

SECTION 280000 – SECURITY CAMERA SYSTEM

PART 1 - GENERAL

1.1 INTRODUCTION/ RELATED DOCUMENTS

- A. These specifications establish technical and operation requirements for various technologies planned for the CityWalk project under construction by the City of Tuscaloosa. The physical infrastructure, such as fiber, is a critical connector for IT-Communication Devices such as Security Cameras, Wireless Access Point Units, Information Terminals, Digital Signage and Network Connection Equipment throughout the project area. A properly designed and constructed telecommunications system shall be adaptable to change over time and support current and future needs.
- B. The City of Tuscaloosa is soliciting bids from qualified Contractors/Vendors for the material and labor to install a Security Camera System (The Contractor/ Vendor shall Purchase and Provide the Security Camera System Equipment. The Contractor/ Vendor shall also Set-up and Program the Security Camera System Equipment). This bid and resultant contract is for the Forest Lake, Alberta Parkway Phase-1B, Alberta Parkway Phase-2, and 10TH Avenue Segments of the total CityWalk. The total City Walk is being implemented along a 5.2 mile greenway walking/biking path. The project will be built in 5 segments and installed over an 18 – 24 month period. The CityWalk will originate at Harmon Park near the intersection of 10th Avenue and Greensboro Avenue and terminate at a community park located in the Alberta community.
- C. Drawings for the Forest Lake Section is issued with these documents to provide the Contractor/Vendor a sample of the project layout and design. Drawings for the Alberta Parkway Phase-1B, Alberta Parkway Phase-2, and 10TH Avenue Segments will be issued at a later date.
- D. This Bid includes quantities of security camera system equipment and patch cord/jumpers to be installed (Material/Equipment and Labor) for each segment as listed below.

Security Camera System Quantity Count						
Camera Type	Forest Lake PH-1/Base	Forest Lake PH-2/ALT	Alberta Parkway PH-1B	Alberta Parkway PH-2	10TH Avenue Section	Total
In-Line	43	4	30	34	48	159
Blind Spot	7	0	5	1	3	16
Indoor	0	4	0	0	0	4
Total	50	8	35	35	51	179

- E. The successful Contractor/ Vendor will be required to submit a proposal that demonstrates a technical expertise, past experience with similar security camera systems, a clear understanding of the objectives/goals of the City, and capacity to engage additional resources to enhance or expand the system. The contractor/ vendors shall include in their company’s proposal, the product descriptions, approach, and total proposed solution. The Owner has the right to select the bid that is most responsive.
- F. The Contractor/ Vendor are expected to review the designed system description as described and note any perceived gaps in what is described here and provide feedback via the RFI Questions Process.
- G. A complete bid will include the following sections:
 1. Summary of the Bid Solution.
 2. High level project plan to implement the solution.
 3. Detailed Components.

4. Detailed Programming and Test Plan.

- H. Contractor/ Vendor shall install a fully functioning Security Camera System as specified herein.
- I. The Contractor/ Vendor shall work in cooperation and coordinate with the Owner, The City of Tuscaloosa IT-Department and TDOT/ Department of Transportation in the Set-up and Programming with all Licenses as required for the Security Camera System. The proposed system solution shall work with the current Video Management Platform, which is Genetec.
- J. The system shall include all necessary equipment to create a totally functioning Security Camera System.
- K. Furnishing and installing a turnkey Security Camera System solution utilizing Cat6 and fiber cabling and related peripheral equipment as indicated and specified herein, and connecting the system and related peripherals to the cabling infrastructure and network.
- L. All equipment and materials shall be new and shall be designed specifically for the work to be done.
- M. The design and construction of the Security Camera System shall:
 - 1. Provide Security Camera System architecture based on recognized standards to support efficient, long-lasting, cost-effective operations.
 - 2. Provide the flexibility to operate a complete Security Camera System using standard management platform.
 - 3. Improve network manageability and facilitate automated video system management through the use of uniform and industry standards.

1.2 STANDARDS:

- A. American National Standards Institute (ANSI) approves standards as having been properly developed.
- B. ANSI/TIA/EIA-568, Commercial Building Telecommunications Cabling Standard.
- C. ANSI/EIA/TIA-569, Commercial Building Standard for Telecommunications Pathways and Spaces.
- D. ANSI/TIA/EIA-606A, Administration Standard for the Telecommunications Infrastructure of Commercial Buildings.
- E. ANSI/TIA/EIA-607, Commercial Building Grounding and Bonding Requirements for Telecommunications.
- F. IEEE 802.3, Local Area Network Ethernet Standard.
- G. Building Industry Consulting Service International, Inc. (BICSI) Telecommunications Distribution Methods Manual (TDMM).
- H. NFPA 70, National Electrical Code, Article 250, Grounding; Article 645, Information Technology Equipment; Article 770, Optical Fiber Cables and Raceways; Chapter 8, Communications Systems.

