

<b>SUBMIT BIDS TO:</b>	CITY OF TUSCALOOSA P.O. BOX 2089 TUSCALOOSA, AL 35403	PURCHASING OFFICE 2201 UNIV. BLVD. TUSCALOOSA, AL 35401	<b>INVITATION TO BID</b>
BID TITLE <b>CAMERA SYSTEMS &amp; TRAFFIC SIGNAL COMPONENTS (rebid)</b>			BID NO. 9073-082725-1
PAGE 1 OF 19 PAGES	<b>BIDS WILL BE OPENED AT 10:00 AM, CST ON AUGUST 27, 2025 IN THE OFFICE OF THE PURCHASING AGENT, 2201 UNIVERSITY BLVD. TUSCALOOSA, AL 35401 AND MAY NOT BE WITHDRAWN FOR THIRTY (30) DAYS AFTER SUCH DATE &amp; TIME.</b>		ISSUE DATE 08/11/25
 <p><b>MAYOR</b> WALTER MADDOX</p> <p><b>COUNCIL MEMBERS</b></p> <p>JOSEPH EATMON, SR.      KIP TYNER RAEVAN HOWARD      JOHN FAILE NORMAN CROW      CASSIUS LANIER LEE BUSBY</p> <p><b>PURCHASING AGENT</b> AMANDA GANN</p>		<p><b>Vendor Information</b> (SECTION TO BE COMPLETED BY VENDOR)</p> <hr/> <p>Company Name (Please Print)</p> <hr/> <p>Phone Number      Point of Contact</p> <hr/> <p>Email Address</p> <hr/>	

#### GENERAL CONDITIONS OF INVITATIONS TO BID

#### 1. PREPARATION OF BIDS

Bids will be prepared in accordance with the following:

- (a) Our enclosed Bid forms are to be used in submitting your bid.
- (b) All information required by the Bid form shall be furnished. The bidder shall print or type his name and manually sign the schedule and each continuation sheet on which any entry is made.
- (c) Unit prices shall be shown and where there is an error in extension of price, the unit price shall govern.
- (d) Proposed delivery time must be shown and shall include Sundays and holidays.
- (e) Bidder will not include federal taxes nor State of Alabama sales, excise, and use taxes in bid prices as the City is exempt from payment of such taxes. An exemption certificate will be signed where applicable upon request.
- (f) Bidders shall thoroughly examine the drawings, specifications, schedule, instructions and all other contract documents.
- (g) Bidders shall make all investigations necessary to thoroughly inform themselves regarding plant and facilities for delivery of material and equipment as required by the bid conditions. No plea of ignorance by the bidder of conditions that exist or that may hereafter exist as a result of failure or omission on the part of the bidder to make the necessary examinations and investigations, or failure to fulfill in every detail the requirements of the contract documents, will be accepted as a basis for varying the requirements of the City or the compensation to the vendor.
- (h) Bidders are advised that all City Contracts are subject to all legal requirements provided for in the Purchasing ordinance and/or State and Federal Statutes.

#### 2. DESCRIPTION OF SUPPLIES

- (a) Any manufacturer's names, trade names, brand name, or catalog numbers used in specifications are for the purpose of describing and establishing general quality levels. SUCH REFERENCES ARE NOT INTENDED TO BE RESTRICTIVE. Bids will be considered for any brand which meets the quality of the specifications listed for any items.
- (b) Bidders are required to state exactly what they intend to furnish, otherwise they shall be required to furnish the items as specified.
- (c) Bidders will submit, with their proposal, data necessary to evaluate and determine the quality of the item(s) they are bidding.

#### 3. SUBMISSION OF BIDS

- (a) All bids must be sealed, which means a bid must be enclosed in an envelope or package that is securely closed, not viewable without opening, and labeled as instructed. The envelope must be sealed in a way that reveals any tampering. If using an outer shipping package, the inner envelope must still be sealed and clearly labeled.
- (b) See INSTRUCTIONS TO BIDDERS for detailed instructions about submitting a sealed bid. Telegraphic bids will not be considered.

#### 4. REJECTION OF BIDS

- (a) The City may reject a bid if:
  1. The bidder misstates or conceals any material fact in the bid, or if,
  2. The bid does not strictly conform to the law or requirement of bid, or if,
  3. The bid is conditional, except that the bidder may qualify his bid for acceptance by the City on an "all or none" basis, or a "low item" basis. An "all or none" basis bid must include all items upon which bids are invited.
- (b) The City may, however, reject all bids whenever it is deemed in the best interest of the City. The City may also waive any minor informalities or irregularities in any bid.

**GENERAL CONDITIONS OF INVITATIONS TO BID****5. WITHDRAWAL OF BIDS**

- (a) Bids may not be withdrawn after the time set for the bid opening for a period of time as specified.
- (b) Bids may be withdrawn prior to the time set for the bid opening.

**6. LATE BIDS OR MODIFICATIONS**

- (a) Bids and modifications received after the time set for the bid opening will not be considered.
- (b) Modifications in writing received prior to the time set for the bid opening will be accepted.

**7. CLARIFICATIONS OR OBJECTION TO BID SPECIFICATIONS**

If any person contemplating submitting a bid for this contract is in doubt as to the true meaning of the specifications or other bid documents of any part thereof, he may submit to the Purchasing Agent on or before five (5) days prior to scheduled opening a request for clarification. All such requests for information shall be made in writing and the person submitting the request will be responsible for its prompt delivery. Any objection to the specifications and requirements as set forth in this bid must be filed in writing with the Purchasing Agent on or before five (5) days prior to scheduled opening.

**8. DISCOUNTS**

- (a) Bidders may offer a cash discount for prompt payment; however, such discounts shall NOT be considered in determining the lowest net cost for bid evaluation purposes. Bidders are encouraged to reflect cash discounts in the unit prices quoted.
- (b) In connection with any discount offered, time will be computed from the date of receipt of supplies or services or from the date a correct invoice is received, whichever is the later date. Payment is deemed to be made on the date of mailing of the check.

