelf shall measure 16" x 14" x 1.5", which provides sufficient size and rigidity to support a typical laptop computer when extended for used. This shelf shall have rounded or insulated edges that do not have the potential to physically harm the user. The shelf shall lock into place when folded for storage. Lanyards or other hinge type devices shall not be permitted to support the shelf. Locking the shelf for storage and/or extending for use shall not require the use of any tool. A clear, sealable, water tight plastic bag shall be provided to store cabinet diagrams and schematics within the laptop shelf.		
	VII. Cabinet Assembly Default Input File Assignment	**YES**	**NO**
7.1	Default input file assignment for Model 332A Cabinet shall conform to the configuration in Table 7.1.	X	
7.2	Default input file assignment for Model 336S Cabinet shall conform to the configuration in Table 7.2.		
	VIII. Model 2010 Conflict Monitor	**YES**	**NO**
8.1	The conflict monitor shall be capable of monitoring sixteen (16) channels, consisting of a Green input, a Yellow input, and a Red input for each channel. Included in monitoring shall be the capability to monitor flashing yellow arrows.	X	
8.2	The conflict monitor shall be capable of detecting the presence of conflicting green or yellow signal voltages on the AC field terminals between two or more non-compatible channels. A conflict fault (CONFLICT) shall be a latching fault.		
8.3	The conflict monitor shall trigger when voltages on any conflicting channels are present for more than 500 milliseconds. The monitor shall not trigger when voltages on any conflicting channels are present for less than 200 milliseconds. Conflicting signals sensed for more than 200 milliseconds and less than 500 milliseconds may or may not trigger the unit.		
8.4	The conflict monitor shall be capable of detecting that the cabinet +24 VDC supply has fallen below 18 VDC. A 24 VDC failure (VDC FAIL) shall be a latching fault.		
8.5	The conflict monitor shall trigger when the voltage on the +24 V input is below 18 VDC for more than 500 milliseconds. The monitor shall not trigger when the voltage on the +24 V input is below 18 VDC for less than 200 milliseconds. A voltage level of +22 VDC will be required to prevent the unit from triggering.		
8.6	The conflict monitor shall trigger when the Watchdog input does not toggle within the programmed time period (WDT ERROR). The unit shall remain latched in the fault state until reset by the Reset Button, an External Reset input command, or AC Line voltage restoring from an AC Line Brownout event. A reset resulting from an AC Line Brownout event shall not clear the WDT ERROR LED.		
8.7	A programming option shall set the Watchdog monitoring function to a latching mode, and only a reset from the Reset Button or External Reset input shall be capable of clearing a Watchdog fault. An AC line brownout condition shall not reset the fault.		
8.8	A programming option shall set the maximum Watchdog recognition time to 1000 + 100 milliseconds or 1500 + 100 milliseconds.		

8.9	An internal switch shall be provided to disable the Watchdog monitoring function. The switch shall be mounted on the PCB and be clearly labeled "WD ENABLE – ON…OFF". Placing the switch in the OFF position shall cause monitoring of the Watchdog to be inhibited.	X		
8.10	The WDT ERROR LED shall illuminate when the unit has been triggered by a Watchdog fault. The Watchdog fault shall be cleared only by a reset command from the front panel Reset switch or External Reset input. If the Watchdog monitoring function is inhibited due to the Watchdog Enable switch, the WDT ERROR LED shall flash at a 0.5 Hz rate.			
8.11	The conflict monitor shall be capable of detecting that the AC Line has fallen below 98 + 2 VAC for greater than 400 + 50 milliseconds. This shall force the output Relay to the de-energized "fault" state, enable the Stop-time output, and cause the AC POWER LED to flash at a 2 Hz rate. The unit shall maintain this state until the AC Line voltage rises above 103 + 2 VAC for greater than 400 + 50 milliseconds. A jumper option shall be provided which changes the AC Brownout dropout level to 92 + 2 VAC and the restore level to 98 + 2 VAC.			
8.12	When the AC Line is greater than 103 + 2 Volts after power-up or Brownout restore, the conflict monitor shall hold the Output Relay in the de-energized "fault" state and enable the Stop-Time output, for a period of not less than 6.0 + 0.5 seconds and not greater than 10.0 + 0.5 seconds. This flash interval shall be terminated after at least 6.0 + 0.5 seconds if the conflict monitor has detected at least five (5) transitions of the Watchdog input. If the conflict monitor does not detect five (5) transitions of the Watchdog input before 10.0 + 0.5 seconds, the monitor shall go to the fault state. During this interval, the AC POWER LED shall flash at a rate of 4 Hertz.			
8.13	The conflict monitor shall be capable of detecting the absence of an active voltage on the green and yellow and red field signal inputs of a channel. Red Fail fault (RED FAIL) shall be a latching fault. The Red Fail monitoring function shall be enabled for all channels except when the Red Enable input is not active, or pin #EE is active, or Special Function #1 input is active, or Special Function #2 input is active.			
8.14	The conflict monitor shall trigger when an active voltage on one of the three (3) inputs of a channel are absent for more than 1500 milliseconds. The monitor shall not trigger when an active voltage on one of the three (3) inputs of a channel are absent for less than 1200 milliseconds. Channels without proper voltages sensed for more than 1200 milliseconds and less than 1500 milliseconds may or may not trigger the unit. An option switch (RF 2010) shall be provided which will change the fault recognition time to between 700 milliseconds and 1000 milliseconds.			
8.15	A programming option shall be provided such that operating without the Red Interface cable installed shall cause the conflict monitor to enter the fault mode, causing the Output relay contacts to close and enabling the Stop-Time output to the controller. To indicate this fault mode, the Red Fail indicator shall be illuminated with all fault channel indicators Off. Any Red Fail preemption control to the monitor shall use the Special Function inputs #1 or #2.			
8.16	The conflict monitor shall be capable of detecting the presence of active voltage on the green and yellow, green and red, or yellow and red field signal inputs of a channel. GYR Dual Indication fault (DUAL IND) shall be a latching fault. This function shall be enabled on a per-channel basis using dip switches mounted on the PCB labeled "CH1" through "CH16". The GYR Dual Indication monitoring function shall be enabled for all selected channels except when the Red Enable input is not active or pin #EE is active.			
8.17	The conflict monitor shall be capable of detecting the presence of active voltage on the green and yellow field signal inputs of a channel. GY Dual Indication fault (DUAL IND) shall be a latching fault. The function shall be enabled with a dip switch on the PCB labeled "GY ENABLE". When the switch is in the ON position, all channels shall be monitored for simultaneous active green and yellow inputs on a channel. When selected by the GY ENABLE switch, the GY Dual Indication monitoring function shall be disabled when pin #EE is active.			
8.18	The conflict monitor shall trigger when multiple inputs are active on a channel for more than 500 milliseconds. The monitor shall not trigger when multiple inputs are active on a			

