



EXCEPTIONS ON BID #103-2012

ITEM 18      SIZE OF CABINET = 14" X 11" X 11"  
ITEM 98      5000' MINIMUM ORDER RELEASE  
ITEM 99      5000' MINIMUM ORDER RELEASE  
ITEM 131     1000 PC. MINIMUM ORDER RELEASE  
ITEM 132     1000 PC. MINIMUM ORDER RELEASE

**Traffic Parts, Inc.**  
**[www.trafficparts.com](http://www.trafficparts.com)**  
**P.O. BOX 837**  
**Spring, TX 77383**

INVITATION TO BID

Bid Invitation Number: #130-2012

Date of Issue: 08/27/2012

Sealed bids will be received in the office of the Division of Central Purchasing, 200 East Main Street, Lexington, Kentucky, until **2:00 PM**, prevailing local time on 09/10/2012. Bids must be received by the above-mentioned date and time. Mailed bids should be sent to:

Division of Central Purchasing  
200 East Main Street, Rm 338  
Lexington, KY 40507, (859) 258-3320

The Lexington-Fayette Urban County Government assumes no responsibility for bids that are not addressed and delivered as indicated above. Bids that are not delivered to the Division of Central Purchasing by the stated time and date will be rejected.

All bids must have the company name and address, bid invitation number, and the commodity/service on the outside of the envelope.

Bids are to include all shipping costs to the point of delivery located at: See Specifications

Bid Security Required:  Yes  No      Performance Bond Required:  Yes  No  
*Cashier Check, Certified Check, Bid Bond (Personal checks and company checks will not be acceptable).*

|                    |                                    |
|--------------------|------------------------------------|
| QTY                | Commodity/Service                  |
| PCT                | Traffic Signal & Control Equipment |
| See specifications |                                    |

|                                                                                                                                                                                                                                                                                                                                  |                                                                                                                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| <p style="text-align: center;"><b>Check One:</b></p> <p><input type="checkbox"/> Bid Specifications Met</p> <p><input checked="" type="checkbox"/> Exceptions to Bid Specifications. <i>Exceptions shall be itemized and attached to bid proposal submitted.</i></p>                                                             | <p style="text-align: center;"><b>Proposed Delivery:</b></p> <p><u>30-60</u> days after acceptance of bid.</p> |
| <p style="text-align: center;"><b>Procurement Card Usage</b></p> <p><input checked="" type="checkbox"/> Yes    The Lexington-Fayette Urban County Government will be using Procurement Cards to purchase goods and services and also to make payments. Will you accept Procurement Cards?</p> <p><input type="checkbox"/> No</p> |                                                                                                                |

Submitted by: TRAFFIC PARTS, INC.

Firm P.O. BOX 837

Address SPRING, TX 77383

City, State & Zip

**Bid must be signed:**  
*(original signature)*

Joni Fexer - Regional Sales Mgr.  
Signature of Authorized Company Representative - Title

JONI FEXER  
Representative's Name (Typed or printed)

800 345-6329      281 292-0088  
Area Code - Phone - Extension      Fax #

joni@trafficparts.com  
E-Mail Address

*The Affidavit in this bid must be completed before your firm can be considered for award of this contract.*

AFFIDAVIT

Comes the Affiant, Joni Fexer, and after being first duly sworn under penalty of perjury as follows:

1. His/her name is JONI FEXER and he/she is the individual submitting the bid or is the authorized representative of TRAFALC PARTS, INC.

the entity submitting the bid (hereinafter referred to as "Bidder").

2. Bidder will pay all taxes and fees, which are owed to the Lexington-Fayette Urban County Government at the time the bid is submitted, prior to award of the contract and will maintain a "current" status in regard to those taxes and fees during the life of the contract.

3. Bidder will obtain a Lexington-Fayette Urban County Government business license, if applicable, prior to award of the contract.

4. Bidder has authorized the Division of Central Purchasing to verify the above-mentioned information with the Division of Revenue and to disclose to the Urban County Council that taxes and/or fees are delinquent or that a business license has not been obtained.

5. Bidder has not knowingly violated any provision of the campaign finance laws of the Commonwealth of Kentucky within the past five (5) years and the award of a contract to the Bidder will not violate any provision of the campaign finance laws of the Commonwealth.

6. Bidder has not knowingly violated any provision of Chapter 25 of the Lexington-Fayette Urban County Government Code of Ordinances, known as "Ethics Act."

7. Bidder acknowledges that "knowingly" for purposes of this Affidavit means, with respect to conduct or to circumstances described by a statute or ordinance defining an offense, that a person is aware or should have been aware that his conduct is of that nature or that the circumstance exists.

Further, Affiant sayeth naught.

Joni Fexer

STATE OF

TEXAS

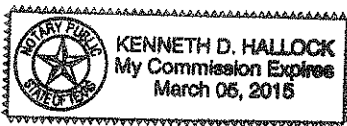
COUNTY OF

MONTGOMERY

The foregoing instrument was subscribed, sworn to and acknowledged before me

by JONI FEXER on this the 7<sup>th</sup> day of SEPT, 2012.

My Commission expires: \_\_\_\_\_



Kenneth D. Hallock  
NOTARY PUBLIC, STATE AT LARGE

Please refer to Section II. Bid Conditions, Item "U" prior to completing this form.

TAX EXEMPT - OUT OF STATE ENTITY

# I. GREEN PROCUREMENT

## **A. ENERGY**

The Lexington-Fayette Urban County Government is committed to protecting our environment and being fiscally responsible to our citizens.

The Lexington-Fayette Urban County Government mandates the use of Energy Star compliant products if they are available in the marketplace (go to [www.Energystar.gov](http://www.Energystar.gov)): If these products are available, but not submitted in your pricing, your bid will be rejected as non-compliant.

ENERGY STAR is a government program that offers businesses and consumers energy-efficient solutions, making it easy to save money while protecting the environment for future generations.

### Key Benefits

- These products use 25 to 50% less energy
- Reduced energy costs without compromising quality or performance
- Reduced air pollution because fewer fossil fuels are burned
- Significant return on investment
- Extended product life and decreased maintenance

## **B. GREEN SEAL CERTIFIED PRODUCTS**

The Lexington-Fayette Urban County Government is also committed to using other environmentally friendly products that do not negatively impact our environment. Green Seal is a non-profit organization devoted to environmental standard setting, product certification, and public education.

Go to [www.Greenseal.org](http://www.Greenseal.org) to find available certified products. These products will have a reduced impact on the environment and on human health. The products to be used must be pre-approved by the LFUCG prior to commencement of any work in any LFUCG facility. If a Green Seal product is not available, the LFUCG must provide a signed waiver to use an alternate product. Please provide information on the Green Seal products being used with your bid response.

## **C. GREEN COMMUNITY**

The Lexington-Fayette Urban County Government (LFUCG) serves as a principal, along with the University of Kentucky and Fayette County Public Schools, in the Bluegrass Partnership for a Green Community. The Purchasing Team component of the Partnership collaborates on economy of scale purchasing that promotes and enhances environmental initiatives. Specifically, when applicable, each principal is interested in obtaining best value products and/or services which promote environment initiatives via solicitations and awards from the other principals.

If your company is the successful bidder on this Invitation For Bid, do you agree to extend the same product/service pricing to the other principals of the Bluegrass Partnership for a Green Community (i.e. University of Kentucky and Fayette County Schools) if requested?

Yes  No

## II. Bid Conditions

- A. No bid may be withdrawn for a period of sixty (60) days after the date and time set for opening.
- B. No bid may be altered after the date and time set for opening. In the case of obvious errors, the Division of Central Purchasing may permit the withdrawal of a bid. The decision as to whether a bid may be withdrawn shall be that of the Division of Central Purchasing.
- C. Acceptance of this proposal shall be enactment of an Ordinance by the Urban County Council.
- D. The bidder agrees that the Urban County Government reserves the right to reject any and all bids for either fiscal or technical reasons, and to award each part of the bid separately or all parts to one vendor.
- E. Minor exceptions may not eliminate the bidder. The decision as to whether any exception is minor shall be entirely that of the head of the requisitioning Department or Division and the Director of the Division of Central Purchasing. The Urban County Government may waive technicalities and informalities where such waiver would best serve the interests of the Urban County Government.
- F. Manufacturer's catalogue numbers, trade names, etc., where shown herein are for descriptive purposes and are to guide the bidder in interpreting the standard of quality, design, and performance desired, and shall not be construed to exclude proposals based on furnishing other types of materials and/or services. However, any substitution or departure proposed by the bidder must be clearly noted and described; otherwise, it will be assumed that the bidder intends to supply items specifically mentioned in this Invitation for Bids.
- G. The Urban County Government may require demonstrations of the materials proposed herein prior to acceptance of this proposal.
- H. Bids must be submitted on this form and must be signed by the bidder or his authorized representative. Unsigned bids will not be considered.
- I. Bids must be submitted prior to the date and time indicated for opening. Bids submitted after this time will not be considered.
- J. All bids mailed must be marked on the face of the envelope:

**"Bid on #130-2012 Traffic Signal & Control Equipment"**

and addressed to:      Division of Central Purchasing  
                                         200 East Main Street, Room 338  
                                         Lexington, Kentucky 40507

**The Lexington-Fayette Urban County Government assumes no responsibility for bids that are not addressed and delivered as indicated above. Bids that are not delivered to the Division of Central Purchasing by the stated time and date will be rejected.**

- K. Bidder is requested to show both unit prices and lot prices. In the event of error, the unit price shall prevail.
- L. A certified check or Bid Bond in the amount of XX percent of the bid price must be attached hereto. This check must be made payable to the Lexington-Fayette Urban County Government, and will be returned when the material and/or services specified herein have been delivered in accordance with specifications. In the event of failure to perform within the time period set forth

in this bid, it is agreed the certified check may be cashed and the funds retained by the Lexington-Fayette Urban County Government as liquidated damages. Checks of unsuccessful bidders will be returned when the bid has been awarded.

- M. The delivery dates specified by bidder may be a factor in the determination of the successful bidder.
- N. Tabulations of bids received may be mailed to bidders. Bidders requesting tabulations must enclose a stamped, self-addressed envelope with the bid.
- O. The Lexington-Fayette Urban County Government is exempt from Kentucky Sales Tax and Federal Excise Tax on materials purchased from this bid invitation. Materials purchased by the bidder for construction projects are not tax exempt and are the sole responsibility of the bidder.
- P. All material furnished hereunder must be in full compliance with OSHA regulations.
- Q. If more than one bid is offered by one party, or by any person or persons representing a party, all such bids shall be rejected.
- R. Signature on the face of this bid by the Bidder or his authorized representative shall be construed as acceptance of and compliance with all terms and conditions contained herein.
- S. The Entity (regardless of whether construction contractor, non-construction contractor or supplier) agrees to provide equal opportunity in employment for all qualified persons, to prohibit discrimination in employment because of race, color, creed, national origin, sex or age, and to promote equal employment through a positive, continuing program from itself and each of its sub-contracting agents. This program of equal employment opportunity shall apply to every aspect of its employment policies and practices.
- T. The Kentucky Equal Employment Opportunity Act of 1978 (KRS 45.560-45.640) requires that any county, city, town, school district, water district, hospital district, or other political subdivision of the state shall include in directly or indirectly publicly funded contracts for supplies, materials, services, or equipment hereinafter entered into the following provisions:

During the performance of this contract, the contractor agrees as follows:

- (1) *The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, age or national origin;*
- (2) *The contractor will state in all solicitations or advertisements for employees placed by or on behalf of the contractors that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, age or national origin;*
- (3) *The contractor will post notices in conspicuous places, available to employees and applicants for employment, setting forth the provisions of the non-discrimination clauses required by this section; and*
- (4) *The contractor will send a notice to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding advising the labor union or workers' representative of the contractor's commitments under the nondiscrimination clauses.*

The Act further provides:

KRS 45.610. Hiring minorities - Information required

- (1) *For the length of the contract, each contractor shall hire minorities from other sources*

*within the drawing area, should the union with which he has collective bargaining agreements be unwilling to supply sufficient minorities to satisfy the agreed upon goals and timetable.*

- (2) *Each contractor shall, for the length of the contract, furnish such information as required by KRS 45.560 to KRS 45.640 and by such rules, regulations and orders issued pursuant thereto and will permit access to all books and records pertaining to his employment practices and work sites by the contracting agency and the department for purposes of investigation to ascertain compliance with KRS 45.560 to 45.640 and such rules, regulations and orders issued pursuant thereto.*

KRS 45.620. Action against contractor - Hiring of minority contractor or subcontractor

- (1) *If any contractor is found by the department to have engaged in an unlawful practice under this chapter during the course of performing under a contract or subcontract covered under KRS 45.560 to 45.640, the department shall so certify to the contracting agency and such certification shall be binding upon the contracting agency unless it is reversed in the course of judicial review.*
- (2) *If the contractor is found to have committed an unlawful practice under KRS 45.560 to 45.640, the contracting agency may cancel or terminate the contract, conditioned upon a program for future compliance approved by the contracting agency and the department. The contracting agency may declare such a contractor ineligible to bid on further contracts with that agency until such time as the contractor complies in full with the requirements of KRS 45.560 to 45.640.*
- (3) *The equal employment provisions of KRS 45.560 to 45.640 may be met in part by a contractor by subcontracting to a minority contractor or subcontractor. For the provisions of KRS 45.560 to 45.640, a minority contractor or subcontractor shall mean a business that is owned and controlled by one or more persons disadvantaged by racial or ethnic circumstances.*

KRS 45.630 Termination of existing employee not required, when

*Any provision of KRS 45.560 to 45.640 notwithstanding, no contractor shall be required to terminate an existing employee upon proof that that employee was employed prior to the date of the contract.*

KRS 45.640 Minimum skills

*Nothing in KRS 45.560 to 45.640 shall require a contractor to hire anyone who fails to demonstrate the minimum skills required to perform a particular job.*

It is recommended that all of the provisions above quoted to be included as special conditions in each contract. In the case of a contract exceeding \$250,000, the contractor is required to furnish evidence that his work-force in Kentucky is representative of the available work-force in the area from which he draws employees, or to supply an Affirmative Action plan which will achieve such representation during the life of the contract.

- U. Any party, firm or individual submitting a proposal pursuant to this invitation must be in compliance with the requirements of the Lexington-Fayette Urban County Government regarding taxes and fees before they can be considered for award of this invitation and must maintain a "current" status with regard to those taxes and fees throughout the term of the contract. The contractor must be in compliance with Chapter 13 from the Code of Ordinances



of the Lexington-Fayette Urban County Government. The contractor must be in compliance with Ordinance 35-2000 pursuant to contractor registration with the Division of Building Inspection. If applicable, said business must have a Fayette County business license.

Pursuant to KRS 45A.343 and KRS 45A.345, the contractor shall

- (1) *Reveal any final determination of a violation by the contractor within the previous five year period pursuant to KRS Chapters 136 (corporation and utility taxes), 139 (sales and use taxes), 141 (income taxes), 337 (wages and hours), 338 (occupational safety and health of employees), 341 (unemployment and compensation) and 342 (labor and human rights) that apply to the contractor; and*
- (2) *Be in continuous compliance with the above-mentioned KRS provisions that apply to the contractor for the duration of the contract.*

A contractor's failure to reveal the above or to comply with such provisions for the duration of the contract shall be grounds for cancellation of the contract and disqualification of the contractor from eligibility for future contracts for a period of two (2) years.

- V. Vendors who respond to this invitation have the right to file a notice of contention associated with the bid process or to file a notice of appeal of the recommendation made by the Director of Central Purchasing resulting from this invitation.

Notice of contention with the bid process must be filed within 3 business days of the bid/proposal opening by (1) sending a written notice, including sufficient documentation to support contention, to the Director of the Division of Central Purchasing or (2) submitting a written request for a meeting with the Director of Central Purchasing to explain his/her contention with the bid process. After consulting with the Commissioner of Finance the Chief Administrative Officer and reviewing the documentation and/or hearing the vendor, the Director of Central Purchasing shall promptly respond in writing findings as to the compliance with bid processes. If, based on this review, a bid process irregularity is deemed to have occurred the Director of Central Purchasing will consult with the Commissioner of Finance, the Chief Administrative Officer and the Department of Law as to the appropriate remedy.

Notice of appeal of a bid recommendation must be filed within 3 business days of the bid recommendation by (1) sending a written notice, including sufficient documentation to support appeal, to the Director, Division of Central Purchasing or (2) submitting a written request for a meeting with the Director of Central Purchasing to explain his appeal. After reviewing the documentation and/or hearing the vendor and consulting with the Commissioner of Finance and the Chief Administrative Officer, the Director of Central Purchasing shall in writing, affirm or withdraw the recommendation.

### III. Procurement Contract Bid Conditions

- A. The terms of this agreement shall be for 1 year from the date of acceptance of this contract by the Lexington-Fayette Urban County Government. This agreement may be extended for an additional 1 year renewal upon the written agreement of the bidder and the Lexington-Fayette Urban County Government. Said agreement must be in writing and must be executed prior to the expiration of the current agreement.
- B. Price Changes (**Space Checked Applies**)
- (XXX) 1. Prices quoted in response to the Invitation shall be firm prices for the first 90 days of the Procurement Contract. After 90 days, prices may be subject to revision and such changes shall be based on general industry changes. Revision may be either increases or decreases and may be requested by either party. There will be no more than one (1) price adjustment per quarter. Requests for price changes shall be received in writing at least twenty (20) days prior to the effective date and are subject to written acceptance before becoming effective. Proof of the validity of a request for revision shall be responsibility of the requesting party. The Lexington-Fayette Urban County Government shall receive the benefit of any decline that the seller shall offer his other accounts.
- () 2. No provision for price change is made herein. Prices are to be firm for the term of this contract.
- () 3. Procurement Level Contract
- C. If any contract item is not available from the vendor, the Lexington-Fayette Urban County Government, at its option, may permit the item to be back-ordered or may procure the item on the open market.
- D. All invoices must bear reference to the Lexington-Fayette Urban County Government Purchasing document numbers which are being billed.
- E. This contract may be canceled by either party thirty (30) days after delivery by canceling party of written notice of intent to cancel to the other contracting party.
- F. This contract may be canceled by the Lexington-Fayette Urban County Government if it is determined that the Bidder has failed to perform under the terms of this agreement, such cancellation to be effective upon receipt of written notice of cancellation by the Bidder.
- G. No substitutions for articles specified herein may be made without prior approval of the Division of Central Purchasing.

EQUAL OPPORTUNITY AGREEMENT

The Law

Title VII of the Civil Rights Act of 1964 (amended 1972) states that it is unlawful for an employer to discriminate in employment because of race, color, religion, sex, age (40-70 years) or national origin.

Executive Order No. 11246 on Nondiscrimination under Federal contract prohibits employment discrimination by contractor and sub-contractor doing business with the Federal Government or recipients of Federal funds. This order was later amended by Executive Order No. 11375 to prohibit discrimination on the basis of sex.

Section 503 of the Rehabilitation Act of 1973 states:

*The Contractor will not discriminate against any employee or applicant for employment because of physical or mental handicap.*

Section 2012 of the Vietnam Era Veterans Readjustment Act of 1973 requires Affirmative Action on behalf of disabled veterans and veterans of the Vietnam Era by contractors having Federal contracts.

Section 206(A) of Executive Order 12086, Consolidation of Contract Compliance Functions for Equal Employment Opportunity, states:

*The Secretary of Labor may investigate the employment practices of any Government contractor or sub-contractor to determine whether or not the contractual provisions specified in Section 202 of this order have been violated.*

\*\*\*\*\*

The Lexington-Fayette Urban County Government practices Equal Opportunity in recruiting, hiring and promoting. It is the Government's intent to affirmatively provide employment opportunities for those individuals who have previously not been allowed to enter into the mainstream of society. Because of its importance to the local Government, this policy carries the full endorsement of the Mayor, Commissioners, Directors and all supervisory personnel. In following this commitment to Equal Employment Opportunity and because the Government is the benefactor of the Federal funds, it is both against the Urban County Government policy and illegal for the Government to let contracts to companies which knowingly or unknowingly practice discrimination in their employment practices. Violation of the above mentioned ordinances may cause a contract to be canceled and the contractors may be declared ineligible for future consideration.