**9. SAMPLES**

Samples, when required, must be submitted within the time specified at no expense to the City of Tuscaloosa. If not destroyed or used up during testing, samples will be returned upon request at the bidder's expense, unless stated otherwise in Special Conditions or Specifications. Each individual sample must be labeled with bidder's name and manufacturer's brand name and number.

**10. AWARD OF CONTRACT**

- (a) The contract will be awarded to the lowest responsive and responsible bidder based upon the following factors: quality; conformity with specifications; purpose for which required; terms of delivery; transportation charges; dates of delivery.
- (b) The city reserves the right to accept and award item by item, and/or by group, or in the aggregate, unless the bidder qualifies his bid by specified limitations. Re Par.4(a)3.
- (c) Prices quoted must be FOB Destination to Tuscaloosa with all transportation charges prepaid unless otherwise specified in the Invitation to Bid.
- (d) A written award of acceptance (Purchase Order), mailed or otherwise furnished to the successful bidder shall result in a binding contract.
- (e) If two or more bids received are for the same total amount or unit price, quality and service being equal, the contract shall be awarded to a local bidder.
- (f) The term of this contract shall be for a period of one (1) year from the date of the Purchase Order.
- (g) Eligibility for Price Adjustment - The City may consider a price adjustment under this contract solely due to a change in tariffs imposed by a governmental authority that directly impacts the cost of a product or a clearly defined component part thereof and only if the vendor fulfills all of the City's conditions and requests for information and documentation. To be eligible for consideration, the request for a price adjustment and the net change in cost attributable to the tariff must exceed five percent (5%) of the total contract price. Adjustment Limitations - Any price adjustment granted under this provision shall be limited to the lesser of: (i) Twenty percent (20%) of the original contract price, or (ii) One-half (50%) of the net increase caused by the tariff. Basis Date for Tariff Adjustment Evaluation - The basis date for evaluating eligibility for tariff adjustments shall be as follows: The latest of five (5) days prior to the bid submission date, proposal submission date, or the date of receipt for the best and final offer, as indicated on the appropriate basis form. Tariff Adjustment Requests - All requests for tariff price adjustments must meet the following requirements:
  - a. **Written Submission:** Requests must be submitted in writing, with a comprehensive cost breakdown detailing how the tariff has affected the total cost of the finished product.
  - b. **Proof of Tariff Payment:** Requests must include official importer receipts or customs documentation demonstrating proof of tariff payment, including the transaction date.
  - c. **Direct Impact Evidence:** Requests will only be considered if they clearly demonstrate that the tariff directly impacts the goods or components being purchased under this contract.
  - d. **Approval Requirement:** All tariff-related price adjustments are subject to the City's sole discretion. Written approval from the City is required prior to implementing any price change. No adjustment will be considered valid until such written approval by the City is provided.

**GENERAL CONDITIONS OF INVITATIONS TO BID**

- (h) Price Commitment. Awarded bidders must honor the bid prices for the entire contract period. The prices quoted in the bid shall remain firm and unchanged throughout the contract's term, except in the case of adjustments due to tariff actions as described herein. Awarded bidders who fail to honor the bid prices for the full contract term will have their bid award rescinded for the remainder of the awarded contract period. Additionally, such failure may result in the rejection of any future bids submitted by the vendor to the City.

**11. DELIVERY**

- (a) Deliveries are to be FOB Destination unless otherwise specified in the Invitation to Bids.  
(b) Deliveries are to be made during regular business hours.

**12. CONDITION OF MATERIALS AND PACKAGING**

All items furnished must be new and free from defects. No others will be accepted under the terms and intent of this bid. All containers shall be new and suitable for storage or shipment, and price bid shall include standard commercial packaging.

**13. CLAIMS**

Successful bidder(s) will be responsible for making any and all claims against carriers for missing or damaged items.

**14. LOCAL, STATE, AND FEDERAL COMPLIANCE REQUIREMENTS**

Bidders shall comply with all local, state, and federal directives, orders and laws as applicable to this bid and subsequent contract(s). Bidders must be eligible to do business in the State of Alabama pursuant to Title 10A of the Code of Alabama. Contract award to purchase the materials covered in this Invitation to Bid and the purchase contract shall be construed and governed by the laws of the State of Alabama and each party hereto agrees to be subject to the jurisdiction of the courts if the State of Alabama.

**15. PROVISION FOR OTHER AGENCIES**

Unless otherwise stipulated by the bidder, the bidder agrees when submitting his bid to make available to all City agencies, departments, and in-city municipalities the bid prices he submits, in accordance with the bid terms and conditions, should any said department, agency, or municipality wish to buy under this proposal.

**16. COLLUSION**

The bidder, by affixing his signature to this proposal, agrees to the following: "Bidder certifies that his bid is made without previous understanding, agreement, or connection with any person, firm, or corporation making a bid for the same items and is in all respects fair, without outside control, collusion, fraud, or otherwise illegal action".

**17. VARIANCE IN CONDITIONS**

Any and all special conditions and specifications attached hereto which vary from General Conditions shall have precedence.

**18. TERMINATION**

Termination for Convenience. The City may, by written notice, terminate this purchase order, in whole or in part, when it is in the best interest of the City. Any invoice received from the contractor for work performed prior to the notice of termination shall be thoroughly reviewed by the City to verify that no excessive costs are included. The City shall pay the contractor after being terminated for convenience an amount equal to the lesser of: a. The actual cost of any work, labor, or materials actually performed or in place and the actual cost of any labor, equipment, or materials ordered in good faith that could not be canceled, less the salvage value thereof; or b. The pro rata percentage of completion based upon any schedule of payments set forth in the contract, plus the actual cost of any labor, equipment, or materials ordered in good faith that could not be canceled, less the salvage value thereof.