1.3 SUBMITTALS:

- A. The Contractor/ Vendor shall submit shop drawings and product data to the owner's representative/RCDD and designer for review and approval prior to commencement of work.
- B. The Contractor/ Vendor shall indicate installation details, system configuration, and system numbering on shop drawings.
- C. The Contractor/ Vendor shall submit appropriate product data for each component to be supplied.
- D. The Contractor/ Vendor shall submit manufacturer's installation instructions.
- E. The Contractor/ Vendor shall submit three copies of a complete, bound, project record manual consisting of the following:
 - 1. Product cut sheets for products supplied.
 - 2. System Test Reports.
 - 3. System Programming Documents.
 - 4. Manufacturer's Warranties.
 - 5. "D-size" As-built drawings.
- F. The As-built drawings shall accurately record location of all networking equipment electronically using AutoCAD's latest version and on a minimum "D" size reproducible paper prints.

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- G. The contractor/ vendor will maintain a set of drawings to document all as-built information as it occurs throughout the project. This will be maintained on a daily basis.
- H. At the end of the project, the contractor/ vendor shall provide one set of the as-built drawings. Requirements: (1)Hard Copy of the Drawings and Test Reports as well as (1) Complete Data File of the Drawings and Test Reports including the Summary Reports on a Flash Drive.
- I. Provide two (2) copies of all operation manuals for all Cameras and Related Hardware, bound in three-ring binders.
- J. The Contractors/ Vendors for the Fiber Infrastructure System, Security Camera System, Wireless Network System and the Data Network System shall coordinate and set up all System Records including but not limited to the following; The IT-Cabinet Numbers, Equipment Cabinet Numbers, Switch Numbers, Fiber Panel Numbers, Fiber Cabling Numbering, Fiber Splice Case Numbers, QB-Vaults Numbers, Fiber Assignments, Switch Port Assignments, Jack ID Assignments, Data Station Patch Panel Port Assignments, IP Number Assignments and MAC Addresses for all devices connected to each section of the network system. The information from each Contractor/ Vendor shall be coordinated with the Designer/ Consultant and the CMS/FMS- Record Management System Contractor/ Vendor.

1.4 WARRANTIES:

- A. The Contractor/ Vendor shall furnish a manufacturers warranty of products, applications and workmanship. Warranty time frames shall be as indicated in Section 282300.
- B. Equipment and workmanship shall be fully guaranteed by the Contractor/ Vendor.
- C. The Contractor/ Vendor shall procure equipment and materials that carry warranties against defects and workmanship whenever available. The Contractor/ Vendor shall transfer to the City additional warranties offered by the manufacturers, at no additional costs to the City.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 280000

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SECTION 280600 – INSTALLATION SCHEDULE FOR SECURITY CAMERA SYSTEM

GENERAL

3.1 SCHEDULE

- A. The Contractor/ Vendor shall prepare a Security Camera System/ Installation Schedule with milestones and duration of tasks defined. The schedule shall be a Gant type chart electronically produced by Microsoft Project software or approved equal.
- B. Coordinate schedule with the owners representative/RCDD

PRODUCTS (Not Applicable)

EXECUTION (Not Applicable)

PART 4 - END OF SECTION 280600

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SECTION 280800 – COMMISSIONING OF SECURITY CAMERA SYSTEM

GENERAL

4.1 GENERAL

- A. The owner representative/RCDD or Designer will review the Contractor/ Vendor progress throughout the construction process.
- B. The owner representative/RCDD or Designer reserves the right to attend construction meetings, inspect the job site during construction to ensure compliance with the specifications and TDMM, telecommunications/ networking codes and standards.
- C. The owner representative/RCDD or Designer shall be included in all phases of the project.
- D. The owner representative/RCDD or Designer will assist the Contractor/ Vendor with the analysis, approval and commissioning of the structured cabling system.