	channel for less than 250 milliseconds. Channels with multiple voltages active for more than 250 milliseconds and less than 500 milliseconds may or may not trigger the unit.	X		
8.19	The conflict monitor shall be capable of detecting that a channel has not provided an adequate Yellow Clearance interval during a green to yellow to red sequence. A sequence failure (SEQUENCE) shall be a latching fault. This function shall be enabled on a per-channel basis using dip switches mounted on the PCB labeled "CH1" through "CH16". The Sequence monitoring function shall be enabled for all selected channels except when the Red Enable input is not active or pin #EE is active.			
8.20	Provision shall be made such that the minimum Yellow Clearance interval may be modified by switches mounted on the PCB labeled "YEL TIME 1", "YEL TIME 2", and "YEL TIME 3". The Yellow Clearance interval shall be 2.7 seconds plus 0.2 seconds times the binary sum of the three switches. The minimum Yellow Clearance interval shall therefore have a range of 2.7 seconds to 4.1 seconds, + 0.1 seconds.			
8.21	The conflict monitor shall detect Conflict, Red Fail, and Dual Indication faults that result from intermittent or flickering field signal inputs. These recurring pulses shall result in a latching fault with the RP DETECT indicator illuminated along with the resulting Conflict, Red Fail, or Dual Indication indicator. An option switch shall be provided to disable the RP Detect function.			
8.22	On power-up, reset, and periodically during operation, the conflict monitor shall compare the current configuration settings with the previously stored value and if the settings have changed, the monitor shall automatically log the new setting. These settings shall include the permissive diode matrix, all switches, all jumpers, and the Watchdog Enable switch. A programming option shall be provided such that any change in the configuration parameters will cause the monitor to enter the fault mode causing the Output relay contacts to close and enabling Stop-Time output to the controller. To indicate this fault mode, the PCA indicator shall flash at a rate of 4 Hertz. Depressing the Reset button for five (5) seconds shall be required to clear this fault and log the new configuration parameters. If the programming option is not selected, the unit shall not set the fault mode but shall still log the configuration change.			
8.23	When the Programming Card is removed or not seated properly, the conflict monitor shall force the Output relay to the de-energized "fault" state, shall enable the Stop-Time output, and shall illuminate the PCA LED. A reset command from the front panel Reset switch or External Reset input shall be required once the program card is in place.			
8.24	When the conflict monitor exits the flash state (Output relay de-energized) as a result of a Reset command or AC Line brownout restore, the Stop Time output shall go to the inactive state 250 + 50 milliseconds before the Output relay transfers to the energized state. This transition shall provide an early indication to the Controller Unit that the cabinet will transfer from flash to signal operation.			
8.25	It shall be possible to view the active channels for each individual color (GYR) during operation and when latched in a fault state. When the conflict monitor is latched in a fault state, it shall also be possible to view the active channels for each individual color and fault status for each channel for the current fault, and the two previous faults.			
8.26	When the conflict monitor has been triggered by a fault, the channel status display shall alternate between the channels which were involved in the fault (fault status) for two (2) seconds, and the field signals active at the time of the fault for six (6) seconds. The channels involved in the fault shall flash their respective Green, Yellow, and Red indicators simultaneously at a rate of four (4) Hertz for the two (2) second interval.			
8.27	It shall be possible for the two previous faults to be displayed individually. This status shall not be reset by an AC Line power interruption. The display mode shall be entered by removing the Program Card. The sequence shall be as follows:			