## **SPECIAL CONDITIONS**

**The General Conditions of Invitations to Bid and any Special Conditions stated shall be considered as part of the specifications of the bid.**

Reference to brand names and numbers is descriptive, but not restrictive, unless otherwise specified. Bids on equivalent items meeting the standards of quality thereby indicated will be considered, providing the bid clearly describes the article offered and indicates how it differs from the referenced brands. Descriptive literature and manufacturer's specifications plus any supplemental information necessary for comparison purposes must be submitted with the bid or the bid on that item will be rejected. Reference to literature submitted with a previous bid or on file with the Division of Purchasing will not satisfy this requirement. The burden is on the bidder to demonstrate that the item bid is equivalent to the item specified in the ITB. Any exceptions taken to any item(s) must be fully explained in written detail on bidders' letterhead and attached to the bid when submitted.

Bidders must include with their bid any descriptive literature and specifications information necessary for product evaluation. Determination as to whether an item submitted for bid meets specifications shall be the sole responsibility of City personnel. Failure to include this information will subject a bid to rejection.

The parts/supplies listed in the bid are the ones most commonly purchased by the City. All items will be ordered on an as needed basis. There are no minimum order guarantees and no estimates for expected annual purchases.

The City intends to award to Primary Bidder(s). The City may also choose to make an award to a Secondary Bidder to be used in the event the Primary Bidder is unable to provide an item within a reasonable amount of time as determined by the City. The Secondary Bidder (if applicable) shall be obligated to all applicable terms and conditions contained herein. By submitting a bid, all bidders agree to become Secondary Bidder if determined as such by the City.

### **HOW TO ASK QUESTIONS**

Any questions concerning the bid process and/or specifications should be directed to <https://bit.ly/ContactPurchasing>.

### **ADDENDUM**

Any addenda issued for this bid will be posted on the City of Tuscaloosa website at <http://www.tuscaloosa.com/bids>. It is the responsibility of the bidder to check this page for any addendums before submitting their bid.

**PLEASE CONTINUE READING THE NEXT PAGE**

## INSTRUCTIONS TO BIDDERS

### Bid Submission Requirements

1. **Completed Bid Forms** – Use the forms included herein to submit your response.
  - a. Use the provided fillable PDF version of the bid forms.
  - b. All forms must be completed in full and returned in the original format. Do not reformat, rearrange, or recreate the bid forms.
  - c. Each page that requires a signature must be signed by an authorized representative.
  - d. Signature fields are intentionally not prefilled in the PDF. It is the bidder's responsibility to sign each applicable page after completing the fillable fields.
    - i. Acceptable methods include wet ink (handwritten) or a verified digital signature.
    - ii. Typed names without authentication are not sufficient.
  - e. Bids that are incomplete, unsigned, or submitted with altered forms may be deemed non-responsive and rejected.
2. **Supporting Documentation** – Include any technical literature, specifications, or other documentation as outlined in this IFB.
3. **Additional Required Items** – Submit any other required items, such as forms, samples, or documents requested in this IFB.
4. **W-9 Form** – Include a completed and signed IRS Form W-9. A blank template is available at: <https://www.irs.gov/pub/irs-pdf/fw9.pdf>.
5. **Acknowledged Addenda** – If applicable, include all completed and signed addenda.
  - a. *It is the bidder's responsibility to monitor the City's official website for issued addenda.* [www.tuscaloosa.com/bids](http://www.tuscaloosa.com/bids)
6. **Bid Submission Methods and Bid Envelope Instructions as detailed below MUST be followed.**

### Bid Submission Methods

Bidders must choose one of these four bid submissions listed below:

#### **1. Electronic Submission**

Bidders may submit complete bid packages as PDF files at: [www.centralbidding.com](http://www.centralbidding.com).

For technical assistance, contact Central Bidding at (225) 810-4814 or [support@centralbidding.com](mailto:support@centralbidding.com).

#### **2. Commercial Delivery Service (e.g., UPS, FedEx, DHL)**

Bidders may submit sealed bids using a commercial delivery service (e.g., UPS, FedEx, DHL).

##### Physical Delivery Address for Commercial Delivery Service

Amanda Gann, Purchasing Agent  
City of Tuscaloosa  
2201 University Boulevard, Tuscaloosa, AL 35401

#### **3. Delivery by USPS Mailing Method**

##### **\*\*\*Important Note on USPS Mailing Method:**

**Do not use standard USPS First-Class or regular stamped mail.** Bids submitted this way will not be accepted.

\*If using the U.S. Postal Service, the bidder **MUST SELECT** a USPS service that includes both tracking and signature confirmation (e.g., Priority Mail with Signature Confirmation).

\*The City is not responsible for misrouted or delayed USPS mail, and late submissions will not be accepted under any circumstance.

##### Mailing Address for USPS is different than the other delivery methods. Address for USPS delivery is

Amanda Gann, Purchasing Agent  
City of Tuscaloosa  
PO Box 2089, Tuscaloosa, AL 35403

#### **4. Hand Delivery**

Bidders may hand-deliver sealed bids to the security desk at the City Hall complex. Entry is located on the 4th level of the Intermodal Facility parking deck, accessible from 7th Street beside Government Plaza. Security will notify Purchasing staff.

##### Hand Delivery Address

Amanda Gann, Purchasing Agent  
City of Tuscaloosa,  
2230 7<sup>th</sup> St, Tuscaloosa, AL 35401

**INSTRUCTIONS TO BIDDERS CONTINUED ON NEXT PAGE**


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## **INSTRUCTIONS TO BIDDERS, CONTINUED**

### **Bid Envelope Instructions**

1. Outer Envelope Labeling Requirements
    - a) Outer Envelope **MUST HAVE THE WORD "BID"** prominently displayed somewhere on the outside envelope
    - b) Outer Envelope **MUST HAVE** Bidder's name and address
    - c) Outer Envelope **MUST HAVE** Bid Title (found on Page 1 of this document)
    - d) Outer Envelope **MUST HAVE** the Date and Time of the Bid Opening (found on Page 1 of this document or as revised by an issued Addenda)
  - 2) **Additional Notes**
    - a) One bid per sealed envelope
    - b) Allow adequate delivery time
    - c) Improperly packaged, labeled, or misrouted envelopes may result in bid rejection
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### **Bid Opening**

The bid opening is open to the public and may be attended in person.