PRODUCTS (Not Applicable)

EXECUTION (Not Applicable)

PART 5 - END OF SECTION 280800

SECTION 282300 – SECURITY CAMERA SYSTEM INSTALLATION/CONSTRUCTION

GENERAL

1.1 SECURITY CAMERA SYSTEM INSTALLATION/CONSTRUCTION

- A. Contractor/ Vendor shall install a fully functioning security camera system as specified herein.
- B. The system shall include all necessary equipment to create a totally functioning system.
- C. Furnishing and installing a turnkey security camera system solution utilizing Cat6 and fiber cabling and related peripheral equipment as indicated and specified herein, and connecting the system and related peripherals to the cabling infrastructure and network.
- D. All equipment and materials shall be new and shall be designed specifically for the work to be done.
- E. Interfacing the camera system with the data network, setup and programming to the security camera system shall be based and coordinated with the City's Requirements.
- F. All equipment described herein shall be the products of manufacturers as described herein.
- G. The Contractor/ Vendor must provide in the Contract, as a minimum, a Three-Year Warranty on the proposed system(s), labor and those materials, and parts supplied by the Contractor unless stated otherwise in this document. The warranty will cover the contractor supplied parts/ equipment, labor, travel and miscellaneous costs. The warranty period will commence the day following the date of System Acceptance. The Vendor shall comply with this statement unless requirements differ for specific items as indicated below.
- H. If the system fails to completely perform in accordance with the specifications and the contract documents, the contractor will take all necessary action, at no additional cost, to restore the system to perform in accordance with the system specification requirements and the contract documents.
- I. The data concerning the IT-Cabinet with all hardware, NEMA J-Box, Seal-tight conduit connections to the NEMA J-Box, Fiber and LIU/FODPU, CAT-6 Station Cable and Termination Box, and the Electrical Receptacle/Outlet and Ground Bar that are provided on the drawing documents are for information purposes only.
- J. The placement of all these items are being installed under a separate contracts.
- K. The Installation of all Network Data Switches are being installed under a separate contracts.
- L. All Fiber and CAT-6 Patch Cords are being provided under a separate contract. All Patch Cords will be provided to the Security Camera- Vendors/Contractor for installation.

1.2 EQUIPMENT SYSTEM INFORMATION

- A. The Contractor/ Vendor shall furnish and install the Security Camera System.
- B. The Contractor/ Vendor shall work in cooperation and coordinate with the Owner, The City of Tuscaloosa IT-Department and TDOT/ Department of Transportation in the Set-up and Programming with all Licenses as required for

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the Security Camera System. The proposed system solution shall work with the current Video Management Platform, which is Genetec.

- C. The Contractor/ Vendor shall be responsible for the set-up and programming of the system as well as the verification of the existing system with the owner and its representative (IT-Department and Department of transportation). The City currently as standardized on the use of the Genetec Software Video Management Platform. (Genetec Software provided by the city.)
- D. The Contractors/ Vendors for the Security Camera System, shall coordinate and set up all System Records including but not limited to the following; The IT-Cabinet Numbers, Equipment Cabinet Numbers, Switch Numbers, Fiber Assignments, Switch Port Assignments, Jack ID Assignments, Data Station Patch Panel Port Assignments, IP Number Assignments and MAC Addresses for all devices connected to each section of the system. The information from the Contractor/ Vendor shall be coordinated with the Designer/ Consultant and the CMS/FMS- Record Management System Contractor/ Vendor.
- E. The Fiber Backbone/SM-OSP System is being installed under a separate contract.
- F. All Fiber and Cat-6 jumper/patch cords are being furnished under a separate contract.
- G. Contractor/ Vendor shall supply a 3-year parts and labor warranty for all equipment installed.
- H. Contractor/ Vendor supplying installation and support must be an authorized reseller for the equipment being bid.

1.3 SECURITY CAMERA SYSTEM EQUIPMENT

A. Required Documents and Information

- 1. Include a connectivity diagram illustrating how the major hardware items will be connected.
- 2. Provide specification cut sheets on each major equipment / hardware item.

B. General Description

This section contains a description of the camera equipment and mounting hardware for the system and how the overall equipment is expected to function once the installation and testing are completed.

C. Required Equipment

- 1. The Contractors are responsible for including all equipment and material in their solution required for the Security Camera system which results in a complete and fully operational system based on this RFB.
 - a. **Approved Security Camera Manufacturers:** Manufacturers with approved solutions include Mobotix, Avigilon, Bosch, and Axis cameras. Consideration will be given to other manufacturer's

products with written request and technical specifications in support of performance and a warranty statement. If approved, the contractors may propose a camera other than the Mobotix, Avigilon, Bosch, and Axis camera types and other manufacturers specified above that demonstrate equivalent capabilities and scalability.