Please sign this statement in the appropriate space acknowledging that you have read and understand the provisions contained herein. Return this document as part of your application packet.

Bidders

*I/We agree to comply with the Civil Rights Laws listed above that govern employment rights of minorities, women, Vietnam veterans, handicapped and aged persons.*

*Joni [Signature]*  
Signature

*TRAFFIC PARTS, INC.*  
Name of Business

## TRAFFIC SIGNAL AND CONTROL EQUIPMENT

We propose to deliver to the Lexington-Fayette Urban County Government, Division of Traffic Engineering loading dock at 1515 Old Frankfort Pike, Lexington, Kentucky, 40504, the following traffic signal and control equipment conforming to all specifications used by the Commonwealth of Kentucky, Division of Traffic, for like purpose within 30 - 60 days of receipt of purchase authorization:

Pricing for the following shall be good for 365 days from acceptance of bid.

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### **Special Requirements:**

- All integrated circuits (IC's) used in or on modules in the 170 controller shall be mounted in Integrated Circuit Sockets.
  - All vehicle signals shall have a 5 position terminal strip mounted in the yellow section for signal and field wire connections.  
Note: This means there will be a total of 2 terminal strips in a 5-section signal.
  - Each pedestrian signal shall have a terminal strip large enough to accommodate signal and field wire connections.
  - All LED's in traffic Signals and Pedestrian Signals outlined in contract shall comply with Kentucky Department of Transportation specifications (Attached).
  - All pedestrian signal housings, pedestal poles, pedestal bases, pedestrian signal upper/lower mounting arm assemblies, pedestrian push buttons, pedestrian push button boxes and signal entrance heads shall be powder coated black, equivalent to Pelco Products Inc. #P33 specifications.
- 

## TRAFFIC SIGNAL CONTROLLER EQUIPMENT

### **1. 2070L Complete with everything - Base Mount Cabinet #332:**

Note: 2070L traffic signal controller equipment shall meet specification/requirements outlined by Econolite Control Products Inc. in their user's guide (Oasis Controller user's guide – OASIS 170ATC/2070 – Version 3.00.94, 16 August 2005 – OPEXEC Software Version 3.00.94) The bidder shall further certify that the equipment which he proposes to furnish is not equipment which has been rejected by any other governmental agency.)

2070L controller, completely operational with 1B CPU Module, 2A C1 Field I/O Module, 3B LCD Display Module, 4A Power Supply, 7A Async Serial Communications Module, Econolite Oasis Software.

Must be able to operate with the Lexington, Kentucky communication system.

Traffic control cabinet # 332 or equivalent, natural unpainted aluminum, and 170 terminal facility completely wired and complete with:

- 01) Rack
- 02) Input file
- 03) Output file
- 04) Power supply PDA2 (SHA 1210 to be mounted external to power supply)
- 05) Relay panel
- 06) Relays
- 07) Surge protection
- 08) Main circuit breakers, Auxiliary circuit breakers and Alternate circuit breakers
- 09) Terminal blocks for signal field connections, loops and push buttons.
- 10) Fan
- 11) Light - Mounted in Rear
- 12) Light - Mounted in Front
- 13) GFI outlet
- 14) Programmable flash (red or yellow) for each phase
- 15) Locks and keys Corbin #2
- 16) Lifting eyes shall be removable
- 17) Interchangeability of isolation relay and logic relay shall not be possible.
- 18) Manual pushbutton with 6 foot cord, operated from an auto/manual switch located in the police panel.
- 19) Load switches
- 20) Enhanced conflict monitor, EDI Model 2010 ECL.
- 21) 2070L controller, completely operational with 1B CPU Module, 2A C1 Field I/O Module, 3B LCD Display Module, 4A Power Supply, 7A Async Serial Communications Module, Econolite Oasis Software.
- 22) \*Surge protection for all input/output circuits (See Note 1 or 2)
- 23) \*Plug-in surge protection for the phone line (See Note 1 or 2)
- 24) \*Surge protection for each loop circuit (See Note 1 or 2)
- 25) Additional ground connection
- 26) 242 DC Isolators for inputs
- 27) (8) 222-C Vehicle Detector Amplifiers
- 28) (1) 2070-6D Fiber-Optic Module (Fiber Modem for 2070L Traffic Signal Controller)

**Note 1 (#332 Traffic Control Cabinet or Equivalent):**

**Surge Protection Panel for 170 Controller Cabinet, 8-Phase**

- Panel shall be predrilled to fit neatly into Cabinet.
- Panel shall be prewired with Male and Female (MS type), Quick Disconnect Connectors with Male connector physically mounted to panel.
- Female connector shall have a 6-foot wire soldered to each pin used in the connector.
- Each wire shall be labeled in respect to the connector.
- Each panel shall come with a schematic showing where each wire is terminated.
- The following surge protection shall be prewired and mounted to panel:
  - (36) Load Switch Outputs
  - (8) Pedestrian Push Buttons
  - (1) Communication Unit (equivalent to EDCO PCB642C-008B with Base and C2 Harness for Comm. Phone Lines (not wired through connectors).
  - (1) Additional Ground
- The following surge protection shall be provided, but not wired to panel:
  - (16) Vehicle Detector Inputs (equivalent to EDCO, SRA-6LCB).
  - (Surge protection panel to be equivalent to Path Master ZPAN-7002)

**Note 2 (#332 Traffic Control Cabinet or Equivalent):**

**Surge Protection Panel for 170 Controller Cabinet, with Lane Use Control**

- Panel shall be predrilled to fit neatly into Cabinet.
- Panel shall be prewired with Male and Female (MS type), Quick Disconnect Connectors with Male connector physically mounted to panel.
- Female connector shall have a 6-foot wire soldered to each pin used in the connector.
- Each wire shall be labeled in respect to the connector.
- Each panel shall come with a schematic showing where each wire is terminated.
- The following surge protection shall be prewired and mounted to panel:
  - (48) Load Switch Outputs
  - (8) Pedestrian Push Buttons
  - (4) Lane Use Control Interconnect Lines
  - (1) Communication Unit (equivalent to EDCO PCB642C-008B with Base and C2 Harness for Comm. Phone Lines (not wired through connectors).
  - (1) Additional Ground
- The following surge protection shall be provided, but not wired to panel:
  - (16) Vehicle Detector Inputs (equivalent to EDCO, SRA-6LCB).
  - (Surge protection panel to be equivalent to Path Master ZPAN-7003)

**In addition to these specifications, all specifications of the Commonwealth of Kentucky, Department of Highways shall apply.**

**CABINETS**

Note: Cabinet fan unit and vents shall be mounted under rain shield. Cabinets shall be of natural unpainted aluminum with standard Corbin #2 locks on the doors. Cabinets must have channels for mounting terminal facilities on the rear and sides.

Channel mounting

F cabinet: rear, 5" center  
K cabinet: rear, 18 3/4" center, sides, 8 1/2" center  
M cabinet: rear, 18 3/4" center, sides, 8 1/2" center  
P-38 cabinet: rear, 18 3/4" center, sides, 8 1/2" center  
R Cabinet: rear, 18 3/4" center, sides, (4 channels) 6 1/2", 3", 8 1/2" center

**2. Surge Protection Panel for 170 Controller Cabinet, 8-Phase**

- Panel shall be predrilled to fit neatly into Cabinet.
- Panel shall be prewired with Male and Female (MS type), Quick Disconnect Connectors with Male connector physically mounted to panel.
- Female connector shall have a 6-foot wire soldered to each pin used in the connector.
- Each wire shall be labeled in respect to the connector.
- Each panel shall come with a schematic showing where each wire is terminated.
- The following surge protection shall be prewired and mounted to panel:
  - (36) Load Switch Outputs
  - (8) Pedestrian Push Buttons
  - (1) Communication Unit (equivalent to EDCO PCB642C-008B with Base and C2 Harness for Comm. Phone Lines (not wired through connectors).
  - (1) Additional Ground
- The following surge protection shall be provided, but not wired to panel:
  - (16) Vehicle Detector Inputs (equivalent to EDCO, SRA-6LCB).
  - (Surge protection panel to be equivalent to Path Master ZPAN-7002)

3. **Surge Protection Panel for 170 Controller Cabinet, with Lane Use Control**
  - Panel shall be predrilled to fit neatly into Cabinet.
  - Panel shall be prewired with Male and Female (MS type), Quick Disconnect Connectors with Male connector physically mounted to panel.
  - Female connector shall have a 6-foot wire soldered to each pin used in the connector.
  - Each wire shall be labeled in respect to the connector.
  - Each panel shall come with a schematic showing where each wire is terminated.
  - The following surge protection shall be prewired and mounted to panel:
    - (48) Load Switch Outputs
    - (8) Pedestrian Push Buttons
    - (4) Lane Use Control Interconnect Lines
    - (1) Communication Unit (equivalent to EDCO PCB642C-008B with Base and C2 Harness for Comm. Phone Lines (not wired through connectors).
    - (1) Additional Ground
  - The following surge protection shall be provided, but not wired to panel:
    - (16) Vehicle Detector Inputs (equivalent to EDCO, SRA-6LCB).
    - (Surge protection panel to be equivalent to Path Master ZPAN-7003)
4. **2070L w/OASIS Software Complete with everything - Base Mount Cabinet #332 with Lane Use Control:**  
2070L with Lane Use Control wiring, software and hardware replacement. This includes all items in #1 above with an additional output file, conflict monitor, etc. for Lane Use Control. (Equivalent to what is being supplied by Traffic Control Products at present).
5. **2070L w/OASIS Software Complete with everything - Pole Mount Cabinet #336S:** This item is equivalent to #1 above except that the traffic control cabinet should be a Pole Mount type #336S.
6. **Traffic Control Cabinet #1:** Same as in #1 above excluding the 2070L Controller
7. **Traffic Control Cabinet #2:** Same as in #1 above excluding the 2070L controller, software, conflict monitor, load switches, and vehicle detectors.
8. **Traffic Control Cabinet #3:** Same as in #4 above excluding the 2070 controller, software, conflict monitor, load switches, and vehicle detectors.
9. **Traffic Control Cabinet - Pole Mount # 336S:** Same as in #1 above with the exceptions that the cabinet is a Pole Mount #336S or equivalent and excluding the 2070 Controller.
10. **170 Base Mount Rack/Terminal Facility:** Completely wired without cabinet
11. **170 Base Mount Rack/Terminal Facility for Lane Use Control:** Completely wired without cabinet
12. **170 Pole Mount (336S) Rack/Terminal Facility:** Completely wired without cabinet
13. **Base mount cabinet #1:** Three (3) shelves, mounting hardware for shelves, police panel, air filter and holes drilled for fan. Minimum inside dimensions:  
77" H x 35" W x 25" D, Corbin #2 Lock with (2) Keys
14. **Base mount cabinet #2:** Two (2) shelves, mounting hardware for shelves, police panel, air filter and holes drilled for fan. Minimum inside dimensions:  
54" H x 35" W x 25" D, Corbin #2 Lock with (2) Keys

15. **Base mount cabinet #3:** Two (2) shelves, mounting hardware for shelves, police panel, air filter and holes drilled for fan. Minimum inside dimensions: 45" H x 30" W x 16" D, Corbin #2 Lock with (2) Keys
16. **Pole mount cabinet #1:** Two (2) shelves, mounting hardware for shelves, police panel, air filter and holes drilled for fan, pole mount hardware. Minimum inside dimensions: 50" H x 24" W x 16" D, Corbin #2 Lock with (2) Keys
17. **Pole Mount Traffic Cabinet #2:** Natural aluminum, with vent, complete with Corbin #2 lock, 19-inch standard equipment rack system, 15-amp breaker, two (2) duplex receptacles and vent fan with thermostat installed (equivalent to Path Master Model "3B".)
18. **Flasher Cabinet #1:** Pole mount, Dimensions 14" x 10" x 7", back panel, pole mounting hardware, Corbin #2 Lock with (2) Keys.
19. **Flasher cabinet #2:** 14-inch x 11-inch x 11-inch, natural aluminum, complete with two vents, mounting hardware for pole mount application, back panel and police key lock installed (equivalent to Traffic Parts #TP#2703).
20. **Flasher cabinet with NEMA 3 flasher:** 20 amp circuit breaker, terminal strip and Surface mount surge protector, all installed and completely wired. Cabinet shall be an (F) cabinet with same specifications as #16, Corbin #2 Lock with (2) Keys.
21. **Time of Day Controller Cabinet:** Cabinet will include: Nema 3 Flasher, 20 amp circuit breaker, terminal strip, surge protector, Corbin #2 lock with 2 keys, and time clock (Time Clock: Paragon EC72 Equivalent), all installed and completely wired in cabinet. Cabinet shall be 14" x 10" x 12".
22. **Time Clock #1:** 2-Channel, equivalent to Paragon EC72 Series
23. **Time Clock #2:** (for Solar Powered School Flasher) ELTEC #NTC-17E, No Substitutes
24. **Time Clock #3:** (for Solar Powered School Flasher) RTC AP21 (DC input), No Substitutes.
25. **Conflict Monitor:** NEMA 12-channel, ENHANCED
26. **Conflict Monitor:** Model EDI 2010 ECL, ENHANCED
27. **Conflict Monitor, EDI 2018 Kclip**
28. **MonitorKey CMU Data Key Programming Tool:**  
For EDI 2018 Kclip Conflict Monitor, no substitutes
29. **Inductive loop vehicle detector:** Model 222-C, two-channel (Maximum of (6) Transistors and (5) IC's on circuit board)
30. **Inductive loop vehicle detector:** Model 222-C, two-channel, Relay Fail Call Output, (Maximum of (6) Transistors and (5) IC's on circuit board)
31. **Inductive loop vehicle detector:** Dual channel programmable LCD with delay and extend, LCD display displays status and function of detector, loop frequency and inductance.
32. **Inductive loop analyzer:** Including a minimum 3-foot probe for locating a loop that has been paved over.



33. **DC isolator:** 242 with fuse (Units using a 5-ohm 10-Watt resistor or equal design will not be accepted).
34. **Switch pack:** Model 200 with indicators
35. **Flasher:** NEMA 3, alternate circuit, model 204
36. **Modem:** FIBERCOM Model FCPI SM-SM-ST (No substitutes)
37. **Traffic Signal Controller:** Type 170 ATC w/HC-11 with (4) ports, (2) Modem Slots, and completely operational (All IC's shall be in sockets)
38. **Diagnostic software:** 170 enhanced conflict monitor test, mounted on a system memory module.
39. **Automated Conflict Monitor Tester:** The tester shall be capable of testing NEMA, NEMA +, 170 system 210 type monitors and plus features. The tester shall be capable of testing monitors of all manufacturers. The tester shall be capable of testing 3, 6, 12, 16, or 18 channel monitors and be supplied with all necessary harness and or connectors for such testing. The tester shall perform the following measures:
- -voltage self-test and timing self-test of the tester to ensure the accuracy of the test conditions and response measures.
  - -pre-test the conflict monitor for the presence of incorrect return voltages which could damage the monitor tester.

The tester shall alert the operator and halt the testing process, if these tests are not passed. The test modes shall provide for single and multiple pass testing, and halt for error testing. The available test groups shall include system/timing tests (including front panel indicator tests), conflict/voltage tests, green-green permissive tests, complete permissive tests, and extended tests.

The tester shall record a monitor's response to the following faults:

- Dark Failures
- Switch Failures
- Channel to Channel Failures
- System Faults (CVM, 24-volts, 24-volts I...)
- Thresholds-50/70V Red, 15/25V Green-Yellow-Walk, Pos./Neg. Halfwave 15/25V Gn-Yl-Wk.
- Permissive Card Test
- Power Outages
- Line Voltages (96-105)

The test results shall be generated in ASCII format with means to transfer to IBM-compatible DOS based PC where results can be stored to disk and/or printed. The test report shall include the date, time, operator ID, type of test, monitor serial number, detailed test results, all individual failures (if any) otherwise a statement indicating all tests were passed. When testing a "Plus" type monitor, the test report shall include a list showing which plus features were tested. The package shall include an operating manual describing all steps in the setup and operation of the tester and include details of operation and schematics manual.

### **PEDESTRIAN SIGNAL EQUIPMENT**

**Note:** All pedestrian signal LED lens shall meet Gelcore specification and design requirements by Lexington-Fayette Urban County Government Division of Traffic Engineering, All pedestrian signal housings shall be cast aluminum.

40. **Pedestrian Beeper:** Model APS-10 or equivalent Pedestrian Beeper.

41. **LED Countdown Pedestrian Signal w/Housing (ICC):** International legend, one-section, one-way complete w/o clamshell mounting hardware for pole mount, with top and bottom plugs removed, powder coated black.
42. **LED Countdown Pedestrian Signal Module:**  
Equivalent to Gelcore #PS7-CFFI-01A-18 (No Substitutes)

**Note:** Refer to LED spec., Walk must show an open to the conflict monitor and send the intersection to flash if 25 to 40 % of the LEDs are out.