- Bids will be publicly opened and read aloud at the date, time, and location specified on Page 1 of this IFB (or as amended via addendum).
- Only the names of bidders and total base bid amounts (if applicable) will be announced at the opening. Detailed evaluations or award decisions will not be made at that time.
- Bids received after the official deadline will be marked late and returned unopened.
- Bidders are responsible for ensuring that their bids are received by the deadline. No exceptions will be made for late deliveries regardless of the cause.

Bid results will be:

- Posted as a preliminary bid tabulation on the City's website following the opening, which are advertised at [www.tuscaloosa.com/bids](http://www.tuscaloosa.com/bids).

Any changes to the bid submission deadline or opening schedule will be issued through a formal Addendum, which are advertised at [www.tuscaloosa.com/bids](http://www.tuscaloosa.com/bids). Bidders are responsible for monitoring the website for updates.

**PLEASE CONTINUE READING THE NEXT PAGE**

## **SPECIFICATIONS**

### **SCHEDULE 1 - SPECIFICATIONS FOR FIBER OPTIC SUPPLIES**

#### **GENERAL CONSIDERATIONS**

- The cable shall meet all requirements stated in this specification.
- The cable shall meet the requirements set forth in United States Department of Agriculture Rural Utilities Service (RUS) 7 CFR 1755.900.
- The cable shall meet the requirements of the most recent edition of ANSI/ICEA S-87-640.
- Fiber and cable shall come from the same manufacturer to ensure complete product integration, long term reliability, and availability of fully integrated technical support.
- Manufacturer shall have a minimum of 20 years of experience in manufacturing optical fiber cable in order to demonstrate reliable field performance.
- The cable must be manufactured in a NAFTA facility.

#### **FIBER CHARACTERISTICS**

Additional fiber details:

- A Germania-doped silica core surrounded by a concentric silica glass cladding shall comprise each optical fiber.
- The fiber shall be a matched clad design manufactured by the Outside Vapor Deposition (OVD) process.
- Each optical fiber refractive index profile shall be step index.
- Each fiber shall be proof tested by the fiber manufacturer at a minimum of 100 kpsi (0.7 GN/m<sup>2</sup>).
- The fiber shall be coated with a dual acrylate protective coating and the coating shall be in physical contact with the cladding surface.
- Single-mode fiber shall meet EIA/TIA-492 CAAB "Detail Specification for Class IVa Dispersion-Unshifted Single-Mode Optical Fibers with Low Water Peak," and ITU-T G.652D "Characteristics of a single-mode optical fiber and cable."

#### **SPECIFICATIONS FOR OUTDOOR CABLE CONSTRUCTION**

- Each fiber shall be distinguishable by means of color coding in accordance with TIA/EIA-598-A, "Optical Fiber Color Coding." The fibers shall be colored with ultraviolet (UV) curable inks.
- Buffer tubes containing fibers shall be color coded with distinct and recognizable colors in accordance with TIA/EIA-598-A, "Optical Fiber Cable Color Coding."
- Buffer tube colored stripes shall be inlaid in the tube by means of co-extrusion when required. The nominal width shall be 1 mm.
- For cables containing more than 12 buffer tubes, standard colors are used for tubes 1 through 12 and stripes are used for tubes 13 through 24. The color sequence applies to tubes containing fibers only, and shall begin with the first tube. If fillers are required, they shall be placed in the inner layer of the cable. The tube color sequence shall start from the inside layer and progress outward.
- In buffer tubes containing multiple fibers, the colors shall be stable across the specified storage and operating temperature range and not subject to fading or smearing onto each other. Colors shall not cause fibers to stick together.
- Buffer tubes shall be resistant to external forces and shall meet the buffer tube cold bend and shrinkback requirements of 7 CFR 1755.900.
- Fillers may be included in the cable core to lend symmetry to the cable cross-section where needed. Fillers shall be placed so that they do not interrupt the consecutive positioning of the buffer tubes. In dual layer cables, any fillers shall be placed in the inner layer. Fillers shall have a nominal outer diameter of 3.0 mm.

## SPECIFICATIONS

- The central member shall consist of dielectric, glass reinforced plastic (GRP) rod (optional steel central member). The purpose of the central member is to provide tensile strength and prevent buckling. The central member shall be over coated with a thermoplastic when required to achieve dimensional sizing to accommodate buffer tubes/fillers.
- Each buffer tube shall contain a water-swellaable yarn for water blocking protection. The water-swellaable yarn shall be non-nutritive to fungus, electronically non-conductive, and homogenous. It shall also be free of dirt or foreign matter. This yarn will preclude the need for other water-blocking material. The buffer tube shall be gel free.
- Optical fibers shall not require cleaning before placement into a splice tray or fan-out kit.
- Buffer tubes shall be stranded around the dielectric central member using reverse oscillation lay (S-Z) stranding process. Water-swellaable yarn(s) shall be applied longitudinally along the central member during stranding.
- Two polyester yarn binders shall be applied contra-helically with sufficient tension to secure each buffer tube layer to the dielectric central member without crushing the buffer tubes. The binders shall be non-hygroscopic, non-wicking, and dielectric with low shrinkage.
- For single layer cables, a water-swellaable tape shall be applied longitudinally around the outside of the stranded tubes/fillers. The water-swellaable tape shall be non-nutritive to fungus, electrically non-conductive, and homogenous. It shall also be free of dirt and foreign matter.
- At least one water-swellaable yarn shall be wrapped around the central member, all along the cable, to prevent water migration down the cable core.
- Non-armored cables shall contain at least one ripcord under the sheath for easy sheath removal. Armored cables shall contain at least one ripcord under the inner sheath and at least one ripcord under the steel armor for easy sheath removal.
- Tensile strength shall be provided by the central member, and additional dielectric yarns as required.
- The dielectric yarns shall be helically stranded evenly around the cable core.
- Non-armored cables shall be sheathed with medium-density polyethylene (MDPE). The MDPE jacket/sheath shall have a minimum thickness of 1.4 mm. Jacketing material shall be applied directly over the tensile strength members (as required) and water-swellaable tape. The polyethylene shall contain carbon black to provide ultraviolet light protection and shall not promote the growth of fungus. See Figure 1.