		Reset	**Event**	**PCA LED**	**Fault Status LEDs**	**Channel Status LEDs**				

		---	#1	Single Flash	Current Fault Status (newest)	Current Field status		X	
		#1	#2	Double flash	Event #2 Fault Status	Event #2 Field status			
		#2	#3	Triple Flash	Event #3 Fault Status (oldest)	Event #3 Field status			
		(repeats back to top)							
8.28	The conflict monitor shall be capable of storing in non-volatile memory a minimum of 100 events. Each event shall be marked with the time and date of the event. The events shall consist of fault events, AC Line events, reset events and configuration change events. A graphical means of displaying the signal states of all field inputs, for thirty (30) seconds prior to a fault trigger event, shall be provided. The capability to assign a four-digit identification number to the unit shall be provided. The capability to upload the event logs to a PC, using the serial port of the conflict monitor and software supplied by the manufacturer, shall be provided. Each event log report shall contain a four-digit (0000-9999) "Monitor ID Number" assigned to the monitor, the time and date of the occurrence, and an Event Number, which identifies the record number in the log, with Event #1 being the most recent event.								
8.29	The monitor's Current Status Report (CS) shall contain:								
8.29.1	The Fault Type description.								
8.29.2	The current GYR Field Status and field RMS voltages if the monitor is not in the fault state, or the latched field status and field RMS voltages and fault channel status at the time of the fault.								
8.29.3	The current Cabinet Temperature if the monitor is not in the fault state, or the latched temperature at the time of the fault.								
8.29.4	The Current AC Line voltage if the monitor is not in the fault state, or the AC Line voltage at the time of the fault.								
8.29.5	The current state and RMS voltages of the Red Enable input, EE input, and Special Functions #1 and #2 inputs if the monitor is not in the fault state, or the status latched at the time of the fault.								
8.29.6	The monitor's Previous Fault Log (PF) shall contain:								
8.29.7	The Fault Type description.								
8.29.8	The latched Field Status with RMS voltages, and fault channel status at the time of the fault.								
8.29.9	The latched Cabinet Temperature at the time of the fault.								
8.29.9.1	The AC Line voltage at the time of the fault.								
8.29.10	The latched state of the Red Enable input, EE input, and Special Functions #1 and #2 inputs at the time of the fault.								
8.30	The monitor's AC Line Event Log (AC) shall contain:								
8.30.1	A description of the type of AC Line event that occurred.								
8.30.2	Power-up: AC on, monitor performed a cold start								
8.30.3	Interrupt: AC Line less than Brownout level								
8.30.4	Restore: AC restored from brownout or interruption (AC Off), no cold start								
8.30.5	The AC Line voltage at the time of the event.								
8.31	The monitor's Monitor Reset Log (MR) shall contain information pertaining to whether the monitor was reset from a fault by the front panel Rest Button or External Reset input.								
8.32	The monitor's Configuration Change Log (CF) shall contain:								
8.32.1	The permissive programming for each channel ("Program Card Matrix")								

8.32.2	The Yellow Disable programming for each channel.		X	
8.32.3	The switch programming for each channel.			
8.32.4	Option Switches (RF 2010, RP Disable, GY Enable, SF1 Polarity, Sequence Timing, Minimum Flash Enable, Configuration Fault Enable, Red Cable Fault enable, AC Brownout timing).			
8.32.5	Watchdog Enable, Watchdog Latch, and Watchdog timing.			
8.32.6	A unique CRC value which is based on the configuration of items 9.33.1 through 9.33.5 above.			
8.32.7	Items that have changed since the last log entry shall be indicated on the log.			
8.33	The monitor's Signal Sequence log shall graphically display all field signal states for up to 30 seconds prior to the current fault trigger event. The resolution of the display shall be at least 50 milliseconds.			
8.34	The manufacturer shall provide software to access the conflict monitor status and event logs. This software shall function with the Microsoft Windows 2000 and Windows XP operating systems.			
8.35	The conflict monitor shall be capable of monitoring sixteen (16) Red field signals. A Red input shall be sensed active when the input voltage exceeds 70 Vrms. A Red input shall be sensed not active when the input voltage is less than 50 Vrms. A Red input may or may not be sensed active when the input voltage is between 50 Vrms and 70 Vrms.			
8.36	The Red Enable input shall provide an AC input to the unit which enables Red Monitoring, Dual Indication Monitoring, and Sequence Monitoring when the input is sensed active. The Red Enable input shall be sensed active when the input voltage exceeds 70 Vrms. The Red Enable input shall be sensed not active when the input voltage is less than 50 Vrms. The Red Enable input may or may not be sensed active when the input voltage is between 50 Vrms and 70 Vrms.			
8.37	The Special Function Preemption inputs #1 and #2 shall provide an AC input to the unit which disables only Red Fail Monitoring (Lack of Output) when either input is sensed active. A Special Function input shall be sensed active when the input voltage exceeds 70 Vrms. A Special Function input shall be sensed not active when the input voltage is less than 50 Vrms. A Special Function input may or may not be sensed active when the input voltage is between 50 Vrms and 70 Vrms.			
8.38	A PCB mounted switch shall be used to provide the option to invert the active status of the Special Function #1 input. When the switch is in the ON position, the Special Function #1 input shall be sensed not active when the input voltage exceeds 70 Vrms, and the Special Function #1 input shall be sensed active when the input voltage is less than 50 Vrms. The Special Function #1 input may or may not be sensed active when the input voltage is between 50 Vrms and 70 Vrms.			
8.39	The red interface connector shall be a nylon sleeved cable hard wired directly to the cabinet on one end, and have a plug in adapter for the conflict monitor on the other end and provide the required inputs for the unit to monitor the red field signal outputs. The cable shall be keyed to ensure proper fit and be secured in such a way that it must be released and not allowed to become unplugged accidently. The unit shall function as a model 210 conflict monitor when the cable is disconnected. The pin assignments in the following table shall be used:			

