



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

April 11, 2017

Addendum No. 1

RE: Contract # C203953

WBS # 39079.3.4

FA # STP-1302(069)

Buncombe County (U-4715B)

Asheville – City Wide Signal Improvements

April 18, 2017 Letting

To Whom It May Concern:

Reference is made to the proposal form furnished to you on this project.

The following revisions have been made to the proposal:

Page No.	Revisions
Proposal Cover	Note added that reads “Includes Addendum No. 1 Dated 4-11-17”
ITS-99	Revised wording of standard size junction box lid imprints to add ‘Electrical’ for JB’s that contain electrical conductors within the project special provision entitled “Junction Boxes”
ITS-284	Revised wording of Network Management Software requirements to allow a “hybrid” configuration within the project special provision entitled “Communications Hardware”
ITS-303	Revised to identify the manufacturer of the existing video display monitors within the project special provision entitled “Digital Video Equipment”

Please void the Proposal Cover, Page No. ITS-99, ITS-284 and No. ITS-303 in your proposal and replace with the revised pages.

The contract will be prepared accordingly.

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
CONTRACT STANDARDS AND DEVELOPMENT
1591 MAIL SERVICE CENTER
RALEIGH, NC 27699-1591

Telephone: (919) 707-6900
Fax: (919) 250-4127
Customer Service: 1-877-368-4968

Location:
1020 BIRCH RIDGE DR.
RALEIGH, NC 27610

Website: www.ncdot.gov

U-4715B

Buncombe County

Sincerely,

DocuSigned by:



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R. E. Davenport, Jr., PE
Contract Officer

RED/jag

cc: Mr. Lamar Sylvester, PE
Mr. Jay Swain, PE
Mr. Bobby Lewis, PE
Mr. Ken Kennedy, PE
Ms. Jaci Kincaid
Ms. Lori Strickland
Project File (2)

Mr. Ray Arnold, PE
Ms. Theresa Canales, PE
Mr. Mike Gwyn
Ms. Penny Higgins
Mr. Mitchell Dixon

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH, N.C.

PROPOSAL

INCLUDES ADDENDUM No. 1 DATED 04-11-2017

DATE AND TIME OF BID OPENING: **APRIL 18, 2017 AT 2:00 PM**

CONTRACT ID C203953
WBS 39079.3.4

FEDERAL-AID NO. STP-1302(069)
COUNTY BUNCOMBE
T.I.P. NO. U-4715B
MILES 80.000
ROUTE NO.
LOCATION ASHEVILLE - CITY WIDE SIGNAL IMPROVEMENTS.

TYPE OF WORK ITS.

NOTICE:

ALL BIDDERS SHALL COMPLY WITH ALL APPLICABLE LAWS REGULATING THE PRACTICE OF GENERAL CONTRACTING AS CONTAINED IN CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA WHICH REQUIRES THE BIDDER TO BE LICENSED BY THE N.C. LICENSING BOARD FOR CONTRACTORS WHEN BIDDING ON ANY NON-FEDERAL AID PROJECT WHERE THE BID IS \$30,000 OR MORE, EXCEPT FOR CERTAIN SPECIALTY WORK AS DETERMINED BY THE LICENSING BOARD. BIDDERS SHALL ALSO COMPLY WITH ALL OTHER APPLICABLE LAWS REGULATING THE PRACTICES OF ELECTRICAL, PLUMBING, HEATING AND AIR CONDITIONING AND REFRIGERATION CONTRACTING AS CONTAINED IN CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA. NOTWITHSTANDING THESE LIMITATIONS ON BIDDING, THE BIDDER WHO IS AWARDED ANY FEDERAL - AID FUNDED PROJECT SHALL COMPLY WITH CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA FOR LICENSING REQUIREMENTS WITHIN 60 CALENDAR DAYS OF BID OPENING.

BIDS WILL BE RECEIVED AS SHOWN BELOW:

THIS IS A SIGNAL PROPOSAL

5% BID BOND OR BID DEPOSIT REQUIRED

U-4715B

ITS-99

Buncombe County

8. JUNCTION BOXES

8.1. DESCRIPTION

Furnish and install junction boxes (pull boxes) with covers, washed stone, grounding systems, and all necessary hardware.

8.2. MATERIALS

A. General

Provide electrical junction boxes with covers of the type and size indicated by the contract or the Plans for the termination of conduits, for splicing loop wires to loop lead-in cables and for splicing and storing fiber-optic communications cable.

Except for special-sized junction boxes, material, equipment, and hardware furnished under this section shall be pre-approved on the ITS and Signals QPL.

Provide #67 washed stone aggregates in conformance with Sections 545 and 1005 of the *Standard Specifications*.

B. Polymer Concrete (PC) Junction Boxes

Provide polymer concrete (PC) boxes which are stackable, have bolted covers and have open bottoms. Ensure vertical extensions of 6" to 12" are available from the junction box manufacturer.

Use polymer concrete material made of an aggregate consisting of sand and gravel bound together with a polymer and reinforced with glass strands to fabricate box and cover components which are exposed to sunlight. Other thermosetting glass-reinforced materials may be used for components which are not normally exposed to sunlight.

Provide certification that the polymer concrete boxes and covers meet Tier 15 requirements of ANSI/SCTE 77. Provide certification that testing methods are compliant with ANSI/SCTE 77.