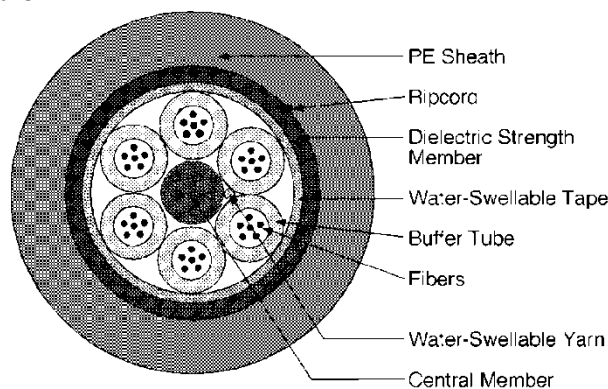


Figure 1

- The MDPE jacket material shall be as defined by ASTM D1248, Type 2 Class C and Grades J4, E7, and E8.
- The jacket/sheath shall be free of holes, splits, and blisters.
- The cable jacket/sheath shall contain no metal elements and shall be of a consistent thickness.
- Cable jackets shall be marked with the following:
  - Manufacturer's name;
  - Month and year of manufacture;
  - Sequential meter or foot markings;
  - A telecommunication handset symbol as required by Section 350G of the National Electrical Safety Code (NESC);



## SPECIFICATIONS

- Fiber count;
  - Fiber type;
  - The actual length of the cable shall be within -0/+1% of the length markings.
- Cable jacket markings shall be white, with the exception that cable jackets containing one or more coextruded white stripes shall be printed in light blue. The height of the markings shall be approximately 2.5 mm. An option of switch back marking must be available on the outer jacket to facilitate mid-span access.
  - If the initial cable jacket marking fails to meet the specified requirements (i.e. improper text, statement, color, legibility, or print interval), the cable may be remarked using a contrasting alternate color. The numbering sequence and a tag will be attached to both the outside end of the cable and to the reel to indicate the sequence of remarking. The preferred remarking color will be yellow, with the secondary choice blue.
  - The maximum pulling tension shall be 2700 N (608 lbf) during installation (short term) and 890 N (200 lbf) installed (long term).
  - The shipping, storage, and operating temperature range of the cable shall be -40 degrees Celsius to +70 degrees Celsius. The installation temperature range of the cable shall be -30 degrees Celsius to +70 degrees Celsius.

### ***SPECIFICATIONS FOR GENERAL CABLE PERFORMANCE***

- When tested in accordance with FOTP-3, "Procedure to Measure Temperature Cycling Effects on Optical Fibers, Optical Cable, and Other Passive Fiber Optic Components," the change in attenuation at extreme operational temperatures (-40 degrees Celsius and +70 degrees Celsius) shall not exceed 0.15 dB/km at 1550 nm for single-mode cable, and 0.3 dB/km at 1300 nm for multimode fiber.
- When tested in accordance with FOTP-82, "Fluid Penetration Test for Fluid-Blocked Fiber Optic Cable," a one meter length of ungauged cable shall withstand a one meter static head or equivalent continuous pressure of water for one hour without leakage through the open cable end.
- When tested in accordance with FOTP-81, "Compound Flow (Drip) Test for Filled Fiber Optic Cable," the cable shall exhibit no flow (drip or leak) of filling and/or flooding material.
- When tested in accordance with FOTP-41, "Compressive Loading Resistance of Fiber Optic Cable," the cable shall withstand a minimum compressive load of 220 N/cm (125 lbf/in) applied uniformly over the length of the sample. The 220 N/cm (125 lbf/in) load shall be applied at a rate of 2.5 mm (0.1 in) per minute. The load shall then be maintained for a period of one minute. The load shall then be decreased to 110 N/cm (63 lbf/in). Alternatively, it is acceptable to remove the 220 N/cm (125 lbf/in) load entirely and apply a 110 N/cm (63 lbf/in) load within five minutes at a rate of 2.5 mm (0.1 in) per minute. The 110 N/cm (63 lbf/in) shall then be maintained for a period of ten minutes. Attenuation measurements shall be performed before release of the 110 N/cm (63 lbf/in) load. The change in attenuation shall not exceed 0.15 dB/km at 1550 nm for single-mode cable, and 0.3 dB/km at 1300 nm for multimode fiber.
- When tested in accordance with FOTP-104, "Fiber Optic Cable Cyclic Flexing Test," the cable shall withstand 25 mechanical flexing cycles around a sheave diameter not greater than 20 times the cable diameter. The change in attenuation shall not exceed 0.15 dB/km at 1550 nm for single-mode cable, and 0.3 dB/km at 1300 nm for multimode fiber.
- When tested in accordance with FOTP-25, "Repeated Impact Test of Fiber Optic Cables and Cable Assemblies," except that the number of cycles shall be two at three locations along a one meter cable length and the impact energy shall be at least 4.4 Nm (in accordance with ICA S-87-640), the change in attenuation shall not exceed 0.15 dB/km at 1550 nm for single-mode cable, and 0.3 dB/km at 1300 nm for multimode fiber.
- When tested in accordance with FOTP-33, "Fiber Optic Cable Tensile Loading and Bending Test," using a maximum mandrel and sheave diameter of 560 mm, the cable shall withstand a rated tensile load of 2670 N (670 lbf) and residual load of 30% of the rated installation load. The axial fiber strain shall be < 60% of the fiber proof level after completion of 60 minute conditioning and while the cable is under the rated installation load. The axial fiber strain shall be < 20% of the fiber proof level after completion of 10 minute conditioning and while the cable is under residual load. The change in attenuation at residual load

## **SPECIFICATIONS**

and after load removal shall not exceed 0.15 dB/km at 1550 nm for single-mode cable, and 0.3 dB/km at 1300 nm for multimode fiber.