43. **LED Countdown Pedestrian Signal with Mounting Hardware Kit: International Legend** one-section, one-way, without clamshell mounting hardware, top and bottom plugs removed, two (2) 1&1/2 inch x 10 inch Nipples (equivalent to Pelco SE-0436-10), one (1) Tri-Bolt ELL (equivalent to Pelco SE-0514), one Tri-Stud TEE (equivalent to Pelco SE-0513), one (1) Tri-Bolt Hardware Kit with 5/16 inch, 18 gasket (equivalent to Pelco SE-5048), one (1) Tri-Stud Hardware Kit without 5/16 inch, 18 gasket (equivalent to Pelco SE-5035), one (1) Top Pole Plate (equivalent to Pelco SE-0381), one (1) Bottom Pole Plate (equivalent to Pelco SE-0382/SE-0382) has 1&1/2 inch threaded hole for conduit, powder coated black
44. **LED Countdown Pedestrian signal, 1-Way:** International legend, one-section, one-way, pedestal mount, square aluminum ped base with 4 inch threaded opening in top (with (3) 3/8" allen head stainless steel set screws) and access hole with cover on one side, 4 inch x 9 foot spun aluminum pedestal pole, threaded on one end, one-way post top pedestal pole bracket (set screw), (bracket to have tri-bolt studs for mounting signal), powder coated black
45. **LED Countdown Pedestrian signal, 2-way:** International legend, two-way, complete with: two (2) one-section ICC pedestrian signals, one (1) pedestrian signal two-way top bracket (equivalent to Path Master K2WB-6130B 2WPT black), one (1) pedestal pole two-way top bracket (equivalent to Path Master K2WP-6130B 2WPT black), removable plugs for top and bottom ports, one (1) square aluminum ped base with 4 inch threaded opening in top (with (3) 3/8" allen head stainless steel set screws) and access hole with cover on one side, one (1) 4 inch x 9 foot spun aluminum pedestal pole, threaded on one end, powder coated black
46. **Pedestal pole:** Spun aluminum, 4 inch x 9 foot, threaded on one end (equivalent to Path Master VPB-5100-09), powder coated black
47. **Pedestal base:** Square aluminum, 4 inch threaded opening in top (with (3) 3/8" allen head stainless steel set screws), access hole with cover on one side, powder coated black
48. **Pedestal Base w/reinforced collar:**  
Pedestal base square w/reinforced collar, aluminum, 4-inch threaded opening with (3) SS set screws, (4) 3/4-inch x 18-inch anchor bolts, powder coated black. Pelco #PB5335 with Pelco #P5325 collar, powder coated black
49. **Pedestal Pole, 10-foot, Painted Black:**  
Spun aluminum, 4 inch x 10 foot, threaded on one end, powder coated black
50. **Pedestal Base anchor bolts, 3/4-inch x 18-inch, set of four:**
51. **Pedestal Base anchor bolts, 3/4-inch x 26-inch, set of four:**
52. **Pedestrian signal top bracket:** Two-way (equivalent to Path Master K2WB-6130B 2WPT black)

53. **Pedestal pole (2-way) mounting brackets:** one (1) Two-way (equivalent to Path Master 2WP-6130B 2WPT black) and one (1) pedestrian signal two-way top bracket (equivalent to Path Master K2WB-6130B 2WPT black),
54. **Pedestal pole top bracket:** One-way (equivalent to Path Master PET-1201), black
55. **Pedestrian Push Button Box:** Black cast iron enclosure for pedestrian pushbutton, enclosure shall have 3/4-inch threaded opening for conduit attachment, black, no substitute.
56. **Pedestrian Push Button, Rees:** Rees 01371-912 Recessed Chrome Button, no substitute.
57. **Pedestrian Push Button, Bulldog:** Bulldog momentary, rectangular, black, must fit standard rectangular pedestrian push button box, Baldwin & Sours Part #RBDLMB, No Substitutes.
58. **Pedestrian Push Button with Box:** Bulldog Button (Baldwin & Sours #RBDLMB), no substitutes) with black rectangular cast iron enclosure for button, enclosure shall have 3/4-inch threaded opening for conduit attachment, no substitute.
59. **Pedestrian Push Button Assembly, 1-direction:** For (1) direction, to include: (1) Pedestrian signal base (Square aluminum, 4 inch threaded opening in top (with (3) 3/8" allen head stainless steel set screws), access hole with cover on one side, Path Master VPB-5300) (1) Pedestal Pole Cap, equivalent to Path Master VPB5401, Acorn Cap (2) Push Button for Walk Signal Signs (9"x 12") #R10-4B (Right Arrow and Left Arrow, (1) Pedestal Pole: Spun aluminum, 4"x 42", threaded on one end (1) Pedestrian Push button w/box: Baldwin & Sours #RBDLMB Button, black cast iron enclosure for button, powder coated black, no substitute
60. **Pedestrian Push Button Assembly, 2-direction:** For (2) directions, to include\* the same as number 53 with the following exceptions: (2) Push Button for Walk Signal Signs (9"x 12") R10-4B (Right arrow and Left Arrow), (2) Pedestrian Push buttons w/box: Baldwin & Sours #RBDLMB Button, black cast iron enclosure for button, powder coated black, no substitute.
61. **Pedestrian Push Button Sign with a Left Arrow:** R10-3B, (9" X 12"), engineer grade sheeting, complete on .080 aluminum blank and pre-drilled for installation.
62. **Pedestrian Push Button Sign with a Right Arrow:** R10-3B, (9" X 12"), engineer grade sheeting, complete on .080 aluminum blank and pre-drilled for installation.
63. **Pedestrian Push Button Sign with a Left Arrow:** R10-3e, (9" X 15"), engineer grade sheeting, complete on .080 aluminum blank and pre-drilled for installation.
64. **Pedestrian Push Button Sign with a Right Arrow:** R10-3e, (9" X 15"), engineer grade sheeting, complete on .080 aluminum blank and pre-drilled for installation.
65. **Pedestal Pole Cap:** Equivalent to Path Master VPB5401 (Acorn Cap), powder coated black
66. **Pedestrian Signal (Single) Mounting Hardware Kit:** To include: two (2) 1&1/2 inch x 10 inch Nipples (equivalent to Pelco SE-0436-10), one (1) Tri-Bolt ELL (equivalent to Pelco SE-0514), one (1) Tri-Stud TEE (equivalent to Pelco SE-0513), one (1) Tri-Bolt Hardware Kit with 5/16 inch, 18 gasket (equivalent to Pelco SE-5048), one (1) Tri-Stud Hardware Kit without 5/16 inch, 18 gasket (equivalent to Pelco SE-5035), one (1) Top Pole Plate (equivalent to Pelco SE-0381), one (1) Bottom Pole Plate (equivalent to Pelco SE-0382/SE-0382) has 1&1/2 inch threaded hole for conduit, powder coated black

## VEHICLE SIGNAL EQUIPMENT

Note: All Vehicle signal LED lens shall meet Gelcore specification and design requirements by Lexington-Fayette Urban County Government, Division of Traffic Engineering.

67. LED Vehicle signal: 12 inch, black, polycarbonate, three-section, red/yellow/green, two cutaway hoods, one tunnel hood, complete with hardware for span attachment: span clamp, balance adjuster, black tri-bolt entrance head, bottom plug. (Balance Adjuster shall be equivalent to Path Master VSE-3219)
68. LED Left Turn Vehicle signal: 12 inch, black, polycarbonate, three-section, red/left turn yellow arrow/left turn green arrow, two cutaway hoods, one tunnel hood, complete with hardware for span attachment: span clamp, balance adjuster, black tri-bolt entrance head, bottom plug. (Balance Adjuster shall be equivalent to Path Master VSE-3219).
69. LED 5-Section Vehicle signal: 12 inch, black, polycarbonate, five section, cluster configuration, red/yellow/green, left turn yellow arrow/left turn green arrow, three cutaway hoods, two tunnel hoods, complete with hardware for span attachment: span clamp, balance adjuster, tri-bolt entrance head, tri-bolt two-face lower flat arm assembly, tri-bolt four-face upper bracket arm assembly with screw-in plugs, six position terminal strip with #8 screws mounted each yellow section. (Balance Adjuster shall be equivalent to Path Master VSE-3219)
70. LED 4-Section Vehicle signal: 12 inch, black, polycarbonate, four-section, red/yellow/ green/left turn green arrow, three cutaway hoods, one tunnel hood, complete with hardware for span attachment: span clamp, balance adjuster, tri-bolt entrance head, bottom plug. (Balance Adjuster shall be equivalent to Path Master VSE-3219).
71. LED 4-Section FYA Vehicle signal: 12 inch, black, polycarbonate, four-section, Left Turn Red, Two (2) Left Turn Yellow, Left Turn Green two cutaway hoods, two tunnel hoods, complete with hardware for span attachment: span clamp, balance adjuster, tri-bolt entrance head, bottom plug. (Balance Adjuster shall be equivalent to Path Master VSE-3219).
72. Vehicle Signal Lens, LED Retrofit: 12-inch, Green
73. Vehicle Signal Lens, LED Retrofit: 12-inch, Yellow
74. Vehicle Signal Lens, LED Retrofit: 12-inch, Red
75. Vehicle Signal Lens, LED Retrofit: 12-inch, Left Turn Green
76. Vehicle Signal Lens, LED Retrofit: 12-inch, Left Turn Yellow
77. Vehicle Signal Lens, LED Retrofit: 12-inch, Left Turn Red
78. LED Signal section (Red): 12 inch to include tunnel hood, red lens, black polycarbonate, complete with hardware for span attachment: span clamp, balance adjuster, black tri-bolt entrance head, bottom plug. (Balance Adjuster shall be equivalent to Path Master VSE-3219).
79. LED Signal Section (Yellow): 12 inch to include: tunnel hood, yellow lens, black polycarbonate, complete with hardware for span attachment: span clamp, balance adjuster, black tri-bolt entrance head, bottom plug. (Balance Adjuster shall be equivalent to Path Master VSE-3219).

80. **LED Signal Section (Green):** 12 inch to include: cutaway hood, green lens, black polycarbonate, complete with hardware for span attachment: span clamp, balance adjuster, black tri-bolt entrance head, bottom plug. (Balance Adjuster shall be equivalent to Path Master VSE-3219).
81. **Signal Back-plate #1:** (Louvered) for 12-12-12 inch traffic signal:  
See enclosed specifications.
82. **Signal Back-plate #2:** (Louvered) for 12-12-12-12 inch traffic signal:  
See enclosed specifications.
83. **Signal Back-plate #3:** (Louvered) for 12 inch 5-section traffic signal:  
See enclosed specifications.
84. **Dual Red Mounting Hardware, Span Wire Mount:**  
Kit shall include two (2) Tri-Stud upper arm assemblies, 17-inch CTC, Black (Pelco #SE-5059), Two (2) Signal to signal mounting kits (Pelco #SE-3117-SS), One (1) Tri-Bolt Span Wire Assembly: (Path Master VSP-5035)
85. **Dual Red Mounting Hardware, Mast Arm Mount, Vertical:**  
Kit shall include One (1) ASTRO-BRAC Assembly: #AB-0168-4-120-SS, Two (2) Signal to signal mounting kits (Pelco #SE-3117-SS)
86. **LED Dual Red Vehicle signal with Mtg. Hardware., Span Wire Mount:** 12 inch, black, polycarbonate, four-sections: red/red/yellow/green, three cutaway hoods, one tunnel hood, complete with two (2) Tri-Stud upper arm assemblies, 17-inch CTC, Black (Pelco #SE-5059), Two (2) Signal to signal mounting kits (Pelco #SE-3117-SS), One (1) Tri-Bolt Span Wire Assembly: (Path Master VSP-5035)
87. **LED Dual Red Vehicle signal with Mtg. Hardware., Mast Arm Mount:** 12 inch, black, polycarbonate, four-sections: red/red/yellow/green, three cutaway hoods, one tunnel hood, complete with One (1) ASTRO-BRAC Assembly: #AB-0168-4-120-SS, Two (2) Signal to signal mounting kits (Pelco #SE-3117-SS)
88. **Tri-Stud slip fitter assembly, for 2-way signal:**  
Pelco #SE-5008, No Substitutes (Pedestal Pole Mount)

#### **LED LANE USE CONTROL EQUIPMENT**

**Note 1: All LED Lane Control Signals and LED Message Signs shall meet specification requirements by National Sign and Signal Company and MUTCD.**

**Note 2: All LED Pedestrian walk signals must show an open to the conflict monitor and send the intersection to flash when failures occur.**

89. **LED Lane Use Control Signal, 18inch x 18-inch:**  
18" x 18", 2-Way Lane Control Signal, complete with entrance head, mounting hardware and span wire attachments, complete unit painted black and ready to install.  
Message 1: Red X  
Message 2: Green Arrow

90. **LED Lane use control signal, 24-inch x 30-inch:**  
 24" x 30", 2-Way Lane Control Signal/Sign, complete with entrance head, mounting hardware and span wire attachments, complete unit painted black and ready to install.  
 Message 1: Red X  
 Message 2: Green Arrow  
 Message 3: White R3 Sign (w/o Only beneath Arrows)
91. **LED Lane use control signal, 30-inch x 36-inch, #1:**  
 (30" x 36" Display), 1-Way Lane Control, complete with entrance head, mounting hardware and span wire attachments, complete unit painted black and ready to install.  
 Message 1: R3-5A (Thru Arrow w/Only below Arrow)  
 Message 2: R3-6 (Thru and Left Turn Arrow Combination)
92. **LED Lane use control Message Sign, 33-inch x 39-inch:**  
 33" Wide x 39" Tall, 1-way (Outside Dimensions), complete with entrance head, mounting hardware and span wire attachments, complete unit painted black and ready to install.  
 Message: LANE ENDS MERGE RIGHT
93. **LED Lane use control Message Sign, 33-inch Wide x 33-inch:**  
 33" x 33" Tall (Outside Dimensions), complete with entrance head, mounting hardware and span wire attachments, complete unit painted black and ready to install.  
 Message: RIGHT LANE MUST TURN RIGHT
94. **LED Lane use control signal, 30-inch x 36-inch, #2:** (30" x 36" Display) 1-Way Lane Control, complete with entrance head, mounting hardware and span wire attachments, complete unit painted black and ready to install.  
 Message 1: Left Turn Arrow/Thru Arrow/Right Turn Arrow Combination, w/Right Lane (legend) above display, see photograph).  
 Message 2: R3-6 (Thru and Right Turn Arrow Combination, w/Right Lane (legend) above display, see photograph)
95. **LED Lane use control signal, 30-inch x 36-inch, #3** :  
 (30" x 36" Display) 2-Way Lane Control, complete with entrance head, mounting hardware and span wire attachments, complete unit painted black and ready to install.  
 Message 1: R3-5 (Side 1).  
 Message 2: Red X (Side 2).
96. **LED Lane Use Control Signal/Sign (Nicholasville/Waller):**  
 (30" x 30" Display) 2-message, 1-Way Lane Control, complete with entrance head, mounting hardware and span wire attachments, complete unit painted black and ready to install.  
 Messages: See attached Photographs
97. **LED Lane Use Control Signal/Sign (Nicholasville/Rosemont):**  
 (30" x 30" Display) 2-message, 1-Way Lane Control, complete with entrance head, mounting hardware and span wire attachments, complete unit painted black and ready to install.  
 Messages: See attached Photographs

## **SIGNAL CABLE**

98. **Loop Lead-In:** IMSA 20-2 with copper shield, 14 gauge, 19 strand, 2-pair (priced in lengths of 1000 feet), Delivered on a Wooden Reel.

- 99. Loop Lead-In: IMSA 20-2 with copper shield, 14 gauge, 19 strand, 4-pair (priced in lengths of 5,000 feet), Delivered on five (5) 1,000-foot Wooden Reels.
- 100. Coaxial Cable (Spread Spectrum Radio): Beldon #8267, 1,000-ft, on wooden reel.
- 101. Signal Cable: IMSA 20-1, 7 conductor, 14 gauge, 7 strand (500 ft. Wooden Reel)
- 102. Signal Cable: IMSA 20-1, 7 conductor, 14 gauge, 7 strand (1000 ft. Wooden Reel)
- 103. Signal Cable: IMSA 20-1, 16 conductor, 14 gauge, 7 strand (500 ft. Wooden Reel)
- 104. Signal Cable: IMSA 20-1, 16 conductor, 14 gauge, 7 strand (1000 ft. Wooden Reel)
- 105. Messenger Cable: 8M High Strength, 5/16" Galvanized, Class A, (500 ft. Wooden Reel) Coils will not be accepted.
- 106. Messenger Cable: 8M High Strength, 5/16" Galvanized, Class A, (1000 ft. Wooden Reel) coils will not be accepted.
- 107. Messenger Cable: 10M High Strength, 3/8" Galvanized, Class A, (500 ft. Wooden Reel) Coils will not be accepted.
- 108. Messenger Cable: 10M High Strength, 3/8" Galvanized, Class A, (1000 ft. Wooden Reel) Coils will not be accepted.
- 109. #8 THHN Service Wire:
- 110. #6 Bare Ground

#### MISCELLANEOUS EQUIPMENT

- 111. Junction box: Round, in-ground type (equivalent to Path Master PE-10)
- 112. Traffic Bearing Junction Box w/Lid:  
Box: Quazite #PG1730BA12 (No Substitutes)  
Lid: Quazite #PG1730HH0044 (No Substitutes)
- 113. Signal Tether Clamp: Tri-Stud, breakaway, 2-parts,  
(equivalent to PELCO SE-5037 and SE-5038)
- 114. Sign Tether Bracket: Equivalent to PELCO SE-5046-19
- 115. Sign Tether Bracket: Equivalent to PELCO SE-5046-24
- 116. Strand Vise: 3/8 inch (Reliable 5152), no substitute.
- 117. Strand Vise: 5/16 inch (Reliable 5151), no substitute.
- 118. Strand Vise: 1/4 inch (Reliable 5150), no substitute.
- 119. Strand Link: 3/8 inch (Reliable 5002), no substitute.

120. **Strand Link:** 5/16 inch (Reliable 5001), no substitute.
121. **Strand Link:** 1/4 inch (Reliable 5000), no substitute.
122. **Construction and mounting hardware for four-way adjustable signal:**  
Four-way top and bottom brackets, span wire hanger and balance adjuster, entrance head, Tri-Bolt Assembly, black, equivalent to Path Master KSIG-6354 CA
123. **Construction and mounting hardware for three-way adjustable signal:** Three-way top and bottom brackets, span wire hanger and balance adjuster, entrance head, Tri-Bolt Assembly, black
124. **Construction and mounting hardware for two-way adjustable signal:** Two-way top and bottom brackets, span wire hanger and balance adjuster, entrance head, Tri-Bolt Assembly, black, equivalent to Path Master KSIG-6352 CA
125. **Span Wire Clamp:** Equivalent to Path Master VSE-0440
126. **Balance Adjuster:** Equivalent to Path Master VSE-3108
127. **Tri-Bolt Span Wire Assembly:** Signal entrance head, span wire clamp, balance adjuster, bottom plug, black, equivalent to Path Master VSP-5035
128. **School Sign Assembly:**  
Hardware and signals gloss black, signal sections polycarbonate, to include:
  - one (1) S5-1 24" x 48" standard highway sign, 3M Hi-Intensity sheeting (Speed Limit to be specified upon order)
  - two (2) 1.5 inch x 10 inch nipple (Pelco SE-0436-10 equivalent)
  - two (2) Tri-Stud Tee's (Pelco SE-0513 equivalent)
  - two (2) Pole Plates (Pelco SE-0382 equivalent)
  - two (2) 12 inch LED signal sections, cutaway hoods (as per signal specifications)
  - one (1) 1.5 inch x 42.5 inch nipple (Pelco SE-0436-42.5 equivalent)
  - two (2) signal closure kit (Pelco SE-3054 equivalent)
  - three (3) 1 7/8 inch nipple clamp (Path Master GRCLAMP equivalent)
129. **School Sign Assembly with Time of Day Controller/Cabinet:** Cabinet will include: Nema 3 Flasher, 20 amp circuit breaker, terminal strip, surge protector, Corbin #2 lock with 2 keys, and time clock (time clock will be Paragon EC72 equivalent), all installed and completely wired. Cabinet shall be 14" x 10" x 12". School sign assembly will include: one (1) S5-1 24" x 48" standard highway sign with 3M Hi-Intensity sheeting (Speed Limit to be specified upon order), two (2) 1.5 inch x 10 inch nipple (Pelco SE-0436-10 equivalent), two (2) Tri-Bolt Tee's (Pelco SE-0513 equivalent), two (2) Pole Plates (Pelco SE-0382 equivalent), two (2) 12-inch polycarbonate, black, signal sections with yellow LED lens and cutaway hoods, one (1) 1.5 inch x 42.5 inch nipple (Pelco SE-0436-42.5 equivalent), two (2) signal closure kit (Pelco SE-3054 equivalent), three (3) 1 7/8 inch nipple clamp (Path Master GRCLAMP equivalent). All hardware to be powder coated black.
130. **Aerial Cable Ties:** Panduit PLT 3H TL100 (No Substitute), per 1000.
131. **Cable Ring, 2-inch:** Std. Length, Copperweld, must fit 5/16-inch diameter messenger cable min. order = 500).
132. **Cable Ring, 3.5-inch:** Std. Length, Copperweld, must fit 5/16-inch diameter messenger cable.