	<table><tr><th>Pin</th><th>Function</th><th>Pin</th><th>Function</th></tr><tr><td>1</td><td>Channel 15 Red</td><td>11</td><td>Channel 9 Red</td></tr><tr><td>2</td><td>Channel 16 Red</td><td>12</td><td>Channel 8 Red</td></tr><tr><td>3</td><td>Channel 14 Red</td><td>13</td><td>Channel 7 Red</td></tr><tr><td>4</td><td>Chassis Ground*</td><td>14</td><td>Channel 6 Red</td></tr><tr><td>5</td><td>Channel 13 Red</td><td>15</td><td>Channel 5 Red</td></tr><tr><td>6</td><td>Special Function #2</td><td>16</td><td>Channel 4 Red</td></tr><tr><td>7</td><td>Channel 12 Red</td><td>17</td><td>Channel 3 Red</td></tr><tr><td>8</td><td>Special Function #1</td><td>18</td><td>Channel 2 Red</td></tr><tr><td>9</td><td>Channel 10 Red</td><td>19</td><td>Channel 1 Red</td></tr><tr><td>10</td><td>Channel 11 Red</td><td>20</td><td>Red Enable</td></tr><tr><td colspan="4">* A jumper option shall be provided to allow the connection of Pin #4 to be made with Chassis Ground</td></tr></table>		X	
8.39.1	The front panel shall be constructed of sheet aluminum with a minimum thickness of 0.090 inch, and finished with an anodized coating. The model information shall be permanently displayed on the front surface.			
8.39.2	All display indicators shall be mounted on the front panel of the conflict monitor and shall be water clear, T-1 package, Super Bright type LEDs. All fault LEDs shall be red except the AC POWER indicator which is green. A separate Red, Yellow and Green indicator shall be provided for each channel. Indicators shall be labeled as follows:			
8.39.3	AC POWER indicator shall flash at a rate of 2 Hz when the unit has detected a low voltage condition. The AC POWER indicator shall flash at a rate of 4 Hz during the minimum flash interval. The indicator shall illuminate when the AC Line voltage level is restored above the brownout level. The indicator shall extinguish when the AC Line voltage is less than 80 VAC.			
8.39.4	The VDC FAILED indicator shall illuminate when a 24 VDC fault condition is detected. This indicator shall remain extinguished if the monitor has not been triggered by a 24 VDC fault.			
8.39.5	The WDT ERROR indicator shall illuminate when a controller Watchdog fault is detected. The WDT ERROR indicator shall flash ON once every 2 seconds if the WD Enable switch on the monitor is placed in the OFF position to disable Watchdog monitoring, or if the AC Line voltage is below the Watchdog disable level.			
8.39.6	The CONFLICT indicator shall illuminate when a conflicting proceed signal fault is detected.			
8.39.7	The DIAGNOSTIC indicator shall illuminate when one of the following faults are detected: Internal Watchdog fault, Memory Test fault, or internal power supply fault.			
8.39.8	The RED FAIL indicator shall illuminate when an absence of signal is detected on one or more channels. The RED FAIL indicator shall flash ON once every 2 seconds if the RED ENABLE input is not active, or if a Special Function input is active, or if the EE input is active.			