Security Camera System Quantity Count						
Camera Type	Forest Lake PH-1/Base	Forest Lake PH-2/ALT	Alberta Parkway PH-1B	Alberta Parkway PH-2	10TH Avenue Section	Total
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Total	50	8	35	35	51	179

b. Minimum Specifications for Outdoor IP Camera (Blind Spot) – Type 1: **Mobotix D15**

Model Version	SEC-D/Night
Image Sensors	<u>1/ 2.5” CMOS, 2 megapixels, progressive scan</u>
Lens	51mm
Horizontal Angle of View	82 degrees to 13 degrees with 164 degrees in panoramic
Minimum Illumination	Color Sensor- .25 lux at 1/60 s .013 lux at 1 s B/W Sensor- .05 lux at 1/60 s .0025 lux at 1 s
Zoom	8 x zoom
Video Compression	M-JPEG, JPEG, H.264
Resolutions	Color -2048 x 1536 B/W – 2048 x 1536
Frame Rate	30 fps, MEGA/HD: 10 fps, QXGA: 4 fps, 6MEGA: 2 fps
Image Settings	Backlight compensation, auto white balance image distortion correction, motion detection
Audio Streaming	Two Way
Audio Input & Output	Integrated microphone and speaker, line-in/line-out, lip-synchronous audio, intercom, sound recording
Security	User/group management, HTTPS/SSL, IP address filter, IEEE 802.1x, intrusion detection, digital image signature
Intelligent Video	VOIP/SIP, Intercom, remote controlling with key code
Alarm Events	Triggering of events by integrated multiple-window motion detection, external signals, temperature sensor, PIR, notification via email FTP, IP telephony (VoIP, SIP), signal output, visual/acoustic alarms, pre/post alarm images
Casing	Dual Dome with two image sensors that can be positioned independently of one another
Power	Power over Ethernet (PoE in accordance with IEEE802.3af): PoE class variable depending on operating mode; power consumption: typ. 5 watts
Operating Conditions	-30 to +60 °C/-22 to +140 °F

Approved Manufacturers: Mobotix, Avigilon, Axis, Moog, Bosch,
or approved equivalent

c. Minimum Specifications for Mounting Hardware -Outdoor IP Camera– **Type 1: Mobotix D15**

Pole/corner mount (MX-MH-Dome-ESWS)
Pole/corner Mount: 3 mm stainless steel
Mounting parts and 2 stainless steel straps for pole diameters of 60-180mm
Used with wall mount D15 DualDome is weather-proof (IP65)
Space for expansion modules (WLAN)
Part number: MX-D14D-OPT-WHMH-Set

d. Minimum Specifications for Mounting Hardware- Outdoor IP Camera– **Type 2: Avigilon 2.0-H3-B1**

Avigilon Indoor/Outdoor Pendant Mount with gasket 3/4" NPT
closure plug
Part Number: MNT-PEND-WALL - Indoor/Outdoor Pendant Mount Bracket

e. Minimum Specifications for Mounting Hardware -Outdoor IP Camera– **Type 2: AXIS Q1755-E 60hz**

AXIS T91A47 110–400 mm (4.3–15.7 in)
Mount support/Compatible with AXIS Q1755
Maximum load: 15 kg (33 lb)
Cable routing: *Back*: Cable holes *Side*: U-shape cable hole (26 mm/1 in)
Environment: Indoor/Outdoor
Approvals: IEC/EN/UL 60950-1, IEC/EN/UL 60950-22, IEC/EN 62262 IK10,
EN 50581,
NEMA 250 Type 4X* *Corrosion protected only
Weight 0.3 kg (0.7 lb) without steel straps
Accessories: Installation Guide, Cable ties, Screws
AXIS T91A47 60–110 mm (2.4–4.3 in): Steel straps 700 mm (28 in)
AXIS T91A47 110–400 mm (4.3–15.7 in): Steel straps 1450 mm (57 in)
Required accessories: Mounting tool for pole bracket straps

D. CONTRACTOR/ VENDOR PROVIDED SPARE EQUIPMENT-

1. The Contractor/ Vendor Shall provide spare equipment as indicated below:
 - A. In-Line Camera with all Mounting Hardware Spares- 5
 - B. Blind Spot Camera with all Mounting Hardware Spares- 2
 - C. Indoor Camera with all Mounting Hardware Spares- 1

SCHEDULE 1 - WARRANTIES:

- A. The Contractor/ Vendor shall furnish a manufacturer's warranty of products, applications and workmanship.
- B. Warranty time frames shall be a minimum, a Three-Year on the proposed system.
- C. Equipment and workmanship shall be fully guaranteed by the Contractor/ Vendor.