133. Signal Bracket, Mast Arm, Vertical Mount: Astro-Brac #AS-0138-2-120, 37-inch Tube, 120-inch cable, Cluster Design
134. Signal Bracket, Mast Arm, Vertical Mount: Astro-Brac #AS-0125-3-120, 120-inch cable, for 12-12-12 Standard Signal.
135. Sign Bracket, Mast Arm, Vertical Mount, 24: Astro-Brac #AS-0142-24-120 cable
136. Sign Bracket, Mast Arm, Vertical Mount, 30: Astro-Brac #AS-0142-30-120 cable
137. Signal Bkt., Mast Arm, Horizontal Mount: Astro-Brac #AS-0125-3-120, for 12-12-12 Std. Signal.
138. Signal Bracket, Mast Arm, Free Swinging Mount: Astro-Brac #AB-3014-L, 120-inch Cable, Clevis Hanger opening must be 3/4-inch (no substitute)
139. Power Supply, Solar Power: 200-watt, 12-VDC
140. Iteris Vantage Universal Camera Mounting Bracket  
for video detection cameras (no substitutes)
141. Mast Arm Mounting Assembly for Video Detection Cameras:  
Assembly shall include One (1) PELCO #AB0175 (74-inch Tube) and One (1) complete PELCO #AS3009, Stellar Series Clamp Kit w/120-inch stainless steel cable (No Substitute)

**VIDEO DETECTION EQUIPMENT, Iteris (No Substitutes)**

**Successful Bidder shall:**

- provide repair support for electronic repairs made by the L.F.U.C.G. after warranty period
- provide a two year repair warranty for equipment with no exceptions for lightning damage
- provide any/all short hook-up cables completely assembled with necessary connectors
- give L.F.U.C.G. the option of pole or span wire mounting hardware at same cost.

**142. Video Detection System (8-Phase):**

- System shall consist of all necessary equipment and components to fully detect an 8-phase intersection. Including 4 processor Modules, 4 extension modules, Four color cameras with strain pole mounting brackets, Four DEUTSCH Connectors made up with 6-ft. tail to connect to power, and PolyPhaser #IS-75BB+/-1.5 U/M surge suppression.
- This unit shall be capable of 100% operation, in all weather conditions, 24-hrs. per day
- All equipment shall be enclosed in a weatherproof housing.
- Unit shall not drift and only need to be set up once, unless a camera is relocated.
- Unit shall be designed so that all set up operations can be done from a Laptop computer.
- The Detection Device Processor input to the controller shall be designed to use the existing input file in the 170E (332 cabinet) and plug into a detection slot.
- Cameras shall have motorized Focus and Zoom control.

**143. Video Detection System (4-Phase):**

- System shall consist of all necessary equipment and components to fully detect a 4-phase intersection. Including 2 processor modules, 2 extension modules, 2-color cameras with strain pole mounting brackets, Two DEUTSCH Connectors made up with 6-ft. tail to connect to power and PolyPhaser #IS-75BB+/-1.5 U/M surge suppression.
- This unit shall be capable of 100% operation, in all weather conditions, 24-hrs. per day.
- All equipment shall be enclosed in a weatherproof housing.
- Unit shall not drift and only need to be set up once, unless a camera is relocated.
- Unit shall be designed so that all set up operations can be done from a Laptop computer.
- The Detection Device Processor input to the controller shall be designed to use the existing input file in the 170E (332 cabinet) and plug into a detection slot.
- Cameras shall have motorized Focus and Zoom control.

**144. Video Detection System (2-Phase):**

- System shall consist of all necessary equip. and components to fully detect 2-Phase's, including one 4 channel processor module and one extension module, one color Camera a with strain pole mounting bracket, One DEUTSCH Connector made up with 6-ft. tail to connect to power and PolyPhaser #IS-75BB+/-1.5 U/M surge suppression.
- This unit shall be capable of 100% operation, in all weather conditions, 24-hours per day.
- All equipment shall be enclosed in a weatherproof housing.
- Unit shall not drift and only need to be set up once, unless a camera is relocated.
- Unit shall be designed so that all set up operations can be done from a Laptop Computer.
- The Detection Device Processor input to the controller shall be designed to use the existing input file in the 170E (332 cabinet) and plug into a detection slot.
- Cameras shall have motorized Focus and Zoom control.

**145. Video Detection System (3-Phase):**

- System shall consist of all necessary equip. and components to fully detect 3-Phase's, including one 4 channel processor module, two extension modules, One color Camera a with strain pole mounting bracket, One DEUTSCH Connector made up with 6-ft. tail to connect to power and PolyPhaser #IS-75BB+/-1.5 U/M surge suppression.
- This unit shall be capable of 100% operation, in all weather conditions, 24-hours per day.
- All equipment shall be enclosed in a weatherproof housing.
- Unit shall not drift and only need to be set up once, unless a camera is relocated.
- Unit shall be designed so that all set up operations can be done from a Laptop Computer.
- The Detection Device Processor input to the controller shall be designed to use the existing input file in the 170E (332 cabinet) and plug into a detection slot.
- Cameras shall have motorized Focus and Zoom control.

**146. Video Detection Processor: Equivalent to Iteris #493065001**

**147. Iteris Vantage eAccess Communications Module w/software:**

See specifications, "No substitutes will be accepted"

**148. Video Detection Extension Module: Equivalent to Iteris #493065301, each extension module shall come with one 24-inch extension module cable completely assembled w/necessary connectors.**

**149. Iteris LAM (Lens Adjustment Module):**

Includes: One (1) ADV-LAMVIEW vantage camera lens adjustment module w/display in case advanced LamModule & One (1) TLM-0841C Video security LCD color monitor (No Substitutes)

**150. Iteris Versa Cam Package, Complete (No Substitutes)**

151. **PolyPhaser Surge Suppression Unit:** Equivalent to PolyPhaser Part #IS-75BB+/-1.5 U/M
152. **Iteris Video Detection Color Camera.**
153. **Video Detection/Power Composite Cable, #1:**  
Cable shall be 500-ft on a wooden reel, Equivalent to Baldwin & Sours #9-1545, no substitute
154. **Video Detection/Power Composite Cable, #2:**  
Cable shall be 1,000-ft on a wooden reel, Equivalent to Baldwin & Sours #9-1545, no substitute
155. **Solar Powered School Speed Limit When Flashing Signal:**  
**Unit shall be a fully self contained system and come complete with:**
- Two (2) 12-inch LED Yellow signals (Black polycarbonate housing) with mounting hardware.
  - School Speed Limit When Flashing Sign (Speed determined when order is placed), with mounting hardware.
  - One (1) Cabinet (Prewired) with surge protection, #2 Corbin lock and mounting hardware (cabinet shall be large enough to accommodate all necessary batteries and equipment).
  - One (1) Solid state clock, fully programmable for 7-day, 24-hours per day, with automatic daylight savings time built in.
  - One (1) 4-inch Spun aluminum pedestal pole (15-FOOT).
  - One (1) Aluminum pedestal Base (Equivalent to Path Master VPB-5300).
  - One (1) Solar Panel: Unbreakable triple junction technology, Shadow guard protection, vandal resistant, Hail Proof, Heat Tolerant and 10-year limited warranty.
  - Batteries: Batteries shall be spill proof, Maintenance Free, Long life deep-cycle, field proven (SVR) technology, capable of 8-hours of continuous operation on a single charge.
- CONTROLS:** Solid State, Meet MUTCD/ITE Specifications, Low Voltage Disconnect, Temperature Compensation, External Input Capability, Programmable Time Switch Capability, Communications Interface, Pager Activation Option.
- IS-12VDC 50A-NG Polyphaser, DC Battery Power Protector.
156. **Solar Powered School Speed Limit When Flashing Signal (pole mount components and span wire mounted) signals and sign:**  
**Unit shall be a fully self contained system and come complete with:**
- Two (2) 12-inch LED Yellow signals (Black polycarbonate housing) with mounting hardware.
  - One (1) School Speed Limit When Flashing Sign (Speed limit shall be 25 mph), with mounting hardware.
  - One (1) Cabinet (Prewired) with surge protection, #2 Corbin lock and mounting hardware (cabinet shall be large enough to accommodate all necessary batteries and equipment).
  - One (1) Solid state clock, fully programmable for 7-day, 24-hours per day, with automatic daylight savings time built in.
  - All necessary materials to mount components to a wood pole.
  - All necessary materials to mount signals and sign to overhead span.
  - One (1) Solar Panel: Unbreakable triple junction technology, Shadow guard protection, vandal resistant, Hail Proof, Heat Tolerant and 10-year limited warranty.
  - Batteries: Batteries shall be spill proof, Maintenance Free, Long life deep-cycle, field proven (SVR) technology, capable of 8-hours of continuous operation on a single charge.
- CONTROLS:** Solid State, Meet MUTCD/ITE Specifications, Low Voltage Disconnect, Temperature Compensation, External Input Capability, Programmable Time Switch Capability, Communications Interface, Pager Activation Option.
- Capable of operating properly in a highly shaded area.
  - IS-12VDC 50A NG Polyphaser, DC Battery Power Protector

157. **Solar Powered School Speed Limit When Flashing Signal (pole mount components and Mast Arm mounted) signals and sign:**

Unit shall be a fully self contained system and come complete with:

- Two (2) 12-inch LED Yellow signals (Black polycarbonate housing) with mounting hardware.
- One (1) School Speed Limit When Flashing Sign (Speed limit shall be 25 mph),with mounting hardware.
- One (1) Cabinet (Prewired) with surge protection, #2 Corbin lock and mounting hardware (cabinet shall be large enough to accommodate all necessary batteries and equipment).
- One (1) Solid state clock, fully programmable for 7-day, 24-hours per day, with automatic daylight savings time built in.
- All necessary materials to mount components to a strain pole.
- All necessary materials to mount signals and sign to overhead mast arm.
- One (1) Solar Panel: Unbreakable triple junction technology, Shadow guard protection, vandal resistant, Hail Proof, Heat Tolerant and 10-year limited warranty.
- Batteries: Batteries shall be spill proof, Maintenance Free, Long life deep-cycle, field proven (SVR) technology, capable of 8-hours of continuous operation on a single charge.  
CONTROLS: Solid State, Meet MUTCD/ITE Specifications, Low Voltage Disconnect, Temperature Compensation, External Input Capability, Programmable Time Switch Capability, Communications Interface, Pager Activation Option.
- Capable of operating properly in a highly shaded area.
- IS-12VDC 50A NG Polyphaser, DC Battery Power Protector

**SPREAD SPECTRUM RADIO AND EQUIPMENT**

158. **Spread Spectrum Radio (Receiver/Transmitter):** See specifications

159. **YAGI Antenna w/mounting hardware:** See specifications

160. **OMNI Antenna w/mounting hardware:** See specifications

161. **Surge Arrestor:** See specifications

162. **Coaxial Cable (Spread Spectrum Radio):** LMR-400 or equal, 500-ft on a wooden reel (no substitute)

163. **Accessible Pedestrian Detection System (8-Directions):**  
See enclosed specifications. Each system shall be provided with any needed programming equipment, and all necessary components to be fully operational upon installation in the field. No special tools shall be required to perform installation. Each system shall be provided with an installation and operation manual.

164. **Accessible Pedestrian Detection System (4-Directions):**  
See enclosed specifications. Each system shall be provided with any needed programming equipment, and all necessary components to be fully operational upon installation in the field. No special tools shall be required to perform installation. Each system shall be provided with an installation and operation manual.

165. **Navigator Pole Unit Assembly:** Pole unit assembly shall come complete with one (1) EN43BNO-B (with 9 x 15 instructional countdown sign and frame), one (1) PHCU4W Control Board, one (1) 25-ft interconnect cable

166. **Navigator Pole Unit Configurator:** ECONFIG, No substitutes

167. **Astro Bracket:**  
Pelco #AS3009, Stellar Series Clamp Kit w/120-inch stainless steel cable (No Substitute)
168. **Lock Key:**  
Corbin #2 (No Substitutes)
169. **Police Panel Key:**  
Long Shank (No Substitutes)
170. **Manual Operation Police Pushbuttons:**  
Completely made up with 12-foot type SVO coiled cord and ¼-inch stereo plug.
171. **Adtran DSU III AR Digital Modem (New Unit):**  
Unit shall be "New", CSU/DSU Digital Modem-Stand Alone-Terminates into customer V.35 or DB25 EIA RS232 DTE Interface, AC Power (No substitutes will be accepted, complete specifications can be obtained from Adtran).
172. **DB-25 to 14-Pin Amp Communications Interface (Completely Assembled):**  
DB25 Male to 14-Pin Amp Connector with 6-foot cord for Communications Interface C2 Port on type 170 traffic controller to spread spectrum radio or CSU/DSU, wired and complete (Equivalent to Traffic Control Products #34035).
173. **Patch Cord (Completely Assembled):**  
Cat 5e patch cord, 7-foot, with molded RJ45 (snag proof ends).
174. **2070L Traffic Signal Controller:**  
Completely operational with 1B CPU Module, 2A C1 Field I/O Module, 3B LCD Display Module, 4A Power Supply, 7A Async Serial Communications Module, Econolite Oasis Software.
175. **1B CPU Module, #1 (for 2070L Traffic Signal Controller):**  
Completely operational.
176. **1B CPU Module, #2 (for 2070L Traffic Signal Controller):**  
Completely operational with Econolite Oasis Software.
177. **2A C1 Field I/O Module (for 2070L Traffic Signal Controller):**  
Completely operational
178. **3B LCD Display Module (for 2070L Traffic Signal Controller):**  
Completely operational
179. **4A Power Supply (for 2070L Traffic Signal Controller):**  
Completely operational
180. **7A Async Serial Communications Module (for 2070L Traffic Signal Controller):**  
Completely operational
181. **2070-6D Fiber-Optic Module (Fiber Modem for 2070L Traffic Signal Controller):**  
Completely operational
182. **Rack Modem for 2070L Controller:**  
GDI Model FDM170-1-2-0, no substitutes

183. **Solar Powered Crosswalk Lights, Active Beacon:**  
Equivalent to JSF Technologies #AB-2412, (See Specifications)
184. **Solar Powered 24-hour Flashing Beacon:**  
Equivalent to JSF Technologies #FL1400-12, (See Specifications)
185. **LED Street Name Sign:**  
See specifications
186. **Fiber Termination Cabinet, 332 Base Mount:**  
Fiber termination cabinet, # 332 or equivalent, natural unpainted aluminum, completely wired and complete with:  
01) Rack  
02) Standard 120-volt service-line filter with terminals for securing service lines and grounding wires enclosed in metal housing.  
03) 15-amp breaker with GFI outlet enclosed in metal housing.  
04) Light – mounted in Rear with on/off switch  
05) Light – mounted in Front with on/off switch  
06) Locks and keys, Corbin #2  
07) Lifting eyes (removable)  
08) Additional ground connection
187. **Fiber Termination Cabinet, 336S Pole Mount:**  
Fiber termination cabinet, # 336S or equivalent, natural unpainted aluminum, completely wired and complete with:  
01) Rack  
02) Standard 120-volt service-line filter with terminals for securing service lines and grounding wires enclosed in metal housing.  
03) 15-amp breaker with GFI outlet enclosed in metal housing.  
04) Light – mounted in Rear with on/off switch  
05) Light – mounted in Front with on/off switch  
06) Locks and keys, Corbin #2  
07) Lifting eyes (removable)  
08) Additional ground connection  
09) Pole mounting brackets
188. **Tri-Stud Adaptor Kit:** Kit shall include one (1) Pelco #SE-0503 with (3) Threaded Studs and one (1) Pelco #SE-5048 Hardware Kit, Tri-Stud w/Gasket (No Substitutes)
189. **Free Swinging Sign Hanger:** 16-inch CTC, Pelco #SE-5117 (No Substitutes)

## WAVETRONIX EQUIPMENT (No Substitutes)

### Preassembled Backplates and Contact Closure Cards:

190. WX-SS-BP-0006 SmartSensor Six Sensor Preassembled Backplate w/AC Power  
Complete unit shall be mounted on Wavetronics 19-inch Rack and include the following components:  
WX-CLK-210 - 0.5 A Circuit Breaker  
WX-CLK-230 - 120 VAC Surge  
WX-CLK-204 - 24 VDC 4 A Power Supply  
WX-CLK-202 - 24 VDC 2 A Power Supply,  
WX-CLK-222 - Three - 2 Sensor Surge & Comm Modules
191. WX-SS-BP-0004 SmartSensor Four Sensor Preassembled Backplate w/AC Power  
Complete unit shall be mounted on Wavetronics 19-inch Rack and include the following components:  
WX-CLK-210 - 0.5 A Circuit Breaker  
WX-CLK-230 - 120 VAC Surge  
WX-CLK-204 - 24 VDC 4 A Power Supply  
WX-CLK-222 - Two - 2 Sensor Surge & Comm Modules
192. WX-SS-BP-0002 SmartSensor Two Sensor Preassembled Backplate w/AC Power  
Complete unit shall be mounted on Wavetronics 19-inch Rack and include the following components:  
WX-CLK-210 - 0.5 A Circuit Breaker  
WX-CLK-230 - 120 VAC Surge  
WX-CLK-202 - 24 VDC 2 A Power Supply  
WX-CLK-222 - One - 2 Sensor Surge & Comm Module
193. WX-CLK-112 2 Channel Contact Closure Rack Card (Matrix or Advance)
194. WX-CLK-114 4 Channel Contact Closure Rack Card (Matrix or Advance)

### Click! Modules - Spare Parts:

195. WX-CLK-200 System Surge Protector (for 1 HD Sensor)
196. WX-CLK-202 24 VDC 2 A Power Supply (Power Supply for 1 or 2 sensors)
197. WX-CLK-204 24 VDC 4 A Power Supply (Power Supply for 3 or 4 sensors)
198. WX-CLK-210 Circuit Breaker 0.5 Amp
199. WX-CLK-210-02. Circuit Breaker 2.0 Amp
200. WX-CLK-222 Two Sensor Surge & Comm Module (Matrix & Advance)
201. WX-CLK-223 One Sensor Surge & Comm Module (Matrix or Advance)
202. WX-CLK-230 120 VAC Surge
203. WX-CLK-301 Serial to Ethernet converter

204. WX-CLK-304 RS 232 to RS 485 converter

Sensors, Mounting Brackets and Splice Boxes:

205. WX-SS-200V, SmartSensor Advance Sensor (SS200V)

206. WX-SS-225, SmartSensor Matrix Stop Bar Sensor (SS225)

207. WX-SS-125, SmartSensor HD Sensor, Dual Radar Side Fire Sensor (SS125)

208. WX-SS-611, Heavy Duty Sensor Mount - 6" - 2 axis aluminum bracket

209. WX-SS-710, In Line Terminal strip junction box

Sensor Pigtails and Bulk Cable: 8 pin connector

210. WX-SS-704-020, SmartSensor Power and Communication Cable w/ Connector - 20 feet

211. WX-SS-704-040, SmartSensor Power and Communication Cable w/ Connector - 40 feet

212. WX-SS-704-080, SmartSensor Power and Communication Cable w/ Connector - 80 feet

213. WX-SS-705-500, Bulk Cable Spool 500'

Sensor Pigtails and Bulk Cable: 26 pin connector

214. WX-SS-701-020, SmartSensor Power and Communication Cable w/ Connector - 20 feet

215. WX-SS-701-040, SmartSensor Power and Communication Cable w/ Connector - 40 feet

Click! Accessories:

216. WX-100-0064 Din Rail 9"

217. WX-100-0065 Din Rail 12"

218. WX-100-0277, T-Bus Connector (Gray, Power only)

219. WX-100-0281 RS-485/USB Mini-Converter  
(Connects Laptop to Click!222 RS-485 Bridge Port)

220. WX-205-0000 T-Bus Connector (Green, Power & Comm)

221. WX-228-0020 T-Bus Left End Right Angle

222. WX-310-0014 RJ-11, White, 60 inch Patch Cord



**BLUETOOTH TRAVEL TIME EQUIPMENT, BlueTOAD (No Substitutes)**

- 223. EGMOD-0-00-04-025X, BlueTOAD Cellular IP/Ethernet Detector Card with 25' cable, no line amps
- 224. EGMOD-0-00-04-025A, BlueTOAD Cellular IP/Ethernet Detector Card with 25' cable, with line amps
- 225. EGMOD-0-00-04-050A, BlueTOAD Cellular IP/Ethernet Detector Card with 50' cable, with line amps
- 226. EGMOD-0-00-04-075A, BlueTOAD Cellular IP/Ethernet Detector Card with 75' cable, with line amps
- 227. EGMOD-0-00-04-100A, BlueTOAD Cellular IP/Ethernet Detector Card with 100' cable, with line amps
- 228. ECMOD-1-30-04-002X-0-0-0 BlueTOAD Self-Enclosed with 30 watt solar panel & cellular IP
- 229. MIMOD-2-00-06-000M-0-0-0 Mini-BlueTOAD non-real time detector
- 230. Post-processing for 1 year for 1 device
- 231. UPS Battery Backup System for Traffic Signal Controller Cabinet  
Equipment shall consist of a UPS Battery Backup System that can be mounted in a 332 170 signal cabinet rack with existing traffic control equipment inside. The unit must produce a pure sine wave for proper flashing operation, no less than 850 watts output power, no less than a 2- 4 hour run time on fully charged batteries with all LED signal indications at the intersection, all AGM batteries included with initial purchase, 120v A.C. input and output, automatic bypass system that converts from utility company power to backup power and back. Battery mounting rack included.
- 232. UPS Battery Backup System  
Equipment shall consist of a UPS Battery Backup System that can be mounted in a separate cabinet. The unit must produce a pure sine wave for proper flashing operation, no less than 850 watts output power, no less than a 2-4 hour run time with all LED signal indications at the intersection, all AGM batteries included with initial purchase, 120v A.C. input and output, automatic bypass system that converts from utility company power to backup power and back.
- 233. Automatic Power Transfer Switch  
Device shall provide automatic power transfer from utility company provided A.C. to an isolated receptacle or terminal strip that allows the connection of a standalone A.C. power source such as a power inverter, generator or UPS system. The device must automatically switch back to the utility power when power is applied. Item must be compatible with all types and brands of equipment. The device must be able to be mounted in any orientation (vertical, horizontal, etc.).
- 234. Microwave Intersector Presence Sensor MS SEDCO TC-CK-SBE
- 235. Microwave Intersector cabinet interface card MS SEDCO TCIB-4.2
- 236. Microwave Intersector install kit MS SEDCO

237. 2070L Traffic Signal Controller without Software:  
Completely operational with 1B CPU Module, 2A C1 Field I/O Module, 3B LCD Display Module, 4A Power Supply, 7A Async Serial Communications Module.
238. Surge Panel (Camera): Emerson Network Power Model IPP-105, No Substitutes

### SPREAD SPECTRUM RADIO, ANTENNA AND COAXIAL CABLE SPECIFICATIONS

Notes:

1. Each Radio shall come complete with a 6-foot connection cable with a DB-25 Male connector on one and a C2-170 male connector on the other end. When cable is connected it must enable communication between the radio and the 170 controller.
2. Each radio shall come with operational set up software being utilized by the Lexington-Fayette Urban County Government and one operations manual
3. Frequency Hopping Range: (8) selectable zones, each containing 128 frequencies for a total of 1019 frequencies.