8.39.9	The DUAL IND indicator shall illuminate when a GY-Dual or GYR-Dual Indication fault is detected on one or more channels.		X	
8.39.10	The SEQUENCE indicator shall illuminate when the minimum Yellow Clearance time has not been met on one or more channels.			
8.39.11	The PCA indicator shall illuminate if the Program Card is absent or not properly seated. If the monitor is in the Diagnostic Display mode, the PCA indicator shall flash ON (once, twice, or three times) to indicate the fault event number being displayed.			
8.39.12	The RP DETECT indicator shall illuminate when the conflict monitor has detected a Conflict, Red Fail, or Dual Indication fault as a result of recurring pulse field inputs.			
8.39.13	During normal operations, the 48 Channel Status indicators shall display all active signals (Red, Green, Yellow). In the fault mode, the Channel Status indicators shall display all signals active at the time of the fault for six seconds and then indicate the channels involved in the fault for two seconds.			
8.39.14	A momentary SPST Control switch labeled RESET on the monitor's front panel shall be provided to reset the monitor circuitry to a non-failed state. The switch shall be positioned on the front panel such that the switch can be operated while gripping the front panel handle. A reset command, issued from either the front panel button or External Reset input, shall be a one-time reset input to prevent the monitor from constant reset due to a switch failure or constant external input, and shall cause all LED indicators to illuminate for 300 milliseconds. The Reset button shall also provide control of the Diagnostic Display mode.			
8.39.15	The Serial Communications Connector shall provide EIA-232 serial communications. The connector shall be an AMP 9721A (or equivalent) 9 pin metal shell D subminiature type with female contacts, with the following pin assignments:			
		Pin / Function		
		1 — DCD*		
		2 — TX DATA		
		3 — RX DATA		
		4 — DTR (Data Terminal Ready)		
		5 — SIGNAL GROUND		
		6 — DSR		
		7 — DSR*		
		8 — CTS*		
		9 — NC		
		*Provide jumper options to allow the connection of Pin #4 to be made with Pin #7, and the connection of Pin #8 to be made with Pin #1.		
8.39.16	High speed sampling techniques shall be utilized to determine the true RMS value of the AC field inputs. Each AC input shall be sampled at least 32 times per cycle. The RMS voltage measurement shall be insensitive to phase, frequency, and waveform distortion.			
8.39.17	A microprocessor shall be used for all timing and control functions. Continuing operation of the microprocessor shall be verified by an independent monitor circuit. The independent monitor circuit shall force the Output Relay to the de-energized "fault" state, enable the Stop-Time output, and illuminate the DIAGNOSTIC indicator if a pulse is not			

	received from the microprocessor within 300 milliseconds. If the microprocessor should resume operation, the conflict monitor shall continue to operate. This monitoring circuit shall also be capable of being configured to latch in the fault state. The monitor shall require a power-up cycle to reset the circuit once it is triggered.	X	
8.39.18	A built-in, high-efficiency switching power supply shall be used to generate all required internal voltages. All supply voltages shall be regulated. Failure of the internal power supply to provide proper operating voltages shall force the output Relay to the de-energized "fault" state, enable the Stop-Time output, and illuminate the DIAGNOSTIC indicator. A user-replaceable, slow-blow fuse shall be provided for the AC Line input. The conflict monitor shall be operational over the AC Line voltage range of 75 VAC to 135 VAC.		
8.39.19	The EIA-232 port interface electronics shall be electrically-isolated from all monitor electronics except chassis ground.		
8.39.20	User-programmed configuration settings shall be selected using PCB mounted switches or jumpers. Designs which require a Personal Computer to program or verify the configuration parameters shall not be accepted. The user-programmed configuration settings that are transferred to memory shall be stored in a programmable read-only memory (PROM or EEPROM). Designs which use a battery to maintain configuration data shall not be accepted.		
8.39.21	All 120 VAC field terminal inputs shall provide an input impedance of 150,000 + 50,000 Ohms and be terminated with a discrete resistor having a power dissipation rating of 0.5 Watts or greater and a voltage rating exceeding 350 Volts.		
8.39.22	All electrical components used in the conflict monitor shall be rated by the component manufacturer to operate beyond the full unit operating temperature range of -29 Deg F to 165 Deg F.		
8.39.23	All printed circuit boards used in the monitor shall meet the requirements of the "California Traffic Signal Control Equipment Specifications", January 1989, plus the following requirements to enhance reliability:		
8.39.24	All plated-through holes and exposed circuit traces shall be plated with solder.		
8.39.25	Both sides of the printed circuit board shall be covered with a solder mask material.		
8.39.26	The circuit reference designation for all components and the polarity of all capacitors and diodes shall be clearly marked adjacent to the component. For all integrated circuit packages, Pin #1 shall be designated on both sides of all printed circuit boards.		
8.39.27	All electrical mating surfaces shall be gold plated.		
8.39.28	All printed circuit board assemblies shall be coated on both sides with a clear moisture-proof and fungus-proof sealant.		
8.39.29	All components and wire harnesses shall be mounted to the PCB using plated holes. "Piggy back" connections or jumper wires shall not be accepted.		
	IX. Model 2018 Conflict Monitor	**YES**	**NO**
9.1	The 2018 Conflict Monitor shall meet all requirements above of the Model 2010 Conflict Monitor.	X	
9.2	The 2018 Conflict Monitor shall be able to monitor 18 channels in addition to all the specifications of the 2010 above.		
	X. Model 2010 Conflict Monitor – IP Addressable Model	**YES**	**NO**
10.1	The 2010 Conflict Monitor – IP Addressable Model shall meet all requirements above of the Model 2010 Conflict Monitor in addition to being IP Addressable.	X	
	XI. Model 2018 Conflict Monitor – IP Addressable Model	**YES**	**NO**
11.1	The 2018 Conflict Monitor – IP Addressable Model shall meet all requirements of the Model 2010 Conflict Monitor in addition to being IP Addressable.	X	
11.2	The 2018 Conflict Monitor – IP Addressable Model shall be able to monitor 18 channels in addition to all the specifications of the 2010 above.		
	XII. Two Channel LCD Loop Detectors	**YES**	**NO**
12.1	The following specifications are being provided to potential bidders as guidelines which describe the minimum type and quality of equipment the City of Huntsville is seeking to purchase. The bidder must submit documentation with the bid listing any exceptions to	X	