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- D. The Contractor/ Vendor shall procure equipment and materials that carry warranties against defects and workmanship whenever available. The Contractor/ Vendor shall transfer to the City additional warranties offered by the manufacturers, at no additional costs to the City.

PRODUCTS (Not Applicable)

EXECUTION (Not Applicable)

END OF SECTION 282300

CityWalk- Security Camera Network Installation Bid Response Sheet

For Forest Lake, Alberta Parkway PH-1B, Alberta Parkway PH-2 and 10TH Avenue Sections

ITEM #1. Forest Lake Section/ Phase-1 Base Bid: Install all equipment as indicated in the documents. The Security Camera Equipment temporarily in the University Place School Communication Room- \$ _____

Notes: Security Camera Hardware and System Programming/ Setup (Labor and Material/ Eqmt.) Contract Bid Documents-

- Security Camera Video Controllers and Software Equipment in the Phase1- University Place School Communication Room
- Security Camera DVR/Video Data Storage Equipment in the location required as directed
- Security Camera and Mounting Hardware Equipment/Pole Mounted Units
- Security Camera Network System Testing Requirements and all Record Documentation
- Provide all Security Camera System Engineering, Programming and Setup
- Make all Copper-Cat6 Patch/ Jumper Cord Connection as Required to provide Service
- All As-Built Documentation for the Security Camera Network System

ITEM #2. Forest Lake Section/ Phase-2 Alternate Bid: Relocate and Install all equipment as indicated in the documents. The Security Camera Equipment permanently in the Comfort Center Building Facility Communication Room and Cutover all Services- (Hold Pricing for 12 Months) \$ _____

Notes: Security Camera Hardware and System Programming/ Setup Contract Bid Documents-

- Security Camera Video Controllers and Software Equipment in the Phase2- Comfort Center Building Facility Communication Room
- Security Camera Network System Testing Requirements and all Record Documentation
- Provide all Security Camera System Engineering, Programming and Setup
- Make all Copper-Cat6 Patch/ Jumper Cord Connection as Required to provide Service
- All As-Built Documentation for the Security Camera Network System

ITEM #3. Alberta Parkway/ Phase-1B Bid: Install all equipment as indicated in the documents. The Security Camera Equipment permanently in the Alberta Tech. Center CityWalk Communication Room - (Hold Pricing for 12 Months) \$ _____

Notes: Security Camera Hardware and System Programming/ Setup (Labor and Material/ Eqmt.) Contract Bid Documents-

- Security Camera Video Controllers and Software Equipment in the Alberta Tech. Center CityWalk Communication Room
- Security Camera DVR/Video Data Storage Equipment in the location required as directed
- Security Camera and Mounting Hardware Equipment/Pole Mounted Units
- Security Camera Network System Testing Requirements and all Record Documentation
- Provide all Security Camera System Engineering, Programming and Setup
- Make all Copper-Cat6 Patch/ Jumper Cord Connection as Required to provide Service

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- All As-Built Documentation for the Security Camera Network System

ITEM #4. Alberta Parkway/ Phase-2 Bid: Install all equipment as indicated in the documents. The Security Camera Equipment (Cameras and mounts on Poles)- (Hold Pricing for 18 Months) \$ _____

Notes: Security Camera Hardware and System Programming/ Setup (Labor and Material/ Eqmt.) Contract Bid Documents-

- Security Camera and Mounting Hardware Equipment/Pole Mounted Units
- Security Camera Network System Testing Requirements and all Record Documentation
- Provide all Security Camera System Engineering, Programming and Setup
- Make all Copper-Cat6 Patch/ Jumper Cord Connection as Required to provide Service
- All As-Built Documentation for the Security Camera Network System

ITEM #5. 10TH Avenue Section Bid: Install all equipment as indicated in the documents. The Security Camera Equipment permanently in the Edge Center CityWalk Communication Room- (Hold Pricing for 18 Months) \$ _____

Note: Security Camera Hardware and System Programming/ Setup (Labor and Material/ Eqmt.) Contract Bid Documents-

- Security Camera Video Controllers and Software Equipment in the Edge Center CityWalk Communication Room
- Security Camera DVR/Video Data Storage Equipment in the location required as directed
- Security Camera and Mounting Hardware Equipment/Pole Mounted Units
- Security Camera Network System Testing Requirements and all Record Documentation
- Provide all Security Camera System Engineering, Programming and Setup
- Make all Copper-Cat6 Patch/ Jumper Cord Connection as Required to provide Service
- All As-Built Documentation for the Security Camera Network System

TOTAL BID PRICING: \$ _____