**OPERATION:**

Half Duplex: ( $\pm$  1.6 mhz TX/RX Split)

Simplex: (Peer to Peer)

Frequency Stability:  $\pm$  0.00015% (1.5 PPM), -30 to +60C (-22 to +140F).

Systems Addresses: 1-65,000.

**DATA CHARACTERISTICS:**

Signalizing Standard: RS-232

Connector: DB-25 Female

Data Port Rates: 1200, 2400, 4800, 9600, 19200, BPS Asynchronous (can accept 38400 BPS).

Data Rate in the RF Channel: 22.5 KBPS.

Average and Typical Latency: <10MS Typical (Buffer Off Mode).

Byte Length: 10 or 11 Bits including start and stop and (OPT.) Parity.

Transparent Communications for all Asynchronous Protocols.

**TRANSMITTER:**

Power Output: 0.1 to 1-Watt (20-30 DBM  $\pm$  1 DB).

Duty Cycle: Continuous

Output Impedance: 50-Ohms.

Spurious Emissions: -60 DBC.

Harmonic Emissions: -80 DBC.

Transmitter Keying: Data Activated.

Maximum SWR (No Damage): Infinite, All Phase Angle.

**RECEIVER:**

Type: Double Conversation Super Heterodyne.

Bit Error Rate: Less than 10<sup>-6</sup> at -110 DBM.

Inter Modulation: 75 DB Minimum (EIA).

Desensitization: 65 DB.

Spurious: 70 DB Minimum.

**PRIMARY POWER:**

Voltage: 13.8 VDC Nominal (10.5-26.0 VDC Operating Range).  
TX Supply Current: <400 MA.  
RX Supply Current: <125 MA.  
Sleep Mode: <30 MA.  
Power Connector: 6-foot (1.8 M) Pigtail included.  
Fuse: 1.5 AMP Pylorus.  
Reverse Polarity Protection: Diode across primary power input.

**ENVIRONMENTAL:**

Humidity: 95% at 40C (104F); Non-Condensing  
Temperature Range Full Performance: -30 to +60C (-22 to +140F)  
Temperature Range Typical Performance: -30 to +170C (-40 to 158F).  
Size: 2.0" x 5.625" x 9.25" (5.0 x 14.3 x 23.5CM).  
Weight: 2.2 pounds (1 KG).  
Case: Die Cast Aluminum.

**DIAGNOSTICS:**

SSI: Received signal strength averaged over (8) hops.  
Main Supply Voltage: 13.8 input voltage.  
Temperature: Internal Temperature.  
Signal Quality: Signal to noise ratio.  
Radio Status: Go/No-Go Indicator.  
8 Zone Quality Level: Availability of Data in each Frequency Zone.  
Radio Alarm and Status Indication: External Leads (PWR, SYNC, TXD, RXD).  
Radios shall be MDS 9810 or approved equal.

**YAGI ANTENNA:**

Gain: 10DBD  
Impedance: 50-ohms  
VSWR: <1.5:1 Maximum (1.35:1 Typical).  
Polarization: Horizontal or Vertical.  
Front-To-Back-Ratio: >20 DB.  
Maximum Input Power: 100-watts.  
H-Plane Beam Width: 40-Degrees (Half-Power).  
E-Plane Beam Width: 40-Degrees (Half-Power).  
Termination: N Female.  
Weight: 3-pounds.  
Dimensions: 23 x 7 inches.  
Equivalent Flat Plate Area: 0.31 SQ FT..  
Wind Survival Rating: 150-MPH.  
Mounting for Masts of 1.25 to 2.375 inches OD.  
Antennas shall be SCALA TY-900 or approved equal.

**OMNI ANTENNA:**

Frequency Range: 890-960 MHZ (Broad Band).  
Gain: 9 DBD  
Impedance: 50-ohms.  
VSWR: <1.5:1.  
Polarization: Vertical.  
Maximum Input Power: 500-watts.  
H-Plane Beam Width: 6.5 Degrees (Half-Power).  
Termination: N Female.  
Weight: 15-pounds.  
Height: 119.25 inches.  
Radome Diameter: 2 inches.  
Wind Survival Rating: 120-MPH  
Equivalent Flat Plate Area: 1.31 SQ FT  
Mounting: Upright on Masts of 1.2 to 2.5 inch OD  
Antennas shall be SCALA OGB9-900 or approved equal.

**SURGE ARRESTOR:**

Surge: 50 KA IEC 801-5 8/20 Microsecond Wave Form 500 Joules.  
Turn On: 600 VDC + 20%.  
Turn-On Time: 2.5 Nanoseconds for 2 KV/Nanosecond.  
Frequency Range: 125 MHZ to 1 GHZ.  
VSWR: Less than equal to 1.1 to 1 over frequency range.  
Insertion Loss: Less than or equal to 0.1 DB over frequency range.  
Temperature Range: -55C to 125C.  
The surge protector shall be polyphaser corporation's model #IS-50NX-C2 or approved equal.

**CABLE:**

Cable shall be pre-assembled with specified connectors. N connectors shall be silver plated weatherproof type.  
Cable shall be Beldon 8267 or approved equal.

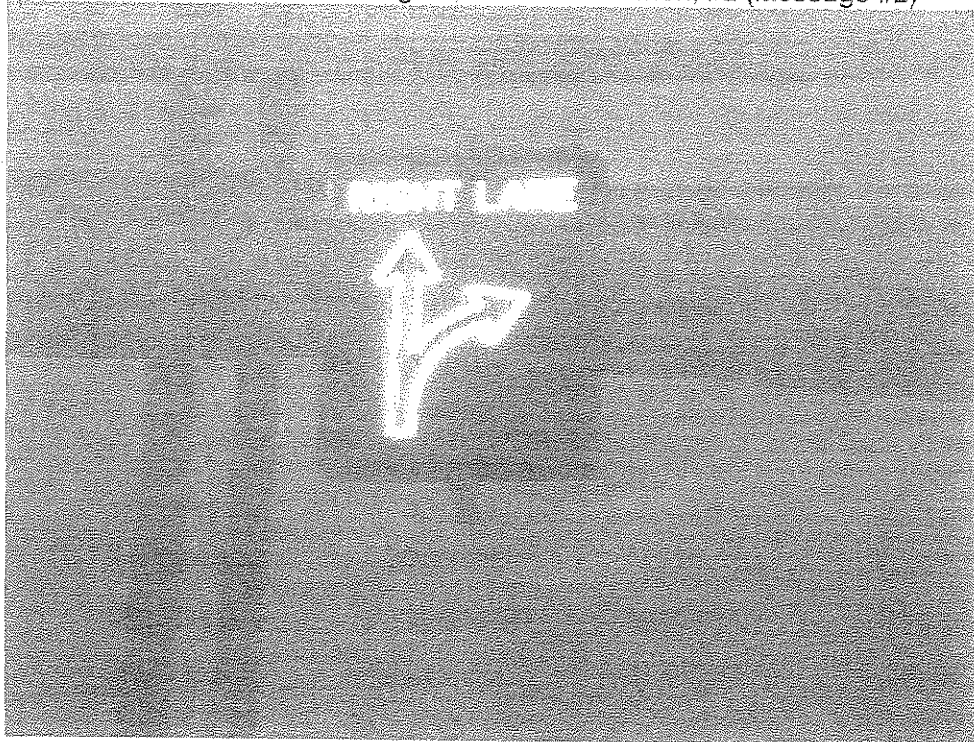
**SPECIFICATIONS FOR Traffic Signal Back-Plates**

- Back-plates shall be louvered
- Back-plate shall maintain a 5-inch width border around the entire signal with smooth radius corners.
- Back-plates shall be constructed of .050 Aluminum, painted black on both sides.
- Back-plates shall have no more than 3-pieces for a 5-section cluster design signal.
- In addition to these specifications Back-plates shall meet ITE Caltrans specifications.
- Back-plates shall have a 3-inch wide fluorescent yellow reflective tape (3M 3990 or approved equal) installed around the outer perimeter of the face of the back-plate and project a solid rectangular appearance at night.
- Reflective tape shall comply with ASTM D4956-05, Type IX
- Installed reflective tape shall not prevent air flow through louvers

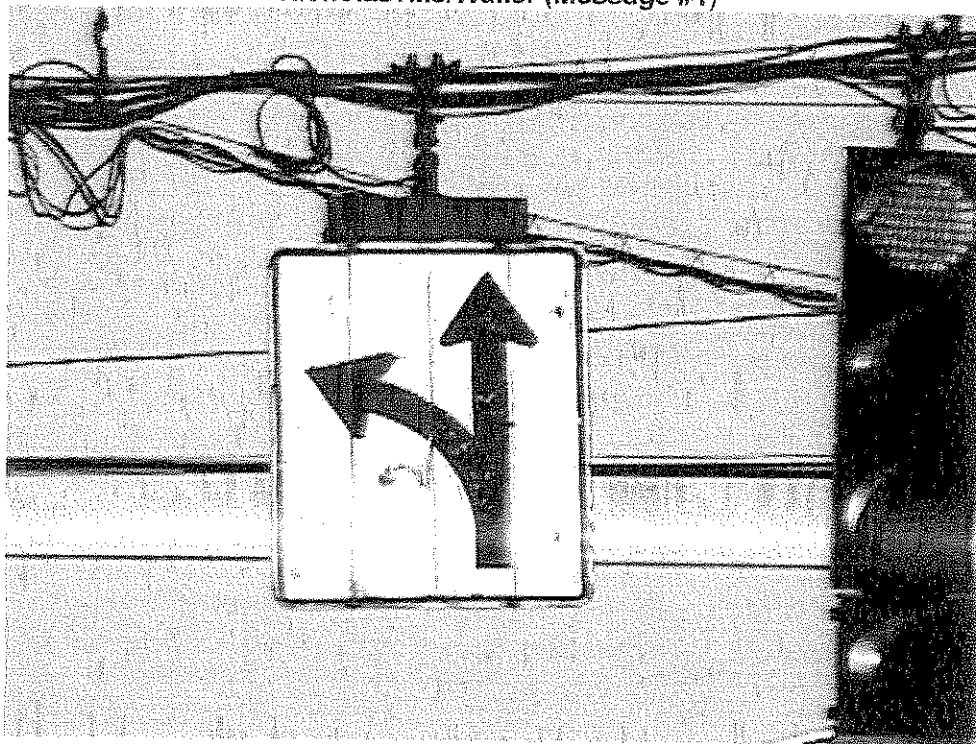
LED Lane Use Control Signal, 30-inch x 36-inch, #2 (Message #1)



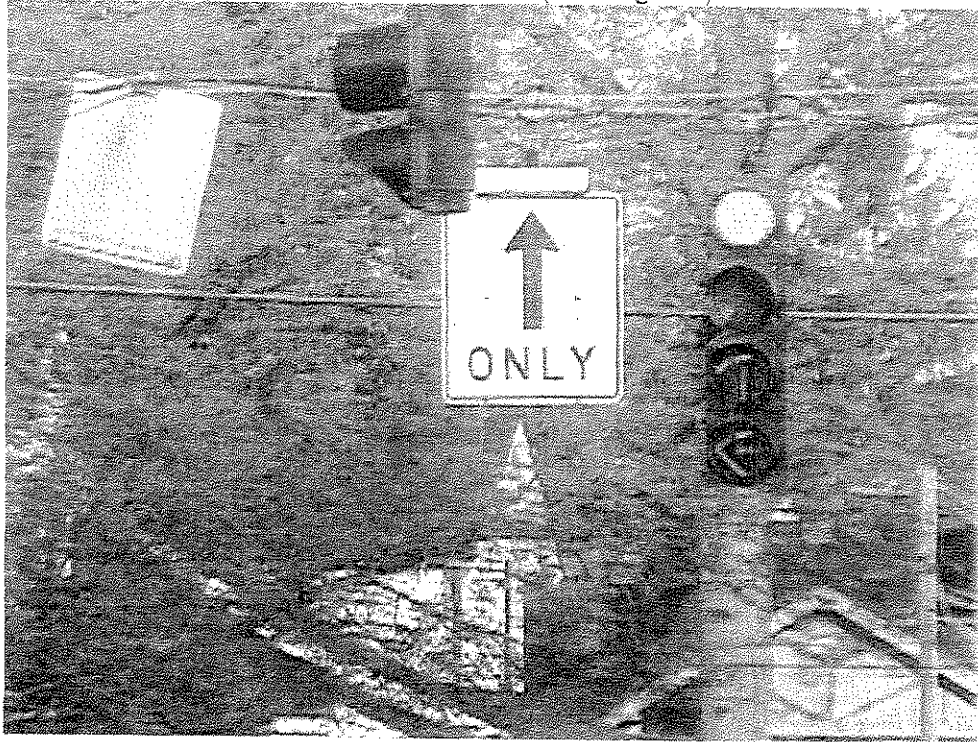
LED Lane Use Control Signal, 30-inch x 36-inch, #2 (Message #2)



Nicholasville/Waller (Message #1)



Nicholasville/Waller (Message #2)



Nicholasville/Rosemont (Message #1)



## SPECIFICATIONS FOR ACCESSIBLE PEDESTRIAN SIGNALS AND PUSHBUTTONS

The system shall meet the requirements of the MUTCD 2003 edition. The system shall consist of two components. The first component is the controller unit to be installed in the pedestrian signal head. The second component is the pushbutton unit.

The control unit shall be designed to fit inside a 16" clam shell style pedestrian signal head. The unit shall be powered by the 120 Vac supplied to the walk and don't walk signals and shall provide power to the pushbutton unit. The unit shall have terminal blocks for connection of all wires. The unit shall provide a pulsed 15 Vdc to power the vibrator in the pushbutton unit, shall detect a walk/don't walk conflict, have an audio amplifier of 10 w rms into 8 ohms and have volume control for the locator tone and audible message. The volume shall adjust automatically up to a maximum volume of 89 db. Tones shall automatically adjust to be no more than 5 db above the ambient noise of the intersection. Measurement of the ambient noise shall be made using a microphone with a frequency range of 170 hz to 2.3 khz.

The pushbutton units shall be ADA compliant with a 2" button, vibro tactile and accept 12 to 24 v ac/dc imposed by connection of the pushbutton to the traffic signal controller cabinet detector input. The pushbutton shall have a raised silver arrow on a black background and be adjustable to allow aiming of the arrow to the right, left, up or down. The pushbutton shall vibrate during the walk interval and shall have a sunlight visible L.E.D. light that comes on when the button is pushed and remain lit until the beginning of the next walk interval. The pushbutton unit shall provide a locator tone with a duration of 0.15 seconds or less, shall repeat at 1 second intervals and shall automatically adjust to be no more than 5 db louder than ambient noise. A weatherproof speaker shall be mounted in the pushbutton unit to provide the audible message, the locator tone and a brief "tick" to confirm the button push. The pushbutton unit shall come equipped with the informational sign r10-3b from the Manual of Uniform Traffic Control Devices, 2003 Edition. The audible message shall be "walk sign" followed by the name of the street to be crossed. The pushbutton shall be highly vandal resistant. The frame shall be powder coated cast aluminum, the face plate powder coated aluminum and the arrow push button nickel plated powder coated aluminum.

The system shall be a Polara navigator APS or approved equal. Any bidder proposing an equal product must provide catalog cuts and/or brochures. A sample may be required.

System shall be provided with two complete voice programming kits to program the system to emit the following verbal messages:

"Walk Sign" followed by the street name. The pc and recording equipment are not to be provided.



## SPECIFICATIONS FOR ACTIVE BEACON SOLAR-POWERED CROSSWALK LIGHTS

The entire assembly shall be painted black.

- Each unit shall be equipped with two (2) 12-inch polycarbonate signal sections with cutaway hoods.
- Each unit shall be supplied with 12-inch industry standard Amber LED's, 12V, 1.5A.
- LED light beam shall be 40-degree horizontal divergence.
- Each unit shall come preassembled and ready to install with no special tools required.
- Each unit shall be fabricated with set screws so it will slip onto and secure to a 4-inch (ID) spun aluminum post (Example: JSF Technologies model #AB-2412).
- Each unit shall be equipped with wireless technology enabling the ability to be activated via a pushbutton, and activate all other units at the installation location at the same time.
- Each unit shall be capable of maintaining standard operation in a dense environment and be capable of operating 30-days without solar charging.
- Each unit's battery pack shall have a 3 to 5-year service life warranty.
- Operating temperature of each unit shall be minus 40-degrees Fahrenheit to +165-degrees Fahrenheit.
- Each unit shall be equipped with nighttime dimming (Beacon moves through 6 stages of dimming as night falls).
- Each unit shall have smart software (During extended sunny periods, system supplies extra power to ensure effective visibility in daylight hours, during extended heavily overcast periods of snow cover, system dims lights and reduces strobe count to ensure beacon remains effective as long as possible).
- Each unit shall flash in compliance with the *Manual on Uniform Traffic Control Devices*
- Each LED face shall meet ITE specifications for Luminosity.
- Each unit shall withstand wind loads of 110-mph.
- Each unit shall be warranted for one (1) year against any failure due to component failure and shall be replaced by the vendor at no cost to the Lexington-Fayette Urban County Government.