	the specifications. It will be assumed that the bidder will fully comply with the minimum specifications if no exceptions are submitted. Failure to comply with this provision could be cause for rejection of the bid.	X	
12.2	City of Huntsville has isolated the following 2-Channel detector as fitting our needs.		
	XIII. EDI – Model Oracle 2E 2-Channel LCD Detector	**YES**	**NO**
13.1	Any company may submit any product they believe meets our critical needs for assessment. Specification sheets for each type detector from each vendor submitting a bid are required with all bids. Any products submitted for assessment may require that the vendor provide a sample(s) for further evaluation. City of Huntsville will be the final authority on determination of whether a product meets our needs and is considered a 0r-Equal product.	X	
13.2	At a minimum, Detectors must provide the following:		
13.2.1	LCD Display backlit to allow menu-driven programming for channel frequency and sensitivity settings		
13.2.2	Diagnostic capabilities to include: 1. Real-time loop frequency, 2. Loop inductance and -Δ/l%, 3. A bar graph indication of relative inductance change (which ensures proper selection of sensitivity level), 4. A record of accumulated loop failures, 5. A timer countdown of programmed timing functions.		
13.2.3	Compatible with Type 330, 332 and 336 traffic signal cabinets		
13.2.4	Compatible with Type 170, 2070, ASC/3 and Cobalt traffic signal controllers		
13.2.5	LCD Display of vehicle count per channel		
13.2.6	Failsafe output for each detector channel		
13.2.7	Eight levels of sensitivity per channel		
13.2.8	Four loop frequencies per channel		
13.2.9	Four address pins for detector addressing		
13.2.10	Loops are sequentially scanned to minimize crosstalk		
	XIV. Extender Bases for 332A and 336S Cabinets	**YES**	**NO**
14.1	Aluminum Extender Base for Cabinet This item shall be ordered as an option. For both cabinets, 332A and 336S, aluminum extender bases in heights of 8" and 12", shall be available, manufactured in the shape and dimensions that match the shape, dimensions and bolt-pattern of each Cabinet Assembly. The appropriate stainless steel hardware (nuts, bolts and washers) shall be included with each extender base to sufficiently mount the base to the Cabinet Assembly.	X	
	XV. Product Liability Insurance	**YES**	**NO**
15.1	Bidder must provide information regarding the Product Liability Insurance.	X	
15.2	Unit complies with all above stated specifications and/or requirements.		
15.3	If the bid unit varies from the above listed specifications, please list variances below.		

Table 7.1 – Model 332A Input File Assignment

Upper Input File (I)	**Slot**		1	2	3	4	5	6	7	8	9	10	11	12	13	14
	Type		Det	Det	Det	Det	Det	Det	Det	Det	Det			DC	DC	DC
	Channel 1	**C1 Pin**	56	39	58	41	63	65	47				80	67	68	81
		Function	Ph 1	Ph 2	Ph 3	Ph 4	Ph 2	Ph 4	Ø2C				ADV	Ph 2 Ped	Ph 6 Ped	Flash
		Field Term	TB-2 1,2	TB-2 5,6	TB-2 9,10	TB-4 1,2	TB-4 5,6	TB-4 9,10	TB-6 1,2					TB-8 4,6	TB-8 7,9	NC
	Channel 2	**C1 Pin**	55	40	57	42	64	66	48					69	70	82
		Function	Ph 5	Ph 6	Ph 7	Ph 8	Ph 6	Ph 8	Ø6C				MCE	Ph 4 Ped	Ph 8 Ped	Stop Time
		Field Term	TB-2 3,4	TB-2 7,8	TB-2 11,12	TB-4 3,4	TB-4 7,8	TB-4 11,12	TB-6 3,4					TB-8 5,6	TB-8 8,9	NC
Lower Input File (J)	**Slot**		1	2	3	4	5	6	7	8	9	10	11	12	13	14
	Type		Det	Det	Det	Det	Det	Det	Det	Det	Det			DC	DC	DC
	Channel 1	**C1 Pin**	60	43	62	45	76	78	49				54	71	72	51
		Function	Ph 1	Ph 2	Ph 3	Ph 4	Ph 2	Ph 4	Ø4C					EVA	EVB	R/R 1
		Field Term	TB-3 1,2	TB-3 5,6	TB-3 9,10	TB-5 1,2	TB-5 5,6	TB-5 9,10	TB-7 1,2					TB-9 4,6	TB-9 7,9	TB-9 10,12
	Channel 2	**C1 Pin**	59	44	61	46	77	79	50				75	73	74	52
		Function	Ph 5	Ph 6	Ph 7	Ph 8	Ph 6	Ph 8	8 Call					EVC	EVD	R/R 2
		Field Term	TB-3 3,4	TB-3 7,8	TB-3 11,12	TB-5 3,4	TB-5 7,8	TB-5 11,12	TB-7 3,4					TB-9 5,6	TB-9 8,9	TB-9 11,12