- When tested in accordance with FOTP-85, "Fiber Optic Cable Twist Test," a length of cable no greater than 2 meters shall withstand 10 cycles of mechanical twisting. The change in attenuation shall not exceed 0.15 dB/km at 1550 nm for single-mode cable, and 0.3 dB/km at 1300 nm for multimode fiber.
- When tested in accordance with FOTP-181, "Lightning Damage Susceptibility Test for Optic Cables with Metallic Components," the cable shall withstand a simulated lightning strike with a peak value of current pulse equal to 105 ka without loss of fiber continuity. A damped oscillatory test current shall be used with a maximum time-to-peak value of 15 us (which corresponds to a minimum frequency of 16.7 khz) and a maximum frequency of 30 khz. The time to half-value of the waveform envelope shall be from 40-70 us.
- When tested in accordance with FOTP-37, "Low or High Temperature Bend Test for Fiber Optic Cable," the cable shall withstand four full turns around a mandrel of < 20 times the cable diameter after conditioning for four hours at test temperature of -30 degrees Celsius and +60 degrees Celsius. Neither the inner nor outer surfaces of the jacket shall exhibit visible cracks, splits, tears, or other openings. The change in attenuation shall not exceed 0.3 dB/km at 1550 nm for single-mode cable, and 0.5 dB/km at 1300 nm for multimode fiber.

### **QUALITY ASSURANCE PROVISION**

All cabled optical fibers greater than 1000 meters in length shall be 100% attenuation tested. The attenuation of each fiber shall be provided with each cable reel. The cable shall be ISO 9001 registered.

### **PACKAGING**

- The completed cable shall be packaged for shipment on non-returnable wooden reels. Required cable lengths shall be stated in the purchase order.
- Top and bottom ends of cable shall be available for testing.
- Both ends of cable shall be sealed to prevent the ingress of moisture.
- Each reel shall have a weather resistant reel tag attached identifying the reel and cable.
- The reel tag shall have the following information:
  - Name of Manufacturer
  - Cable Number
  - Shipped Cable Length In Meters
  - Manufacturer Product Number
  - Date Cable Was Tested
  - Cable Length Markings:
    - A) Top (inside end of cable)
    - B) Bottom (outside end of cable)
  - Gross Weight
  - Job Order Number
  - Customer Order Number
  - Manufacturer Order Number
  - Item Number
- Cable reel shall include the following on at least one flange:
  - Name of Manufacturer
  - Country Of Origin

## **SPECIFICATIONS**

- Arrow Indicating Proper Direction Of Roll When Handling
- Forklift Handling Illustration
- "Do Not Ship Reel On Side"
- "Do Not Lay Reel On Side"
- Each cable shall be accompanied by a Cable Data Sheet. The Cable Data Sheet shall include the following information:
  - Name of Manufacturer
  - Manufacturer Cable Number
  - Manufacturer Product Number
  - Factory Order Number
  - Customer Name
  - Alternate Customer
  - Customer Cable Number
  - Customer Purchase Order Number
  - Alternate Code
  - Mark for Information
  - Ordered Length
  - Maximum Billable Length
  - Actual Shipped Length
  - Measured Attenuation of Each Fiber (for lengths greater than 1000 meters)
  - Band Width Specification (where applicable)
- Manufacturer shall provide 24-hour technical assistance.

### ***ON-SITE TESTING, TRAINING & TECHNICAL ASSISTANCE***

- The cable manufacturer/supplier shall provide on-the-reel testing of each fiber cable. The supplier is required to test all fibers in each reel of cable on-site, prior to installation upon request by the City. This testing is for both continuity and attenuation. The tests shall be conducted at 850 Nm for multimode fibers and at 1310 Nm for single-mode fibers. The testing shall be performed by a qualified technician using an optical time domain reflectometer (OTDR) via a pigtail splice. The resultant OTDR trace(s) shall reflect overall length and attenuation expressed in dB/km. All test results shall meet or exceed factory supplied attenuation measurements for multimode fibers, and be within +/- 0.02 dB/km of factory supplied attenuation measurements for single-mode fibers. Hard copy OTDR traces for the testing shall be supplied by the supplier prior to installation of cables.

### **Schedule 2 - SPECIFICATIONS FOR JUNCTION BOX ENCLOSURES**

- Junction Boxes for traffic signal installation shall be in accordance with State of Alabama Department of Transportation (ALDOT) specifications.
- Junction Boxes shall be constructed of non-concrete plastic mortar reinforced with heavy weave fiberglass, and shall have a static load capacity of 20,000 psi, distributed over a 10 inch by 10 inch area at the center of the cover.
- Junction Boxes shall conform to AASHTO specification H10.
- Sizing will be 2'W x 3'L x 24"H and 13"x24"x12"
- Enclosures will be Tier 22 load rating. Driveway, parking lot, and off-roadway applications.