## SPECIFICATIONS FOR 24-HOUR FLASHING BEACON

The entire assembly shall be painted black.

- Each unit shall come preassembled and ready to install with no special tools required.
- Each unit shall be equipped with One (1) 12-inch polycarbonate signal section with cutaway hood.
- Each unit shall be supplied with 12-inch industry standard Red LED, 12V, 1.5A, 6W.
- LED light beam shall be 40-degree horizontal divergence.
- Each unit shall come preassembled and ready to install with no special tools required.
- Each unit shall be fabricated with set screws so it will slip onto and secure to a 4-inch (ID) spun aluminum post (Example: JSF Technologies model #FL-1400-12) .
- Each unit shall be capable of maintaining standard operation in a dense environment and be capable of operating 30-days without solar charging.
- Each units battery pack shall have a 3 to 5-year service life warranty.
- Operating temperature of each unit shall be minus 40-degrees Fahrenheit to +165-degrees Fahrenheit.
- Each unit shall be equipped with nighttime dimming (Beacon moves through 6 stages of dimming as night falls.
- Each unit shall have smart software (During extended sunny periods, system supplies extra power to ensure effective visibility in daylight hours, during extended heavily overcast periods of snow cover , system dims lights and reduces strobe count to ensure beacon remains effective as long as possible.
- Each unit shall flash in compliance with the *Manual on Uniform Traffic Control Devices*
- Each LED face shall meet ITE specifications for Luminosity.
- Each unit shall withstand wind loads of 110-mph.
- Each unit shall be warranted for one (1) year against any failure due to component and/or battery failure and shall be replaced by the vendor at no cost to the Lexington-Fayette Urban County Government.

## Specifications for Internally Illuminated, Edge-Lit, LED Type Street Name Signs

### Pricing:

- Signs shall be priced per 6-inch length, height of sign face shall be 18-inches.
- Sign Legend, Font and Length shall be specified by the Lexington-Fayette Urban County Government when an order is placed.
- All prices shall include all items outlined in the specifications and shall include all shipping and handling fees.
- Sign orders placed will not be less than 24-inches in length.

### Material and Dimension Specs:

- The frame shall be made of high quality aluminum material with a black, powder coat finish and water-tight seal.
- The sign face shall be 18" x (24" to 96") (Length shall be determined when order is placed)
- Thickness of completed sign shall be 2 & 1/4" or less.
- Sign lens shall be made of translucent, white, high impact UV resistant polycarbonate or equivalent material capable of maintaining like new appearance for 5 or more years.
- The signs shall meet wind load requirements described in the "Standard Specifications for Structural Supports of Highway Signs, Luminaries, and Traffic Signals, latest edition," by AASHTO.
- All stainless steel hardware connecting sign to mast arm bracket shall have self locking nuts (nuts having locking bushings pre-manufactured into them).
- All signs shall be engineered for double sided messages with (Industry standard, street name green) diamond grade reflective sheeting, letter color shall be bright white etched and paint filled into the acrylic., when a single message sign is ordered the non used side of the sign shall have a blank cover installed blocking any/all light from being seen in the opposing direction.

### Sign Housing:

- Sign frame/housing shall be formed and manufactured out of extruded aluminum alloy 6061 T6 with a minimum tensile strength of 20,000 ksi
- The sign frame/housing shall incorporate stainless steel fasteners throughout.
- Weep holes shall be located at strategic points in the bottom of the housing assembly to allow drainage of condensation.

### Sign Panels:

- The entire surface of the sign panel shall be evenly illuminated so that the surface of a 1-ft. x 1-ft. section of the sign has a light output of a minimum 50-nits with a maximum degradation of 15-nits after 5-years.
- Sign panels shall be translucent made of high impact UV resistant plastic/acrylic material able to withstand 5-years of <400 nm UV light, all surfaces shall be free of blemishes in the plastics or coating that might impair the service or distract from the general appearance and color matching of the sign.

#### Mast Arm Mounting Hardware:

- Completed sign shall have two (2) mounting brackets permanently attached, evenly spaced (one on each end) on the top of the sign frame for mounting, permanently mounted brackets on sign frame shall be pre-drilled to accommodate supplied adjustable mounting brackets (outlined below).
- Each sign shall be supplied with two (2) adjustable brackets allowing a 6-inch vertical adjustment of the sign from either end.
- Each sign shall be supplied with two (2) Astro-Brac (Free Swinging) #AB-0106-L Brackets. (Bracket specifications: 42-inch bands, clevis hanger opening must be 3/4-inch, no substitutes).
- Adjustable brackets shall have all other necessary brackets/hardware to connect to the Astro-Brac (Free Swinging) #AB-106-L Bracket.

#### Electrical Specs:

- All electrical components shall comply with NEC requirements and be UL Outdoor damp location rated.
- Input power shall be 120 VAC with a consumption rate of approx. 4 watts per square foot of sign face. Transformer and field wire connection point shall be integral to the sign housing with easy access for maintenance purposes.
- Field wire connections shall be accomplished by a solder-less connector (screw down lugs).
- Sign must be able to operate in temperature extremes from -40 deg F. to +165 deg F.
- LED light modules shall be capable of operating for at least 50,000 hours with no more than 30 % degradation.

#### Light Source:

- The LED light modules shall be composed of white LED's, these modules shall be sealed making the entire module waterproof.
- Modules shall operate at 700-mA constant current.
- Power consumption shall be 4-watts per foot with an operating temperature of -40 degree Centigrade to +55 degree Centigrade.
- Total light output of these modules shall be 150-lumens.
- Protected life shall be 50,000-hours with a 70% specified light output after 50,000-hours of continuous operation.

Signs must be made so that the lens face can be modified and/or replaced by L.F.U.C.G. staff.

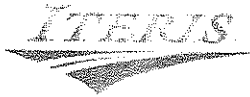
Signs and components shall have a prorated warranty against defects for a period of no less than five years.

## Approved Siamese Cable for Vantage Use (1 of 3)

Vantage Field Service Bulletin

Page 1 of 1

### Vantage Product Support



#### FIELD SERVICE BULLETIN

UPDATE to previous FSB  
IsotechFSB\_3\_04.pdf  
March 2004

**Subject:** Additional Approved Siamese Cable for Vantage Use

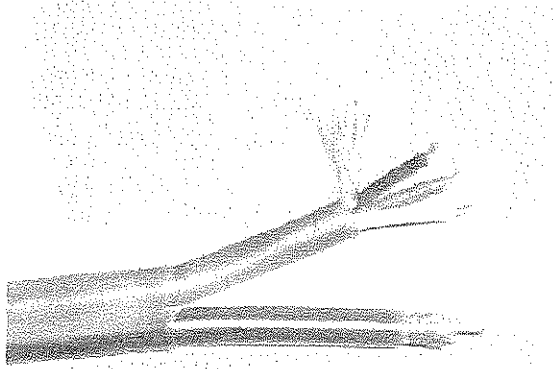
**Date:** October 26, 2006

**Re:** To All Vantage Dealers

Because of continued interest in additional Iteris approved Siamese type video/power cables, and because of the potential problems that have been identified with the use of non-approved cables, a second Siamese cable has been approved for use.

The use of the Belden 8281 coaxial cable and a separate power cable that meets our specifications is still the standard, however, if a Siamese cable must be used the following cables are acceptable. The cables must be the manufacturers exact part numbers as listed, use of unapproved cables may negatively affect Vantage system performance and can result in the invalidation of Vantage product and performance warranties.

- ISOTEC I59PVCC-00
- Advanced Digital Cable 99163SFX



This is a picture of the ISOTEC Siamese cable. It is recommended that the outer cable jacket be cut away completely on the drip loop portion, to reduce strain on the camera BNC and Deutsch connectors. A suitable waterproofing compound should also be used to seal the "Y" junction where the video and power cable exit the outer jacket. This will help to prevent water from wicking down the cable and accumulating inside.

Questions? Call the Vantage Product Support Team at (888) 254-5487

**Approved Siamese Cable for Vantage Use (Pg 2 of 3)**



QUALITY WIRE AND CABLE

**100% SWEEP TESTED 1MHz TO 1GHz**  
 75 Ω Precision Video Coaxial Cable/Double Braided RG 59/U Type  
 20 AWG SOLID BC

**1st COMPONENT**

| AWG (Strand)<br>Size/Type<br>Nom. I.D. Ø     | Dielectric<br>Type<br>Nom. Ød | Shield Type/<br>Coverage<br>Nom. I.D. Ø | Jacket<br>Type &<br>Thickness | Cable Color<br>&<br>Jacket ØE | Nom. Cap.<br>pF/ft<br>pF/m | Vel. of<br>Prop. | Nom. Imp. |
|----------------------------------------------|-------------------------------|-----------------------------------------|-------------------------------|-------------------------------|----------------------------|------------------|-----------|
| 20 AWG<br>Solid BC<br>10.2 Ω/M'<br>33.1 Ω/km | Solid Polyethylene<br>.192"   | 98% TC X 2<br>1.1 Ω/M'<br>3.6 Ω/km      | Polystyrene<br>.035"          | Black<br>.304"                | 20.9 pF/ft<br>68.7 pF/m    | 67%              | 75Ω       |

**ATTENUATION**

| Frequency<br>MHz | Nom. Attenu.<br>dB/1000' | Nom. Attenu.<br>dB/100m | Frequency<br>MHz | Nom. Attenu.<br>dB/1000' | Nom. Attenu.<br>dB/100m |
|------------------|--------------------------|-------------------------|------------------|--------------------------|-------------------------|
| 1                | 0.14                     | 0.46                    | 135              | 2.58                     | 8.45                    |
| 3.58             | 0.47                     | 1.54                    | 143              | 2.62                     | 8.59                    |
| 5                | 0.54                     | 1.77                    | 160              | 2.79                     | 9.15                    |
| 7                | 0.62                     | 2.03                    | 270              | 4.36                     | 14.30                   |
| 10               | 0.68                     | 2.23                    | 360              | 4.99                     | 16.38                   |
| 67.5             | 2.02                     | 6.63                    | 640              | 6.86                     | 21.91                   |
| 71.05            | 2.10                     | 6.69                    | 720              | 7.82                     | 25.65                   |
| 100              | 2.50                     | 8.20                    | 1000             | 9.18                     | 30.11                   |

**2nd COMPONENT**

| No. of<br>Conductors | Conductor<br>Size/Type/<br>Material | Insulation<br>Type &<br>Thickness | Color<br>Code          | Nom.<br>Capacitance    | Nom.<br>Impedance | Jacket Type<br>&<br>Thickness                       | Jacket O.D.<br>&<br>Color |
|----------------------|-------------------------------------|-----------------------------------|------------------------|------------------------|-------------------|-----------------------------------------------------|---------------------------|
| 8                    | 18 AWG<br>19/29 BC                  | PVC<br>.032"                      | Black, White,<br>Green | 19 pF/ft.<br>62.3 pF/R | 80%               | PVC Pressure<br>with tape & fillers<br>0.40" ±.003" | 3.40" ±.005"<br>Black     |

| Isotec Product<br>Number<br>UL Style | Jacket<br>Thickness | Cable Color<br>&<br>Jacket ØE | Copper<br>Weight<br>LBS/MFT | Shielding<br>Weight<br>LBS/MFT |
|--------------------------------------|---------------------|-------------------------------|-----------------------------|--------------------------------|
| 160PV-02-01                          | PE<br>.030"         | BLACK<br>.592"                | 59.85 LBS/MFT               | 168 LBS/MFT                    |
| UL: n/a<br>CSA: n/a                  | ±.005"              | ±.005"                        |                             |                                |



**PRINT LEGEND: 160PV-02-01 TRAFFIC CONTROL CABLE 18-30 600V/PRECISION VIDEO "DIR BUR" "SLN RES" MFG BY ISOTEC**

ACCEPTANCE OF ABOVE DESIGN: \_\_\_\_\_ DATE: \_\_\_\_\_

Shipping Tolerance: +/- 10%  
 Length Tolerance: +/- 10%  
 Random/Odd Length Tolerance: May ship up to 15% of order total on random/odd lengths.  
 Isotec makes every effort to provide accurate specifications. Printing errors are subject to correction. Standard product specifications are subject to change without notice.  
 Contact your Isotec sales person for current specifications.

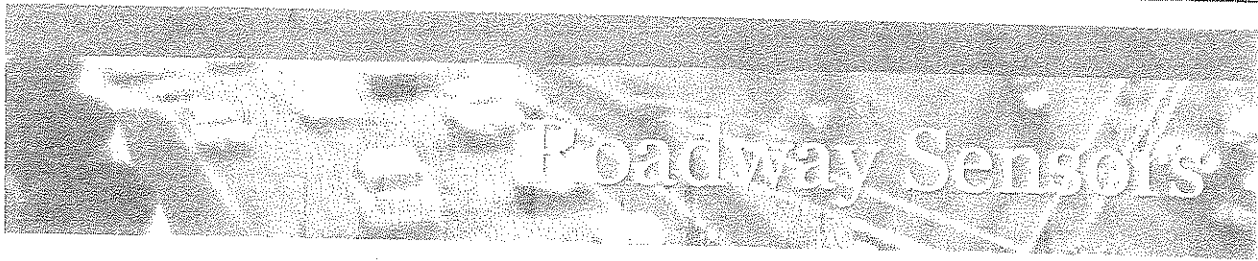
Rev. 02/06/04

Approved Siamese Cable for Vantage Use ( Pg 3 of 3)

|                                                                                                                                    |                                                                                                      |                       |
|------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|-----------------------|
| <b>Advanced Digital Cable, Inc.</b><br>Drawn by:  | Specification Sheet for: 75 Ohm Video<br>Coax with 16 awg 3 conductors,<br>fine stranded (MESA 20-1) | Date: 5/27/03         |
|                                                                                                                                    | Customer Approval:                                                                                   | Part Number: 99163SFX |
| UE Ty:                                          |                                                                                                      | Name:                 |

Construction Details:  
 This cable is a parallel construction of one low density polyethylene jacketed video coax and one flexible polyvinyl chloride jacketed three conductor 16 awg fine stranded cable under an oval black flexible polyvinyl chloride jacket.

| Physical Specifications  |                                                                                                                                                                                      | Electrical Specifications                                                                                                        |             |            |       |       |       |
|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|-------------|------------|-------|-------|-------|
| <u>75 Ohm Video Coax</u> |                                                                                                                                                                                      | <u>Nominal Attenuation</u>                                                                                                       |             |            |       |       |       |
| Conductor:               | 16 awg solid bare copper .037"                                                                                                                                                       | MHz                                                                                                                              | dB/100 feet |            |       |       |       |
| Dielectric:              | .084" wall of low density polyethylene to .200" diam.                                                                                                                                | 16                                                                                                                               | .78         |            |       |       |       |
| Braid 1:                 | 34 awg tinned copper with 98 % coverage.                                                                                                                                             | 48                                                                                                                               | 1.70        |            |       |       |       |
| Braid 2:                 | 34 awg tinned copper with 98 % coverage.                                                                                                                                             | 100                                                                                                                              | 2.30        |            |       |       |       |
| Jacket:                  | .030" wall black low density polyethylene to .304" nom.                                                                                                                              | 200                                                                                                                              | 3.70        |            |       |       |       |
|                          |                                                                                                                                                                                      | 400                                                                                                                              | 5.30        |            |       |       |       |
|                          |                                                                                                                                                                                      | 700                                                                                                                              | 7.40        |            |       |       |       |
|                          |                                                                                                                                                                                      | 1000                                                                                                                             | 9.20        |            |       |       |       |
| <u>16 awg cable</u>      |                                                                                                                                                                                      | Impedance: 75 Ohms                                                                                                               |             |            |       |       |       |
| Conductor:               | 1 - 16 awg (26/30) bare copper .063" (for optimum flexibility of a rigid cable)                                                                                                      | Capacitance: 21.5 pF/foot                                                                                                        |             |            |       |       |       |
| Insulation:              | .010" wall polyvinyl chloride per the color code to .125" nominal.                                                                                                                   | Velocity of Prop.: 66%                                                                                                           |             |            |       |       |       |
| Cabling:                 | Three 16 awg conductors cabled together under a clear polyester tape wrap in a 3" left hand lay to a nominal diameter of .270".                                                      | <table border="1"> <tr><td>Color Code</td></tr> <tr><td>White</td></tr> <tr><td>Green</td></tr> <tr><td>Black</td></tr> </table> |             | Color Code | White | Green | Black |
| Color Code               |                                                                                                                                                                                      |                                                                                                                                  |             |            |       |       |       |
| White                    |                                                                                                                                                                                      |                                                                                                                                  |             |            |       |       |       |
| Green                    |                                                                                                                                                                                      |                                                                                                                                  |             |            |       |       |       |
| Black                    |                                                                                                                                                                                      |                                                                                                                                  |             |            |       |       |       |
| Jacket:                  | .030" wall flexible black polyvinyl chloride to .330" nom.                                                                                                                           |                                                                                                                                  |             |            |       |       |       |
| <u>Overall Jacket:</u>   | One video coax and one 16 awg three conductor cable pulled parallel under a .030" oval jacket of flexible black polyvinyl chloride to a nominal diameter of .395" x .710" (overall). |                                                                                                                                  |             |            |       |       |       |
| Print:                   | Print in white ink:<br>ADVANCED DIGITAL CABLE 16-3C W/REVISION<br>VIDEO SHIELD WTR BUR                                                                                               |                                                                                                                                  |             |            |       |       |       |
| Part Up:                 | Customer to specify.                                                                                                                                                                 |                                                                                                                                  |             |            |       |       |       |



## Communication Modules

*[Extend the power and function of your Vantage video detection system]*

The Vantage® Access and eAccess communications modules provide a central point for remote access to the Vantage family of Edge2 processor and channel extension modules. Both the Access and eAccess modules allow a traffic management center to access the Vantage equipment remotely over a variety of communications links to monitor, diagnose and re-configure the operation of the video detection system.

The Access communications module includes a built in hardened 56K modem offering a simple and convenient way to access the video detection system remotely via standard PSTN telephone lines. Additionally, when used with the Vantage Remote Access Software (VRAS) Windows application, it provides an elegant interface to access, monitor and configure multiple configurations of Edge2 equipment. The Access module also provides snapshots of the camera view and video detection overlays allowing the traffic management center to observe the scene remotely.

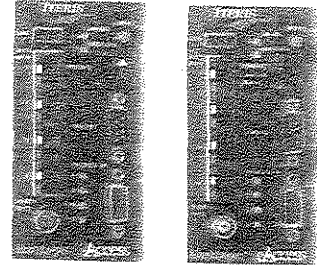
The eAccess communications module extends the power of wide area networking to include direct connection to Ethernet networks. The eAccess module includes a 10/100Base-T Ethernet port enabling remote access to the Edge2 equipment via an 802.3 compliant TCP/IP interface. With the faster data rate, the module offers streaming video of the camera scene as well as simplified operation at the traffic management center through the use of a PC-enabled Internet Explorer browser.

Both communications modules attach to up to 4 x Edge2 processor modules and use standard interface receptacles for mouse (USB), modem (RJ11), Ethernet (RJ45) and Edge2 inter-module communications (RJ45). Using industry-standards based connections and interfaces, the Access and eAccess communications modules integrate easily and quickly into your existing wide area network infrastructure.

### Installation and Configuration

Both the Access and eAccess communications modules install into a slot of an existing detector rack. Connection to the Edge2 processor modules is via standard CAT5 patch cords and coaxial and/or video expansion cables (supplied with the product). Connection to PSTN or wide area networks is performed using standard RJ11 or CAT5 patch cords.