Table 7.2 – Model 336A Input File Assignment

Upper Input File (I)	Slot		1	2	3	4	5	6	7	8	9	10	11	12	13	14
	Type		Det	Det	Det	Det	Det	Det	Det	Det	Det	TBA	TBA	DC	DC	DC
	Channel 1	C1 Pin	56	39	58	41	60	43	62	45	51	71	72	67	68	81
		Function	Ph 1	Ph 2	Ph 3	Ph 4	Ph 1	Ph 2	Ph 3	Ph 4	R/R 1	EVA	EVB	Ph 2 Ped	Ph 6 Ped	Flash
		Field Term	TB-4 1,2	TB-4 3,4	TB-4 5,6	TB-4 7,8	TB-4 9,10	TB-4 11,12	TB-4 13,14	TB-6 1,2	TB-6 3,4	TB-6 5,6	TB-6 7,8	TB-6 9,10	TB-6 11,12	NC
	Channel 2	C1 Pin	55	40	57	42	59	44	61	46	52	73	74	69	70	82
		Function	Ph 5	Ph 6	Ph 7	Ph 8	Ph 5	Ph 6	Ph 7	Ph 8	R/R 2	EVC	EVD	Ph 4 Ped	Ph 8 Ped	Stop Time
		Field Term	TB-5 1,2	TB-5 3,4	TB-5 5,6	TB-5 7,8	TB-5 9,10	TB-5 11,12	TB-5 13,14	TB-7 1,2	TB-7 3,4	TB-7 5,6	TB-7 7,8	TB-7 9,10	TB-7 11,12	NC

IN 336 CABINETS ASSIGN	SLOT 1	SLOT 2	SLOT 3	SLOT 4	SLOTS 5-9	SLOTS 10-14
I FILE	Q1	Q2	Q3	Q4	Do not tie any	Leave the same
J FILE Q5 Q6 Q7 Q8			inputs			

APPENDIX C
BIDDER INFORMATION & ACKNOWLEDGEMENTS

1. BIDDER INFORMATION

Business Organization

Name of Proposer (exactly as it would appear on an agreement):

Utilicom Supply Associates LLC

Doing-Business-As Name of Proposer:

N/A

Principal Office Address:

Danny Mulcay - President

Ed Cooper - Vice President

Telephone Number: 404-298-7700 GA Office 205-995-2855 AL Office

Fax Number: 404-298-7700 GA Office

Form of Business Entity [check one ("X")]

Corporation	____
Partnership	X
Individual	____
Joint Venture	____
Other (describe):	____ _____

Corporation Statement

If a corporation, answer the following:

Date of incorporation: _____

Location of incorporation: _____

The corporation is held: Publicly ___ Privately ___

Names and titles of corporate officers:

_____

_____

_____

Partnership Statement

If a partnership, answer the following:

Date of organization: 1/3/2007
Location of organization: Norcross, GA. 30093
The partnership is: General ___ Limited X

Name, address, and ownership share of each general partner owning more than five percent (5%) of the partnership:

Danny Mulcay - President - 50%

ED Cooper - Vice President - 50%

Joint Venture Statement

If a Joint Venture, answer the following:

Date of organization: _____
Location of organization: _____
JV Agreement recorded? Yes ___ No ___

Name, address of each Joint Venturer and percent of ownership of each:

2. CITY OF HUNTSVILLE EMPLOYEE, MEMBER OF HOUSEHOLD OR BUSINESS ASSOCIATE

Code of Ala. 1975§36-25-11 requires that contracts entered into with a public official, a public employee, a member of the household of the public official or public employee, or a business with which a public official or public employee associates be filed with the Alabama Ethic Commission. If you are awarded the contract, and if you are a City employee, or if a member of your household is a City employee or public official, or if your business associates with a City employee or public official, you must comply with the provisions of Code al Ala. 1975§36-25-11.

City Employee Yes _____ No X
If "Yes," Department _____

Member of Household City Employee Yes _____ No X
If "Yes," Name (s) _____

Anyone associated with your company a City Employee Yes _____ No X
If "Yes," Name (s) _____

3. CONTRACTOR E-VERIFY – NOTICE

The Beason-Hammon Alabama Taxpayer and Citizen Protection Act, Act No. 2011-535, Code of Alabama (1975) § 31-13-1 through 31-13-30 (also known as and hereinafter referred to as " the Alabama Immigration Act") as amended by Act No. 2012-491 on May 16, 2012 is applicable to all competitively bid contracts with the City of Huntsville. As a condition for the award of a contract and as a term and condition of the contract with the City of Huntsville, in

accordance with § 31-13-9 (a) of the Alabama Immigration Act, as amended, any business entity or employer that employs one or more employees shall not knowingly employ, hire for employment, or continue to employ an unauthorized alien within the State of Alabama.