## **SPECIFICATIONS**

### **Schedule 3 - SPECIFICATIONS FOR NEMA CONTROL CABINETS**

#### **Item 1: TS2 Type 1 Eight Phase Base Mount Cabinet**

- (16) Load Switches
- (6) Flash Relays
- NEMA Flasher
- MMU2-16LEIP w/Ethernet Port & Cable
- TS2 Card Rack Assembly
- Cabinet Power Supply
- (3) BIU Modules
- Cabinet to include rear door compartment
- Generator plug with transfer switch
- Auto-Hand Switch with Cord for Switch compartment
- Otherwise meets NEMA & ALDOT Specifications
- Cabinet, exterior black in color, interior white in color

#### **Item 2: TS2 Type 1 Eight Phase Pole Mount Cabinet**

- (16) Load Switches
- (6) Flash Relays
- NEMA Flasher
- MMU2-16LEIP w/Ethernet Port & Cable
- TS2 Card Rack Assembly
- Cabinet Power Supply
- (3) BIU Modules
- Auto-Hand Switch with Cord for Switch compartment
- Otherwise meets NEMA & ALDOT Specifications
- Cabinet, exterior black in color, interior white in color

### **Schedule 4 - SPECIFICATIONS FOR TRANSFORMER BASES**

- Transformer Bases of all types shall be 17 inches in height
- The base shall telescope the shaft and the one weld shall be on the inside of the base at the end of the shaft, while the other weld shall be on the outside at the top of the base. The two welds shall be so that the welded connection shall develop the full strength of the adjacent shaft section to resist bending action.
- The base shall be provided with four slotted holes to receive the anchor bolts with 1" (+ or -) of bolt circle specified on drawings. The shaft shall have four holes for ventilation located at the body of the base directly behind each anchor bolt hole and four tapped holes for attaching ornamental covers.
- Four removable cast iron ornamental covers shall be provided with each base and each cover shall attach to the upright portion of the body of the pole by means of one hex head cap screw.
- All castings shall be clean and smooth, with all details well defined and true to pattern. Gray iron castings shall conform to ASTM Designation AT26-42 Class A. Steel castings shall conform to ASTM Designation A27-58, Grade 65-35.
- The transformer bases shall meet the breakaway performance requirements of the AASHTO standard specifications for structural supports for highway signs, luminaires, structural supports and traffic signals.
- All the above materials shall have been subjected to impact testing and approved by the Federal Highway Administration for the type of service for which they will be used.


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## **SPECIFICATIONS**

### **Schedule 5 - SPECIFICATIONS FOR CAMERA SUPPLIES**

#### **Camera Cabinet**

- Signal Engineering Co. (SECO) 16x16x16 cabinet, ITS, Alabama, Thermostat, Backplate, Fan, Square D Suppressor SDSA 1175, Terminal Block, Louvers on 2 Sides, Hub hole on bottom, 2 pole mount brackets on back

### **Schedule 6 - SPECIFICATIONS FOR LED OUTDOOR LUMINAIRE**

- 480 Volt must be Philips Lumec RFL-145W64LED4K-G2-R3M-HVU-DMG-NRC-GY3 or equal
- 120-277 Volt must be Philips Lumec RFL-145W64LED4K-G2-R3M-UNV-DMG-NRC-GY3 or equal

**PLEASE CONTINUE READING THE NEXT PAGE**

**ITEM LIST & BID SUBMISSION FORM****Unit of Measure and Packaging**

To ensure fair and consistent evaluation, a Unit of Measure (UOM) is provided in the Bid Response Table (e.g., Ea/*each*, Ft/*per foot*). Bidders must submit pricing according to the UOM specified, regardless of how the item is typically packaged.

For example:

- If a product is sold in multi-packs (e.g., a pack of 25), the bidder must provide the unit price per each, as specified in the bid table, and note the standard packaging (e.g., “sold as pack of 25”).
- For items such as cable or conduit where pricing is commonly given per 1,000 feet or in bulk quantities, the bidder must provide the unit price per foot, as specified in the bid table, and note the standard packaging (e.g., “typically sold on 500-ft spool” or “minimum spool length 1,000 ft”).

Pricing must reflect the stated UOM and cannot be contingent on minimum order quantities or packaging multiples. Failure to comply with the stated UOM may result in the bid being deemed non-responsive.

**Unbalanced or Abnormally Low Pricing**

If any unit price appears to be significantly lower than the typical market rate, the bidder must include, at the time of bid submission, a clear written explanation justifying the pricing.

This justification should include (but is not limited to):

- Confirmation that the product or service meets all specifications without substitution or reduction in quality
- Explanation of cost efficiencies, overstock, manufacturer discounts, or other factors enabling the reduced price
- Any relevant supporting documentation

The City may consider historical pricing, industry standards, or the average of responsive bids to determine the typical market rate. Failure to provide adequate justification with the bid submission may result in the item—or the entire bid—being deemed non-responsive.

<b><i>Schedule 1 – Fiber Optic Supplies</i></b>				
<b>Line Item</b>	<b>Part Description</b>	<b>UOM</b>	<b>Bidder's Make/Model#</b>	<b>Bid Price</b>
	Corning Fast Access Fiber Cable			
1.1	288 Count - 288ZU4-T4722D20	Ft		
1.2	144 Count - 144ZU4-T4722D20	Ft		
1.3	48 Count - 048ZU4-T4F22D20	Ft		
1.4	24 Count - 024ZU4-T4F22D20	Ft		
1.5	12 Count 012ZU4-T4F22D20	Ft		
1.6	6 Count 006E8F-31131-29	Ft		
1.7	144 Count 144ZH4-Y4F40A20	Ft		

**ITEM LIST & BID SUBMISSION FORM**

Line Item	Part Description	UOM	Bidder's Make/Model#	Bid Price
	Corning Fiber Cassette & Housings			
1.8	Corning 4 Unit Housing - CCH-04U	Ea		
1.9	Corning 2 Unit Housing - CCH-02U	Ea		
1.10	Corning 12 Fiber Cassette (SM) - CCH-CS12-A9-P00RE	Ea		
	AFL Fiber Cassette & Housing			
1.11	AFL 6 Fiber Cassette - PM-L-06-ULC-0-S-01	Ea		
1.12	AFL 12 Fiber Cassette - PM-L-12-ULC-0-S-01	Ea		
1.13	AFL Single Cassette Housing - WME01E	Ea		
1.14	AFL DinRail Kit - FM003388	Ea		
	Corning Splice Cases			
1.15	Corning 144 Splice Case with Trays - SCF-6C28-01-144			
1.16	Corning 72 Splice Case with Trays - SCF-6C22-01-072	Ea		
	Corning Unicams			
1.17	Corning (SM) ST Unicam - 95-200-51	Ea		
1.18	Corning (SM) LC Unicam - 95-200-41	Ea		
1.19	Corning Heat Shrink 60 MM - 2806031-01	Ea		