Remote access is performed over PSTN (Access) or cable modem, DSL modem or local networks (eAccess). The Vantage VRAS application is used to connect to an Access module and an Internet Explorer browser is used to access the eAccess module. All basic setup function can be performed remotely while providing monitoring and troubleshooting routines.



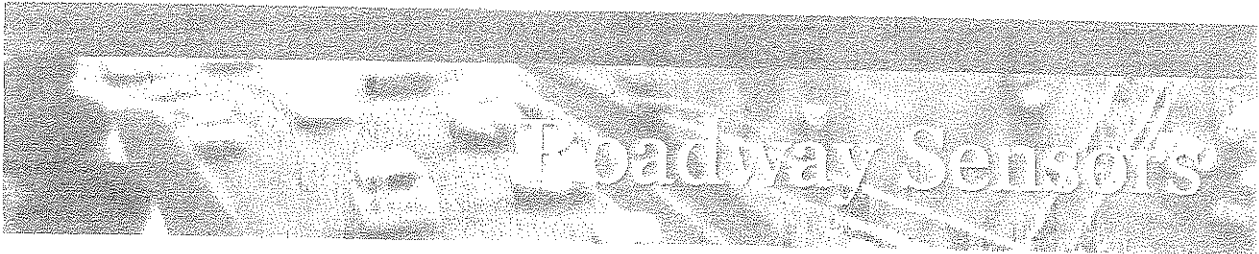
### Benefits

- Plug and play operation enable the use of existing detector racks thereby extending the life of the controller and cabinet equipment.
- Simple to use interface reduces training time and improves productivity levels.
- Ease of set up and remote access reduces time and cost of installation and maintenance of equipment.
- Expandable and modular system allows for optimal configuration that helps to reduce cost while preserving room for incremental growth.



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# Roadway Sensors

## Features

- Plugs into any standard rack that provides 12 or 24 volts DC.
- Accommodates up to 4 video source inputs.
- Accommodates up to 4 expansion devices.
- USB and trackball mouse support.
- EIA-232 serial communications port.
- High intensity LED status indicators.
- Access - Built in industrial hardened 56K modem
- eAccess - 10/100Base-T Ethernet support
- eAccess - Web browser setup and support
- eAccess - MPEG2 video streaming

## Typical Applications

- Intersection flow control
- Ramp metering
- Traffic data collection
- Bicycle detection
- Traveler information system input
- Temporary and construction zone vehicle detection replacement
- Moving or wrong way motion detection
- Automatic Incident Detection (AID) in tunnels and on bridges

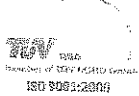
## Vantage Family Products

- Machine Vision Processor modules
- Input and Output Channel extension modules
- Flexible and expandable detector rack systems
- High resolution cameras optimized for traffic applications

## Identical Specifications

|                    |                                                                                                                                                                                                                       |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Access</b>      |                                                                                                                                                                                                                       |
| Connections        | 4 BNC connectors for video input (via DB15 spider cable)<br>4 RJ45 Edge2 Extension Module interface<br>1 RJ11 Modem connector<br>1 EIA-232 local access port<br>USB Mouse port<br>1 BNC composite video out connector |
| <b>Mechanical</b>  |                                                                                                                                                                                                                       |
| Size               | 7.0" long, 4.5" high, 2.3" wide (17.8 cm long, 11.4 cm high, 5.8cm wide)                                                                                                                                              |
| Weight             | 0.64 lbs. (0.29 kg)                                                                                                                                                                                                   |
| <b>Environment</b> |                                                                                                                                                                                                                       |
| Temperature        | -35° F to +165° F (-37° C to +74° C)                                                                                                                                                                                  |
| Humidity           | 0% to 95% non-condensing                                                                                                                                                                                              |
| Vibration          | 0.5G, 3 axes, 5-30 Hz                                                                                                                                                                                                 |
| Shock              | 10G in all 3 axes                                                                                                                                                                                                     |
| Electrical         | 12/24 VDC (500/260 milliamps) (6.25W max.)                                                                                                                                                                            |

|                    |                                                                                                                                                                                                                          |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>eAccess</b>     |                                                                                                                                                                                                                          |
| Connections        | 4 BNC connectors for video input (via DB15 spider cable)<br>4 RJ45 Edge2 Extension Module interface<br>1 RJ45 Ethernet connector<br>1 EIA-232 local access port<br>USB Mouse port<br>1 BNC composite video out connector |
| <b>Mechanical</b>  |                                                                                                                                                                                                                          |
| Size               | 7.0" long, 4.5" high, 2.3" wide (17.8 cm long, 11.4 cm high, 5.8 cm wide)                                                                                                                                                |
| Weight             | 0.64 lbs. (0.29 kg)                                                                                                                                                                                                      |
| <b>Environment</b> |                                                                                                                                                                                                                          |
| Temperature        | -35° F to +165° F (-37° C to +74° C)                                                                                                                                                                                     |
| Humidity           | 0% to 95% non-condensing                                                                                                                                                                                                 |
| Vibration          | 0.5G, 3 axes, 5-30 Hz                                                                                                                                                                                                    |
| Shock              | 10G in all 3 axes                                                                                                                                                                                                        |
| Electrical         | 12/24 VDC (500/260 milliamps) (6.25W max.)                                                                                                                                                                               |



Information furnished by Iteris is believed to be accurate and reliable. However, Iteris does not warrant the accuracy, completeness, or fitness for use of any of the information furnished. No license is granted by implication or otherwise under any intellectual property. Specifications subject to change without notice.

# Kentucky Department of Transportation LED Specifications ( Pg 1 of 4)

1/4

|            |                         |                                     |  |
|------------|-------------------------|-------------------------------------|--|
| 1000000124 | Document Phase<br>Final | Document Description<br>LED Modules |  |
|------------|-------------------------|-------------------------------------|--|

## Section 1--Specifications -

### 1.00--Specifications of Commodity and/or Service Requirements

#### Specification for Replacement Light Emitting Diode Modules for Vehicular and Pedestrian Signals

##### General

The purpose of this specification is to provide minimum design and performance requirements for the following light emitting diode (LED) modules (replacement) for use in vehicular and pedestrian traffic signal heads:

Circular Signal - Red - 8" and 12"

Circular Signal - Yellow - 8" and 12"

Circular Signal - Green - 8" and 12"

Arrow Signal - Red - 12"

Arrow Signal - Yellow - 12"

Arrow Signal - Green - 12"

Pedestrian Signal - Countdown

Unless stipulated otherwise in this specification:

Vehicular, circular, signal modules shall comply with the Institute of Transportation Engineers (ITE) Vehicle Traffic Control Signal Heads: *Light Emitting Diode (LED) Circular Signal Supplement*, dated June 27, 2005;

Vehicular, arrow, signal modules shall comply with the ITE Vehicle Traffic Control Signal Heads: *Light Emitting Diode (LED) Vehicle Arrow Traffic Signal Supplement*, dated July 1, 2007; and

The walking person and hand icons portion of the pedestrian signal modules shall comply with the ITE *Pedestrian Traffic Control Signal Indications- Part 2: Light Emitting Diode (LED) Pedestrian Traffic Signal Modules*, dated March 19, 2004.

##### Physical and Mechanical Requirements

The lens of the module shall be integral to the unit with a smooth outer surface constructed of plastic or glass. The optical assembly shall diffuse the light output and provide uniform illumination across the entire surface of a circular lens and the required visible portions of arrow and pedestrian lenses. Individual LED's shall not be visible to the observer of indications displayed by vehicular traffic signal modules. If a polymeric lens is used, a surface coating or chemical surface treatment shall be used to provide front surface abrasion resistance.

In addition to the module identification requirements of the respective ITE documents, the following additional information shall be permanently identified on the backside of each module:

Date of manufacture (month/year)

Color (for vehicular modules)

Type (circular or arrow)

The pedestrian signal module shall be designed to display the walking person icon and hand icon as

## Kentucky Department of Transportation LED Specifications ( Pg 2 of 4)

2/4

|            | Document Phase | Document Description |  |
|------------|----------------|----------------------|--|
| 1080000124 | Final          | LED Modules          |  |

shown in the ITE specification and a numerical countdown display. The icons shall be designed so that the entire areas comprising the icons appear illuminated. The icons shall overlay one another adjacent to two 7-segment numerical digits, comprised of two rows of LED's. The module shall not have any external attachments or options that would allow disabling the countdown function. Contrary to the ITE specification, all pedestrian signal modules shall have a message bearing surface of 16" x 18" and a minimum icon size of 11" x 7" and minimum digit size of 9" x 6.5". The module shall be capable of detecting any increase or decrease of the pedestrian timing and re-programming itself should this be detected. The module shall be capable of recognizing preemption events and temporarily modifying the crossing cycle accordingly.

### **Electrical Requirements**

All modules shall be operationally compatible with traffic signal controllers, cabinets and accessories manufactured to the California Department of Transportation (Caltrans) Traffic Signal Control Equipment Specifications, latest edition.

### **Quality Assurance, Quality Control and Testing**

The manufacturer's quality management system shall be ISO 9001:2008 certified. The ISO certification shall be provided with the bid package. Manufacturer shall be ISO 9001:2008 certified or shall be rejected as non responsive.

All modules shall be Intertek certified and shall bear the ETL mark. The manufacturer shall have a license agreement with Intertek whereby an initial factory assessment and ongoing quality assurance testing every six months are performed. The certification and copy of license agreement shall be submitted with the bid proposal. The manufacturer shall supply the KYTC with all quality assurance testing results after they are performed throughout the contract period.

See this site for a list of Certified Products:

[http://www.intertek.com/uploadedFiles/Intertek/Divisions/Commercial\\_and\\_Electrical/Media/PDFs/Electronics\\_and\\_Electric](http://www.intertek.com/uploadedFiles/Intertek/Divisions/Commercial_and_Electrical/Media/PDFs/Electronics_and_Electric)

Prior to award of the contract, the KYTC reserves the right to require delivery of sample modules for visual inspection and approval.

KYTC reserves the right to engage an independent testing laboratory to perform quality assurance testing on a minimum ten units randomly selected from all units furnished for any or all line items on the contract. Failure to meet the requirements of the specifications by two or more sample units representing any line item may result in all the units furnished for that line item being rejected, the contract may be declared null and void, and liquidated damages may be assessed for the total amount of the awarded contract. The KYTC will notify the vendor of this rejection by overnight mail or other adequate means.

### **Delivery**

The time from receipt of delivery order until delivery of the modules shall be a maximum of 30 calendar days. All shipments not delivered within the specified 30 calendar days will be subject to liquidated damages at the rate of 1% of the total delivery order.

A complete list of serial numbers for each LED module shall be sent in Microsoft Excel format via email to [Ted.Swanseger@ky.gov](mailto:Ted.Swanseger@ky.gov) or may be sent on CD-ROM with each invoice.

Every individual container shall have the date of shipment clearly stamped on the outside of the container

Kentucky Department of Transportation LED Specifications ( Pg 3 of 4)

3/4

|            |                         |                                     |  |
|------------|-------------------------|-------------------------------------|--|
| 1000000124 | Document Phase<br>Final | Document Description<br>LED Modules |  |
|------------|-------------------------|-------------------------------------|--|

so that the warehouse may utilize a "first-in-first-out" inventory process.

**Warranty**

A written warranty against defects in materials and/or workmanship shall be furnished. The warranty period will last 84 months and begin on the date the modules are received by KYTC. Modules that fail within the warranty period will be returned to the vendor and replacement modules shall be provided at no cost to KYTC.

**Section 2--Terms and Conditions of the Master Agreement**

**2.00--Scope of the Contract**

The KYTC Division of Purchases issues this Master Agreement for:

Replacement LED modules

**2.01--Contract Components and Order of Precedence**

The Commonwealth's acceptance of the offer indicated by the issuance of an Award by the KYTC Division of Purchases shall create a valid Master Agreement consisting of the following:

1. The written Master Agreement between the Parties;
2. Any Addenda to the Solicitation;
3. Any provisions of the Solicitation and all attachments thereto;
4. The Bidder's response to the Solicitation, and
5. The Kentucky Revised Statutes KRS 45A.

In the event of an inconsistency between provisions of the solicitation, the inconsistency shall be resolved by giving precedence in the following order: (a) the Specifications; (b) other provisions of the Solicitation, whether incorporated by reference or otherwise; (c) Contract or Master Agreement Terms and Conditions; (d) FAP 110-10-00 - General Conditions and Instructions for Solicitations and Contracts.

**2.02--Initial Contract Period**

The Master Agreement will be effective upon award and expire 7-31-10

**2.03--Optional Renewal Period**

This Master Agreement may be extended at the completion of the initial contract period for three (3) additional one-year periods. This extension must have the written approval of the vendor and the KYTC

Kentucky Department of Transportation LED Specifications ( Pg 4 of 4)

4/4

|            |                         |                                     |  |
|------------|-------------------------|-------------------------------------|--|
| 1009060124 | Document Phase<br>Final | Document Description<br>LED Modules |  |
|------------|-------------------------|-------------------------------------|--|

Division of Purchases. The Commonwealth of Kentucky reserves the right to renegotiate any terms and/or conditions as may be necessary to meet requirements for the extended period. The vendor will be advised of any proposed revisions prior to the renewal periods. In the event proposed revisions cannot be agreed upon, either party shall have the right to withdraw without prejudice from either exercising the option or continuing the contract in an extended period.

**2.04—Divisions/Agencies to Be Served**

This contract shall be for use by the following Divisions/Agencies of the Kentucky Transportation Cabinet:

Division of Traffic

No shipments or services are authorized until an official Delivery Order has been fully processed by an authorized agency.

**2.05—Quantity Basis of Contract**

This Master Agreement has no guarantee of any specific quantity, and the State is obligated only to buy that quantity which is needed by its agencies.

**2.06—Exception to Required Use of Contract**

The establishment of this Master Agreement is not intended to preclude the use of similar products when requested by the agency. The Commonwealth of Kentucky reserves the right to acquire large requirements through other competitive processes.

**2.07—Basis of Price Revisions**

PRICE ADJUSTMENTS: Unless otherwise specified, the prices established by the Master Agreement shall be firm for the contract period subject to the following:

A. Price Increases: A price increase will not be allowed during the first six (6) months of the contract. Only one price increase will be allowed during the contract period. The price increase must be based on industry wide price changes. The contract holder must request in writing a price increase at least thirty (30) days prior to the effective date, and shall provide firm proof that the price increase(s) is justified. The KYTC Division of Purchases may request additional information or justification. If the price increase is denied, the contract holder may withdraw from the contract without prejudice upon written notice and approval by the KYTC Division of Purchases. Notice of withdrawal must be provided a minimum of forty-five (45) days prior to the effective date.

B. Price Decreases: The contract price shall be reduced to reflect any industry wide price decreases. The contract holder is required to furnish the KYTC Division of Purchases with notice of any price decreases as soon as such decreases are available.

C. Extended Contract Periods: If the contract provides for an optional renewal period, a price adjustment

## 2012 Traffic Signal and Control Equipment Bid Tab

| 2012 Traffic Signal and Control Equipment Bid Tab |                                                                               |        |
|---------------------------------------------------|-------------------------------------------------------------------------------|--------|
| Bid Invitation #                                  |                                                                               |        |
| Num                                               | Description                                                                   | Amount |
| 1                                                 | 2070L Complete-#332 Base Mount Cabinet                                        | NO BID |
| 2                                                 | Surge Protection Panel, 8-Phase                                               | NO BID |
| 3                                                 | Surge Protection Panel, Lane Use Control                                      | NO BID |
| 4                                                 | 2070L complete with Lane Use Control                                          | NO BID |
| 5                                                 | 2070L complete w/everything - #336S Pole Mount Cabinet                        | NO BID |
| 6                                                 | Traffic Control Cabinet #1 - Base Mount w/exclusions                          | NO BID |
| 7                                                 | Traffic Control Cabinet #2 - Base Mount w/exclusions                          | NO BID |
| 8                                                 | Traffic Control Cabinet #3 - Base Mount w/exclusions                          | NO BID |
| 9                                                 | Traffic Control Cabinet - #336S Pole Mt w/exclusions                          | NO BID |
| 10                                                | 170 Rack/Terminal facility                                                    | NO BID |
| 11                                                | 170 Rack/Terminal facility for Lane Use Control                               | NO BID |
| 12                                                | 170 Pole Mount (336S) Rack/Terminal facility                                  | NO BID |
| 13                                                | Base Mount Cabinet #1, 77" H x 35" W x 25" D                                  | NO BID |
| 14                                                | Base Mount Cabinet, #2, 54" H x 35" W x 25" D                                 | NO BID |
| 15                                                | Base Mount Cabinet #3, 45" H x 30" W x 16" D                                  | NO BID |
| 16                                                | Pole Mount Cabinet #1, 50" H x 24" W x 16" D                                  | NO BID |
| 17                                                | Pole Mount Cabinet #2                                                         | NO BID |
| 18                                                | Flasher Cabinet #1, 14" x 10" x 7" *EXCEPTION 14" x 11" x 11"                 | 175.00 |
| 19                                                | Flasher Cabinet #2, 14" x 11" x 11"                                           | 175.00 |
| 20                                                | Flasher Cabinet with NEMA 3 Flasher                                           | 350.00 |
| 21                                                | Time of Day Controller Cabinet                                                | NO BID |
| 22                                                | Time Clock #1, Paragon EC72 Series                                            | NO BID |
| 23                                                | Time Clock #2, ELTEC #NTC-17E (No Substitute)                                 | NO BID |
| 24                                                | Time Clock (Solar Powered School Flasher), RTC AP21 (DC Input), No Substitute | NO BID |
| 25                                                | Conflict Monitor, NEMA 12-Channel enhanced                                    | NO BID |
| 26                                                | Conflict Monitor, EDI Model 2010 ECL, Enhanced                                | NO BID |
| 27                                                | Conflict Monitor, EDI 2018 Kclip                                              | NO BID |
| 28                                                | MonitorKey CMU Data Key Programming Tool                                      | NO BID |
| 29                                                | Inductive Loop Vehicle Detector, Model 222-C                                  | NO BID |
| 30                                                | Inductive Loop Vehicle Detector, Model 222-C, Relay Fail Call Output          | NO BID |
| 31                                                | Inductive Loop Vehicle Dual Channel, LCD Display                              | NO BID |
| 32                                                | Inductive Loop Analyzer                                                       | NO BID |
| 33                                                | 242 DC Isolator                                                               | 35.00  |
| 34                                                | Switch pack model 200 with indicators                                         | 20.00  |