During the performance of the contract, such business entity or employer shall participate in the E-Verify program and shall verify every employee that is required to be verified according to the applicable federal rules and regulations. The business entity or employer shall assure that these requirements are included in each subcontract in accordance with §31-13-9(c). Failure to comply with these requirements may result in breach of contract, termination of the contract or subcontract, and possibly suspension or revocation of business licenses and permits in accordance with §31-13-9 (e) (1) & (2).

Code of Alabama (1975) § 31-13-9 (k) requires that the following clause be included in all City of Huntsville contracts that have been competitively bid and is hereby made a part of this contract:

"By signing this contract the contracting parties affirm, for the duration of the agreement, that they will not violate federal immigration law or knowingly employ, hire for employment, or continue to employ an unauthorized alien within the State of Alabama. Furthermore, a contracting party found to be in violation of this provision shall be deemed in breach of the agreement and shall be responsible for all damages resulting therefrom."

4. ACKNOWLEDGEMENTS

I hereby certify that I have read and understand the City of Huntsville's General Terms and Conditions. I hereby certify that I agree to comply with all of the General Terms and Conditions of this IFB. I also understand that the General Terms & Conditions are standard and that any contradicting requirements of the IFB supercede.

I affirm that I have not been in any agreement or collusion among Proposers or prospective Proposers in restraint of freedom of competition.

Upon award of this bid, I will not substitute any item on this bid under any circumstances.

By signing this submittal, the Bidder represents and agrees that it is not currently engaged in, nor will it engage in, any boycott of a person or entity based in or doing business with a jurisdiction with which the State of Alabama can enjoy open trade.

I affirm that I understand and agrees that any form of electronic signature, including but not limited to signatures via facsimile, scanning, or electronic mail, may substitute for the original signature and shall have the same legal effect as the original signature.

Tammy Coggins
Signature of Proposer

Tammy Coggins
Print or Type Name of Proposer

February 9, 2026
Date

Utilicom Supply Associates LLC
Legal Name of Firm

4400 Shackleford Road
Mailing Address

Norcross GA 30093
City State Zip Code

205-995-2855 AL 404-298-8810 GA
Phone Fax

tcoggins@utilicomsupply.com
Email Address rgarrison@utilicomsupply.com

www.utilicomsupply.com
Website Address

APPENDIX D
REPORT OF OWNERSHIP FORM

A. General Information. Please provide the following information:

- Legal name(s) (include "doing business as", if applicable): Utilicom Supply Associates LLC
- City of Huntsville current taxpayer identification number (if available): _____
  (Please note that if this number has been assigned by the City and if you are renewing your business license, the number should be listed on the renewal form.)

B. Type of Ownership. Please complete the un-shaded portions of the following chart by checking the appropriate box below and entering the appropriate Entity I.D. Number, if applicable (for an explanation of what an entity number is, please see paragraph C below):

Type of Ownership (***check appropriate box***)	**Entity I. D. Number & Applicable State**
☐ Individual or Sole Proprietorship	**Not Applicable**
☐ General Partnership	**Not Applicable**
☑ Limited Partnership (LP)	Number & State: 20-8203587 Georgia
☐ Limited Liability Partnership (LLP)	Number & State:
☐ Limited Liability Company (LLC) (Single Member)	Number & State:
☐ LLC (Multi-Member)	Number & State:
☐ Corporation	Number & State:
☐ Other, please explain:	Number & State (if a filing entity under state law):

C. Entity I.D. Numbers. If an Entity I.D. Number is required and if the business entity is registered in this state, the number is available through the website of Alabama's Secretary of State at: www.sos.state.al.us/, under "Government Records". If a foreign entity is not registered in this state please provide the Entity I.D. number (or other similar number by whatever named called) assigned by the state of formation along with the name of the state.

D. Formation Documents. Please note that, with regard to entities, the entity's formation documents, including articles or certificates of incorporation, organization, or other applicable formation documents, as recorded in the probate records of the applicable county and state of formation, ***are not required unless:*** (1) specifically requested by the City, or (2) an Entity I.D. Number is required and one has not been assigned or provided.

Please date and sign this form in the space provided below and either write legibly or type your name under your signature. If you are signing on behalf of an entity please insert your title as well.

Signature: Tammy Coggins Title (if applicable): Chief Estimator

Type or legibly write name: Tammy Coggins Date: February 9, 2026

Alabama Secretary of State

UTILICOM SUPPLY ASSOCIATES, LLC

Entity ID Number	000-508-725
Entity Type	Foreign Limited Liability Company
Principal Address	4400 Shackleford Road Norcross, GA 30093
Principal Mailing Address	4400 Shackleford Road Norcross, GA 30093
Status	Exists
Place of Formation	Georgia
Formation Date	01/03/2007
Qualify Date	02/08/2018
Registered Agent Name	Delaware Business Filings Incorporat
Registered Office Street Address	2 North Jackson St., Suite 605 Montgomery, AL 36104
Registered Office Mailing Address	2 North Jackson St., Suite 605 Montgomery, AL 36104
Nature of Business	
Doing Business in AL Since	02/05/2018
Annual Reports	
Report Year	2021 2022 2023
Scanned Documents	
Document Date / Type / Pages	02/08/2018 Certificate of Formation 2 pgs.

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