Provide junction box covers with the required logos on the cover as follows (see NCDOT *Roadway Standard Drawing* No. 1716.01 for additional details):

- For standard size junction boxes ♦ that contain traffic signal cable and loop lead-in cable ♦, provide covers with the standard *TRAFFIC SIGNAL* logo;
- ♦ For standard size junction boxes that house electrical service conductors, provide covers with the standard *ELECTRIC* logo; and ♦
- For oversized and special-sized junction boxes, provide covers with the following standard logo/imprint: *NCDOT* (line 1) *FIBER* (line 2) *OPTIC* (line 3).

Provide at least 2 size 3/8" diameter hex head stainless steel cover bolts to match inserts in the box. Provide pull slot(s) with stainless steel pin(s). Polymer concrete junction boxes are not required to be listed electrical devices.

♦ **Revision No. 1, April 10, 2017** – *This document supersedes version originally issued and sealed by J. Todd Brooks, NCPE No. 017586 on 12/28/2016.*

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ITS-284

Buncombe County

39. COMMUNICATIONS HARDWARE

39.1. DESCRIPTION

Furnish and install all equipment described below for a fully functional Gigabit Ethernet network for communication to the signal system and CCTV.

A. Ethernet Core Switch

Furnish and install a central Layer 3 managed Gigabit Ethernet core switch along with a Category 6 patch panel for the TMC. Ensure that the managed Ethernet core switch provides Gigabit Ethernet connectivity at transmission rates of 1000 megabits per second (Mbps), and is expandable to 10 Gigabits per second (Gbps).

B. Ethernet Edge Switch

Furnish and install a hardened, field Ethernet edge switch (hereafter "edge switch") for field devices. Ensure that the edge switch provides wire-speed, Ethernet connectivity at each ITS device location to the Ethernet core switch.

C. Firewall

Furnish and install firewall appliances in the TMC to provide network security from Internet-based traffic, as well as to provide an IPsec Virtual Private Network (VPN) connectivity.

D. Network Management Software

For the communications network, utilize network management software (NMS) for configuration, troubleshooting, security, and system monitoring. The software shall be furnished and installed by the Contractor ♦ to manage and monitor the Ethernet core ♦ and Ethernet edge switches ♦ and the ITS devices. ♦ The Contractor shall perform the initial system integration of all core and edge switches installed on the project.

Install the network management software on all relevant communications hardware, including workstations, laptops and servers, as recommended by the manufacturer's instructions. Ensure that the network management software is compatible with all elements of the network, including the Ethernet switches, workstations, laptops, and servers. Ensure the system meets the minimum technical requirements and is capable of handling expansion within the ITS network. Ensure that the software manages third party switches and hardware via Simple Network Management Protocol (SNMP) v1 or v3.

Provide system that has a graphical user interface (GUI) for the operator and shall graphically depict the equipment and maintenance/operational status using a graphical map of the system. Include setup and diagnostic utility software for both the server and client computers (licenses to be provided by the Contractor). Ensure that the system is interoperable with all end-to-end communications elements (video encoder, Ethernet switches, and video decoder) that connect each CCTV camera to analog and digital video monitors.

E. Uninterruptible Power Supply (UPS)

Furnish and install a new rack-mounted UPS in the TMC to serve the Ethernet core switch, ITS servers and other equipment mounted in the communications racks in the server room.

♦ *Revision No. 1, April 10, 2017 - This document supersedes version originally issued and sealed by J. Todd Brooks, NCPE No. 017586 on 12/28/2016*

U-4715B

ITS-303

Buncombe County

40. DIGITAL VIDEO EQUIPMENT

40.1. DESCRIPTION

Furnish and install a video graphics card for the existing video server to support the video management software. Furnish monitors to expand the existing monitor wall in the TMC and to add a new monitor in the City Transportation Department.

Provide USB-based joysticks for CCTV selection and control.

Provide network video recorder to record streaming digital video streams.

40.2. MATERIALS

A. Graphics Card for Existing Video Processing Unit

Provide one professional grade graphics card in the existing video processor to drive a total of eight HD displays per video processor unit meeting the following minimum requirements:

- Integrated video chipset controller,
- PCIe 3.0 compliant,
- RAM: 4 GB GDDR5,
- Display Ports: Four, with adaptors for HDMI eight monitor inputs,
- Maximum Display Port 1.2 Resolution: 4096 x 2160,
- Maximum Display Port 1.1 Resolution: 2560 x 2600,
- Memory bandwidth: 154 GBps,
- DirectX 11.1

B. Digital Video Monitors

Provide two 43-inch LED monitors to expand the existing monitor wall in the TMC and another monitor of the same size for the City Transportation Department. Provide only new video monitors; do not furnish used or refurbished monitors. Furnish monitors made by the same manufacturer ♦, LG Electronics, as the existing monitors. ♦ Provide power cords for all monitors of sufficient length to plug into duplex wall receptacle adjacent to monitor mounting location.

Provide mounting brackets specifically designed for mounting the size of LED monitors described below on both metal and wood stud walls. Provide brackets that allow vertical and horizontal tilt to optimize viewing angles. Provide brackets with locking setscrews to prevent the monitor from falling or sliding off the bracket. Provide all mounting hardware and fasteners and plywood backboard necessary for securely attaching monitor mount brackets to metal stud and wood stud walls. Provide monitors with a rated life of 50,000 hours.

Provide 43" monitors meeting the following requirements:

- Display Type: LED, widescreen flat panel,
- Mounting: Wall-mount,
- Resolution: 1,920 x 1,080 dpi,
- Pixel Pitch: .265 mm,
- Response Time: 8 ms,

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