2012 Traffic Signal and Control Equipment Bid Tab

| Num | Description                                                                     | Amount |
|-----|---------------------------------------------------------------------------------|--------|
| 35  | Flasher NEMA 3 alternate circuit model 204                                      | 26.00  |
| 36  | Modem: FIBERCOM Model FCPI SM-SM-ST (No Substitutes)                            | NO BID |
| 37  | Traffic signal controller type 170                                              | NO BID |
| 38  | Dianostic Software 170 enhanced conflict monitor test on a system memory module | NO BID |
| 39  | Automated Conflict Monitor Tester                                               | NO BID |
| 40  | Pedestrian Beeper                                                               | 325.00 |
| 41  | LED Countdown Pedestrian Signal w/Housing (ICC)                                 | NO BID |
| 42  | LED Countdown Pedestrian Signal Module                                          | NO BID |
| 43  | LED Countdown Pedestrian Signal w/Mounting Hardware Kit                         | NO BID |
| 44  | LED Countdown Pedestrian Signal, 1-way, 9-foot Pedestal Pole                    | NO BID |
| 45  | LED Countdown Pedestrian Signal, 2-way, 9-foot pedestal pole                    | NO BID |
| 46  | Pedestal Pole 9-foot                                                            | NO BID |
| 47  | Pedestal Base                                                                   | NO BID |
| 48  | Pedestal Base w/reinforced collar                                               | NO BID |
| 49  | Pedestal Pole, 10-foot, Painted Black                                           | NO BID |
| 50  | Pedestal base anchor bolts, 3/4-inch x 18-inch, set of 4                        | NO BID |
| 51  | Pedestal base anchor bolts, 3/4-inch x 26-inch, set of 4                        | NO BID |
| 52  | Pedestrian signal top bracket, 2-way                                            | NO BID |
| 53  | Pedestal pole (2-way) mounting brackets                                         | NO BID |
| 54  | Pedestal Signal Top Bracket, 1-way                                              | NO BID |
| 55  | Pedestrian Push Button Box                                                      | NO BID |
| 56  | Pedestrian Push Button (Rees)                                                   | NO BID |
| 57  | Pedestrian Push Button (Bulldog)                                                | NO BID |
| 58  | Pedestrian Push Button w/box (Bulldog)                                          | NO BID |
| 59  | Pedestrian push button assembly - 1-direction                                   | NO BID |
| 60  | Pedestrian push button assembly - 2-direction                                   | NO BID |
| 61  | Pedestrian push button sign w/Left Arrow, 9" x 12"                              | 15.00  |
| 62  | Pedestrian push button sign w/Right Arrow, 9" x 12"                             | 15.00  |
| 63  | Pedestrian push button sign with Left Arrow, R10-3e, 9" x 15"                   | 15.00  |
| 64  | Pedestrian push button sign with Right Arrow, R10-3e, 9" x 15"                  | 15.00  |
| 65  | Pedestal pole cap (Acorn)                                                       | 17.00  |
| 66  | Pedestrian signal (single) mounting hardware                                    | NO BID |
| 67  | LED Vehicle Signal (3-section) LED - LEOTEK                                     | 311.50 |
| 68  | LED Vehicle Signal (Left Turn) LED - LEOTEK                                     | 312.55 |
| 69  | LED Vehicle Signal (5-section) LED - LEOTEK                                     | 535.00 |

2012 Traffic Signal and Control Equipment Bid Tab

| Num | Description                                                         | Amount    |
|-----|---------------------------------------------------------------------|-----------|
| 70  | LED Vehicle Signal (4-section) LED - LEDTEK                         | 395.00    |
| 71  | LED Vehicle Signal (4-section), Flashing Yellow Arrow LED - LEDTEK  | 393.10    |
| 72  | Vehicle Signal Lens, LED Retrofit, Green                            | NO BID    |
| 73  | Vehicle Signal Lens, LED Retrofit, Yellow                           | NO BID    |
| 74  | Vehicle Signal Lens, LED Retrofit, Red                              | NO BID    |
| 75  | Vehicle Signal Lens, LED Retrofit, Left Turn Green                  | NO BID    |
| 76  | Vehicle Signal Lens, LED Retrofit, Left Turn Yellow                 | NO BID    |
| 77  | Vehicle Signal Lens, LED Retrofit, Left Turn Red                    | NO BID    |
| 78  | LED Signal Section, Red LED - LEDTEK                                | 146.81    |
| 79  | LED Signal Section, Yellow LED - LEDTEK                             | 150.32    |
| 80  | LED Signal Section, Green LED - LEDTEK                              | 153.37    |
| 81  | Signal Back-Plate #1, (Louvered 12-12-12)                           | NO BID    |
| 82  | Signal Back-Plate #2, (Louvered 12-12-12-12)                        | NO BID    |
| 83  | Signal Back-Plate #3, (Louvered 5-section Cluster)                  | NO BID    |
| 84  | Dual Red Mounting Hardware, Span Wire Mount                         | NO BID    |
| 85  | Dual Red Mounting Hardware, Mast Arm Mount, Vertical                | NO BID    |
| 86  | LED Dual Red Vehicle Signal w/Mtg. Hrdwre., Span Wire Mount         | NO BID    |
| 87  | LED Dual Red Vehicle Signal w/Mtg. Hrdwre., Mast Arm Mount          | NO BID    |
| 88  | Tri-Stud Slip Fitter Assembly for 2-way Signal, pedestal pole mount | NO BID    |
| 89  | LED Lane Use Control Signal, 18-inch x 18-inch                      | NO BID    |
| 90  | LED Lane Use Control Signal, 24-inch x 30-inch                      | NO BID    |
| 91  | LED Lane Use Control Signal, 30-inch x 36-inch, #1                  | NO BID    |
| 92  | LED Lane Use Control Message Sign, 33-inch x 39-inch                | NO BID    |
| 93  | LED Lane Use Control Message Sign, 33-inch x 33-inch                | NO BID    |
| 94  | LED Lane Use Control Signal, 30-inch x 36-inch, #2                  | NO BID    |
| 95  | LED Lane Use Control Signal, 30-inch x 36-inch, #3                  | NO BID    |
| 96  | LED Lane Use Control Signal/Sign (Nich/Waller)                      | NO BID    |
| 97  | LED Lane Use Control Signal/Sign (Nich/Rosemont)                    | NO BID    |
| 98  | Loop Lead-in, 2-pair, 1,000-feet * MIN 5000'                        | 6950.00   |
| 99  | Loop Lead-in, 4-pair, 5,000-feet * MIN 5000'                        | 10,900.00 |
| 100 | Coaxial Cable, Beldon 8267, 1,000-feet                              | 2850.00   |
| 101 | Signal Cable, 7-conductor, 500-feet                                 | 796.00    |
| 102 | Signal Cable, 7-conductor, 1,000-feet                               | 1300.00   |
| 103 | Signal Cable, 16-conductor, 500-feet                                | 1490.00   |
| 104 | Signal Cable, 16-conductor, 1,000-feet                              | 2980.00   |



2012 Traffic Signal and Control Equipment Bid Tab

| Num | Description                                                          | Amount |
|-----|----------------------------------------------------------------------|--------|
| 105 | Messenger Cable, 8M Galvanized, 500-feet                             | 278.00 |
| 106 | Messenger Cable, 8M Galvanized, 1,000-feet                           | 556.00 |
| 107 | Messenger Cable, 10M Galvanized, 500-feet                            | 381.00 |
| 108 | Messenger Cable, 10M Galvanized, 1,000-feet                          | 762.00 |
| 109 | #8 THHN Service Wire, 1,000-feet                                     | 598.60 |
| 110 | #6 Bare (Solid) Wire, 1,000-feet                                     | 855.00 |
| 111 | Junction Box, In-Ground, (Path Master PE-10)                         | NO BID |
| 112 | Traffic Bearing Junction Box with Lid                                | NO BID |
| 113 | Signal Tether Clamp, 2-parts (Pelco SE-5037 & SE-5038)               | NO BID |
| 114 | Sign Tether Bracket, Pelco SE-5046-19                                | NO BID |
| 115 | Sign Tether Bracket, Pelco SE-5046-24                                | NO BID |
| 116 | Strand Vise, 3/8", Reliable 5152, No Sustificates                    | 30.55  |
| 117 | Strand Vise, 5/16", Reliable 5151, No Sustificates                   | 26.89  |
| 118 | Strand Vise, 1/4", Reliable 5150, No Sustificates                    | 19.97  |
| 119 | Strand Link, 3/8", Reliable 5002, No Substitutes                     | 26.62  |
| 120 | Strand Link, 5/16", Reliable 5001, No Substitutes                    | 21.50  |
| 121 | Strand Link, 1/4", Reliable 5000, No Substitutes                     | 14.69  |
| 122 | Construction & Mtg. Hdwre. for 4-way adj. signal                     | NO BID |
| 123 | Construction & Mtg. Hdwre. for 3-way adj. signal                     | NO BID |
| 124 | Construction & Mtg. Hdwre. for 2-way adj. signal                     | NO BID |
| 125 | Span Wire Clamp, Pathmaster VSE-0440                                 | NO BID |
| 126 | Balance Adjuster, Pathmaster VSE-3108                                | NO BID |
| 127 | Tri-Bolt Span Wire Assembly                                          | NO BID |
| 128 | School Sign Assembly                                                 | NO BID |
| 129 | School Sign Assembly with Time of Day Controller/Cabinet             | NO BID |
| 130 | Cable Tie, Panduit PLT 3H TL100, per 1,000, No Substitutes           | NO BID |
| 131 | Cable Ring, 2", Copperweld, Min. order = 500 *1000 PC MIN/SHIP       | 1.54   |
| 132 | Cable Ring, 3.5", Copperweld, Min. order = 100 *1000 PC MIN/SHIP     | 2.76   |
| 133 | Signal Bracket, Mast Arm, Vertical Mount, Cluster Design             | 146.50 |
| 134 | Signal Bracket, Mast Arm, Vertical Mount, 12-12-12 Standard Signal   | 110.00 |
| 135 | Sign Bracket, Mast Arm, Vertical Mount, 24                           | 80.75  |
| 136 | Sign Bracket, Mast Arm, Vertical Mount, 30                           | 85.00  |
| 137 | Signal Bracket, Mast Arm, Horizontal Mount, 12-12-12 Standard Signal | 110.00 |
| 138 | Signal Bracket, Mast Arm, Free Swinging Mount                        | NO BID |
| 139 | Power Supply, Solar Power, 200-watt, 12-VDC                          | NO BID |

2012 Traffic Signal and Control Equipment Bid Tab

| Num | Description                                                                                                     | Amount |
|-----|-----------------------------------------------------------------------------------------------------------------|--------|
| 140 | Iteris Vantage Universal Camera Mounting Bracket                                                                | NO BID |
| 141 | Mast Arm Mounting Assembly for Video Detection Cameras                                                          | NO BID |
| 142 | Video Detection System (8-Phase)                                                                                | NO BID |
| 143 | Video Detection System (4-Phase)                                                                                | NO BID |
| 144 | Video Detection System (2-Phase)                                                                                | NO BID |
| 145 | Video Detection System (3-Phase)                                                                                | NO BID |
| 146 | Video Detection Processor                                                                                       | NO BID |
| 147 | Iteris Vantage eAccess Communications Module w/software                                                         | NO BID |
| 148 | Video Detection Extension Module                                                                                | NO BID |
| 149 | Iteris LAM (Lens Adjustment Module) w/monitor                                                                   | NO BID |
| 150 | Iteris Versa Cam Package, Complete (No Substitutes)                                                             | NO BID |
| 151 | Polyphaser Surge Suppression Unit                                                                               | NO BID |
| 152 | Iteris Video Detection Color Camera                                                                             | NO BID |
| 153 | Video Detection/Power Composite Cable, #1                                                                       | NO BID |
| 154 | Video Detection/Power Composite Cable, #2                                                                       | NO BID |
| 155 | Solar Powered School Speed Limit When Flashing Signal                                                           | NO BID |
| 156 | Solar Powered School Speed Limit When Flashing Signal,<br>(Pole mount components and span wire mounted signals) | NO BID |
| 157 | Solar Powered School Speed Limit When Flashing Signal,<br>(Pole mount components and Mast Arm mounted signals)  | NO BID |
| 158 | Spread Spectrum Radio (Receiver/Transmitter)                                                                    | NO BID |
| 159 | YAGI Antenna with Mounting Hardware                                                                             | NO BID |
| 160 | OMNI Antenna with Mounting Hardware                                                                             | NO BID |
| 161 | Surge Arrestor                                                                                                  | NO BID |
| 162 | Coaxial Cable (Spread Spectrum Radio), LMR-400, 500-feet                                                        | NO BID |
| 163 | Accessible Pedestrian Detection System (8-directions)                                                           | NO BID |
| 164 | Accessible Pedestrian Detection System (4-directions)                                                           | NO BID |
| 165 | Navigator Pole Unit Assembly for Accessible Pedestrian Detection System                                         | NO BID |
| 166 | Navigator Pole Unit Configurator for Accessible Pedestrian Detection System                                     | NO BID |
| 167 | Astro Bracket, PELCO #AS3009                                                                                    | NO BID |
| 168 | Key, Corbin #2, No Substitutes                                                                                  | NO BID |
| 169 | Police Panel Key, Long Shank, No Substitutes                                                                    | NO BID |
| 170 | Manual Operation Police Pushbutton                                                                              | NO BID |
| 171 | Adtran DSU III AR Digital Modem (New Unit)                                                                      | NO BID |
| 172 | DB-25 to 14-Pin Amp Communications Interface (Completely Assembled)                                             | NO BID |
| 173 | Patch Cord (Completely Assembled)                                                                               | NO BID |

2012 Traffic Signal and Control Equipment Bid Tab

| Num | Description                                                             | Amount |
|-----|-------------------------------------------------------------------------|--------|
| 174 | 2070L Traffic Signal Controller                                         | NO BID |
| 175 | 1B CPU Module, #1 (for 2070L Controller)                                | NO BID |
| 176 | 1B CPU Module, #2 (for 2070L Controller)                                | NO BID |
| 177 | 2A C1 Field I/O Module (for 2070L Controller)                           | NO BID |
| 178 | 3B LCD Display Module (for 2070L Controller)                            | NO BID |
| 179 | 4A Power Supply (for 2070L Controller)                                  | NO BID |
| 180 | 7A Async Serial Communications Module (for 2070L Controller)            | NO BID |
| 181 | 2070-6D Fiber-Optic Module (for 2070L Controller)                       | NO BID |
| 182 | Rack Modem for 2070L Controller                                         | NO BID |
| 183 | Solar Powered Crosswalk Lights, Active Beacon                           | NO BID |
| 184 | Solar Powered 24-hour Flashing Beacon                                   | NO BID |
| 185 | LED Street Name Sign (See Specifications)                               | NO BID |
| 186 | Fiber Termination Cabinet, 332 Base Mount                               | NO BID |
| 187 | Fiber Termination Cabinet, 336 Pole Mount                               | NO BID |
| 188 | Tri-Stud Adaptor Kit: One (1) Pelco #SE-0503 and One (1) Pelco #SE-5048 | NO BID |
| 189 | Free Swinging Sign Hanger: 16-inch CTC, Pelco #SE-5117, No Substitutes  | NO BID |
| 190 | WX-SS-BP-0006 SmartSensor Six Sensor Preassembled Backplate w/AC Power  | NO BID |
| 191 | WX-SS-BP-0004 SmartSensor Four Sensor Preassembled Backplate w/AC Power | NO BID |
| 192 | WX-SS-BP-0002 SmartSensor Two Sensor Preassembled Backplate w/AC Power  | NO BID |
| 193 | WX-CLK-112, 2 Channel Contact Closure Rack Card (Matrix or Advance)     | NO BID |
| 194 | WX-CLK-114, 4 Channel Contact Closure Rack Card (Matrix or Advance)     | NO BID |
| 195 | WX-CLK-200, System Surge Protector (for 1 HD Sensor)                    | NO BID |
| 196 | WX-CLK-202, 24 VDC 2 A Power Supply (Power Supply for 1 or 2 sensors)   | NO BID |
| 197 | WX-CLK-204, 24 VDC 4 A Power Supply (Power Supply for 3 or 4 sensors)   | NO BID |
| 198 | WX-CLK-210, Circuit Breaker 0.5 Amp                                     | NO BID |
| 199 | WX-CLK-210-02, Circuit Breaker 2.0 Amp                                  | NO BID |
| 200 | WX-CLK-222, Two Sensor Surge & Comm Module (Matrix & Advance)           | NO BID |
| 201 | WX-CLK-223, One Sensor Surge & Comm Module (Matrix or Advance)          | NO BID |
| 202 | WX-CLK-230, 120 VAC Surge                                               | NO BID |
| 203 | WX-CLK-301, Serial to Ethernet converter                                | NO BID |
| 204 | WX-CLK-304, RS 232 to RS 485 converter                                  | NO BID |
| 205 | WX-SS-200V, SmartSensor Advance Sensor (SS200V)                         | NO BID |
| 206 | WX-SS-225, SmartSensor Matrix Stop Bar Sensor (SS225)                   | NO BID |
| 207 | WX-SS-125, SmartSensor HD Sensor, Dual Radar Side Fire Sensor (SS125)   | NO BID |
| 208 | WX-SS-611, Heavy Duty Sensor Mount - 6" - 2 axis aluminum bracket       | NO BID |

2012 Traffic Signal and Control Equipment Bid Tab

| Num | Description                                                               | Amount |
|-----|---------------------------------------------------------------------------|--------|
| 209 | WX-SS-710, In Line Terminal strip junction box                            | NO BID |
| 210 | WX-SS-704-020, SmartSensor Power/Comm. Cable w/ Connector - 20 feet       | NO BID |
| 211 | WX-SS-704-040, SmartSensor Power/Comm. Cable w/ Connector - 40 feet       | NO BID |
| 212 | WX-SS-704-080, SmartSensor Power/Comm. Cable w/ Connector - 80 feet       | NO BID |
| 213 | WX-SS-705-500, Bulk Cable Spool 500'                                      | NO BID |
| 214 | WX-SS-701-020, SmartSensor Power/Comm. Cable w/ Connector - 20 feet       | NO BID |
| 215 | WX-SS-701-040, SmartSensor Power/Comm. Cable w/ Connector - 40 feet       | NO BID |
| 216 | WX-100-0064, Din Rail 9"                                                  | NO BID |
| 217 | WX-100-0065, Din Rail 12"                                                 | NO BID |
| 218 | WX-100-0277, T-Bus Connector (Gray, Power only)                           | NO BID |
| 219 | WX-100-0281, RS-485/USB Mini-Converter                                    | NO BID |
| 220 | WX-205-0000, T-Bus Connector (Green, Power & Comm)                        | NO BID |
| 221 | WX-228-0020, T-Bus Left End Right Angle                                   | NO BID |
| 222 | WX-310-0014, RJ-11, White, 60 inch Patch Cord                             | NO BID |
| 223 | EGMOD-0-00-04-025X, BlueTOAD, with 25' cable, (see specifications)        | NO BID |
| 224 | EGMOD-0-00-04-025A, BlueTOAD, with 25' cable, (see specifications)        | NO BID |
| 225 | EGMOD-0-00-04-050A, BlueTOAD, with 50' cable, (see specifications)        | NO BID |
| 226 | EGMOD-0-00-04-075A, BlueTOAD, with 75' cable, (see specifications)        | NO BID |
| 227 | EGMOD-0-00-04-100A, BlueTOAD, with 100' cable, (see specifications)       | NO BID |
| 228 | ECMOD-1-30-04-002X-0-0-0, Blue TOAD (see specifications)                  | NO BID |
| 229 | MIMOD-2-00-06-000M-0-0-0, Mini-BlueTOAD non-real time detector            | NO BID |
| 230 | Post-processing for 1 year for 1 device                                   | NO BID |
| 231 | UPS Battery Backup System for Traffic Signal Controller Cabinet           | NO BID |
| 232 | UPS Battery Backup System                                                 | NO BID |
| 233 | Automatic Power Transfer Switch                                           | NO BID |
| 234 | Microwave Intersector Presence Sensor MS SEDCO TC-CK-SBE                  | NO BID |
| 235 | Microwave Intersector cabinet interface card MS SEDCO TCIB-4.2            | NO BID |
| 236 | Microwave Intersector install kit MS SEDCO                                | NO BID |
| 237 | 2070L Traffic Signal Controller without Software:                         | NO BID |
| 238 | Surge Panel (Camera): Emerson Network Power Model IPP-105, No Substitutes | NO BID |

EXCEPTIONS ON BID #103-2012

ITEM 18      SIZE OF CABINET = 14" X 11" X 11"

ITEM 98      5000' MINIMUM ORDER RELEASE

ITEM 99      5000' MINIMUM ORDER RELEASE

ITEM 131     1000 PC. MINIMUM ORDER RELEASE

ITEM 132     1000 PC. MINIMUM ORDER RELEASE

SIGNALS - LEDTEK LEDS

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