**BID RESPONSE TABLE CONTINUED TO THE NEXT PAGE**

**ITEM LIST & BID SUBMISSION FORM*****Schedule 2 – Junction Box Enclosures***

Line Item	Part Description	UOM	Bidder's Make/Model#	Bid Price
2.1	Quazite 24x36x24 with Communications, Fiber Optic, or Lighting Lid included (Tier 22) - PG2436BA24	Ea		
2.2	Quazite 13x24x12 with Communications, Fiber Optic, or Lighting Lid included (Tier 22) - PG 1324BA12	Ea		

***Schedule 3 – NEMA Control Cabinets***

Line Item	Part Description	UOM	Bidder's Make/Model#	Bid Price
3.1	TS2 Type 1 Eight Phase Base Mount Cabinet	Ea		
3.2	TS2 Type 1 Eight Phase Pole Mount Cabinet	Ea		

***Schedule 4 – Street Light Poles & Transformer Bases***

Line Item	Part Description	UOM	Bidder's Make/Model#	Bid Price
4.1	Transformer Bases (replacement) per Specs TB1	Ea		
4.2	Transformer Bases (replacement) per Specs TB2	Ea		
4.3	Transformer Bases (replacement) per Specs TB3	Ea		

***Schedule 5 – Camera Supplies***

Line Item	Part Description	UOM	Bidder's Make/Model#	Bid Price
	Radios			
5.1	Ubiquiti AP (Rocket) - NS-5AC	Ea		
5.2	Ubiquiti Nanostation - LOCO5AC	Ea		
5.3	Ubiquiti POE - POE-48-24W-G	Ea		



**ITEM LIST & BID SUBMISSION FORM**

<b>E</b>	<b>Part Description</b>	<b>UOM</b>	<b>Bidder's Make/Model#</b>	<b>Bid Price</b>
	Switches			
5.4	Antaira 90w POE Output 12 port switch – LMP-1204G-SFP-bt-T	Ea		
5.5	Antaira 30W POE Output 18 port switch – LMP-1802G-SFP-T	Ea		
5.6	Antaira Power Supply with DIN Rail Bracket – SDR-240-48	Ea		
	Bore Pipe			
5.7	Duraline 2 inch, SDR 13.5, Pinpoint with 18awg tracer wire , Silicore ULF lining, - n/a. Orange, Footage markers on pipe, 3000 feet on a spool.	Ea		
5.8	Duraline 3 inch, SDR 13.5, Pinpoint with 18awg tracer wire , Silicore ULF lining, - n/a. Orange, Footage markers on pipe, 1000 feet on a spool.	Ea		
5.9	Duraline FuturePath 4 way 16/12mm with tracer wire, Silicore lining, Orange, Footage Markers on pipe, 5000 feet on a spool	Ea		
5.10	Duraline HDPE Microduct 16/12 mm, Silicore lining, Blue, Footage markers on pipe, 6500 Feet on a spool	Ea		
5.11	Duraline Micro Coupler 16/12 part 20001517	Ea		
5.12	Duraline End Cap 16mm part 20001908	Ea		
5.13	Duraline 2" Clear-Lock Coupler part 20005097	Ea		
	Camera Cabinet			
5.14	Signal Engineering Co. (SECO) 16x16x16 cabinet, ITS, Alabama, Thermostat, - SA-CAB_161616-S-ALIT. Backplate, Fan, Square D Supressor SDSA 1175, Terminal Block, Louvers on 2 - Sides, Hub hole on bottom, 2 pole mount brackets on back -	Ea		

**BID RESPONSE TABLE CONTINUED TO THE NEXT PAGE**

**ITEM LIST & BID SUBMISSION FORM*****Schedule 6 – LED Outdoor Luminaires***

<b>Line Item</b>	<b>Part Description</b>	<b>UOM</b>	<b>Bidder's Make/Model#</b>	<b>Bid Price</b>
6.1	Philips Lumec RFL-145W64LED4K-G2-R3M-HVU-DMG-NRC-GY3 480V Luminaire	Ea		
6.2	Philips Lumec RFL-145W64LED4K-G2-R3M-UNV-DMG-NRC-GY3 120-277V Luminaire	Ea		

***Schedule 7 – Miscellaneous***

<b>Line Item</b>	<b>Part Description</b>	<b>UOM</b>	<b>Bidder's Make/Model#</b>	<b>Bid Price</b>
7.1	Polyester Mule Tape 5/8" 1800lb	Ea		
7.2	Vertical Cable Outdoor CAT5E Ethernet part 059-486/CMXT	Ea		
7.3	Card Rack EDI Oracle 4H Series - Quad Channel 1/2 Width	Ea		
7.4	MMU2-16LEip w/Ethernet Port Smart Monitor	Ea		

**BID RESPONSE TABLE CONTINUED TO THE NEXT PAGE**

**BIDDER'S RESPONSE FORM**

**MESSAGE TO BIDDERS:** Please review your bid documents for accuracy, completeness, required documentation, and necessary signatures before submitting. Please label the outer mailing/shipping package with the bid information as directed.

BIDDER INFORMATION			
Company Name		Contact Name	
Email Address		Telephone Number	
Physical Business Address		Mailing Address for Payments	
Authorized Signature		Payment Terms	

Awarded bidder(s) will be required to obtain a City of Tuscaloosa business license in order to provide goods and/or services in response to this bid and subsequent contract(s). Inquiries regarding business license requirements should be directed to the City's Revenue & Financial Services Division at (205) 248-5200. Failure to obtain and maintain the required city business license(s) may result in rescinding of bid award and contract termination.

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

**FAILURE TO COMPLETE ALL OF THE ABOVE WITH AN AUTHORIZED SIGNATURE MAY SUBJECT BID TO REJECTION.**