SECTION 28 46 00 - ELECTRONIC MONITORING AND CONTROL

PART 1 - GENERAL

1.1   SECTION INCLUDES

A.   Design; materials; equipment fabrication; installation including all raceways, conduit, and wiring; and tests in conformity with applicable Codes and authorities having jurisdiction for the following Jail Door Control:

1.   Provide complete Jail Door and Alarm Touchscreen Control Panels as shown on Drawings.

2.   Complete systems are defined as all conduit, raceways, cables, backboxes, custom control panel, alarm contacts, door monitoring and control system, mounting turret, etc., needed to achieve a complete and functional system. Also included are all required power supplies, lock power supplies, battery backup, power filtering, mounts, housings, and interfaces to equipment furnished by others.

3.   Coordinate with supplier and installer of doors and frames, locks, and other hardware so as to assure proper mounting details, voltages, etc.

4.   Coordinate with intercommunications and CCTV systems. Furnish and install any required interface equipment.

5.   Provide installation, testing, adjustment, and programming for all equipment.

6.   Provide written documentation and instructions for system as installed.

7.   Provide training to the Owner in the operation, adjustment, servicing, and repair of this system.

8.   Install new electric and electro-pneumatic control and operation system for existing mechanical sliding and swinging cell doors.

9.   Provide new electric door locks at new doors as shown on drawings.

B.   The Contractor shall be responsible for coordinating the work. Contractor shall meet the following minimum qualifications:

1.   Possess all applicable Contractor's licenses.

2.   Provide with bid a list of five locations in which the contractor has successfully installed similar systems by the same equipment manufacturers. Include location, date of installation, person to contact, and telephone number for each referenced project.

C.   Provide a complete working installation of all systems with all equipment called for in proper operating condition. Documents do not undertake to show or list every item to be provided. When an item not shown or listed is clearly necessary for proper

installation and operation of the equipment and systems, provide, install and test/certify the item at no increase in contract price.

D.   This Specification contains a combination of prescriptive and performance requirements. The contractor is responsible for fully implementing the functions described in the Specifications and shown on the Drawings. This will require the contractor to perform substantial work selecting system components, integrating system functions, and modifying existing installed equipment.

1.2   RELATED SECTIONS

A.   General: Consult all other Sections, determine the extent and character of related work, and properly coordinate work specified herein with that specified elsewhere to produce a complete and operable system.

B.   Related Sections:

1.   Section 078413: Firestopping

2.   Section 260533: Raceways and Boxes

3.   Section 275123: Intercommunications and Program Systems

4.   Section 280000: Basic Security System Requirements.

5.   Section 280513: Conductors and Cabling for Electronic Safety and Security

6.   Section 280553: Identification for Electronic Safety and Security

7.   Section 282300: Video Surveillance System

8.   Section 284619: PLC Electronic Detention Monitoring and Control Systems

9.   Section 284623: Computer Based Detention Monitoring and Control Systems

1.3   SPECIAL SUBMITTAL REQUIREMENTS

A.   Submit full-scale dimensioned drawings of the Touchscreen Control Consoles, including custom control. Architect and Owner reserve the right to change labels during submittal review period at no additional charge to the Owner.

B.   Submit detailed drawings and schematic diagrams of all interfaces to equipment of other systems, including CCTV and intercommunications.

1.4   SYSTEM DESCRIPTION

A.   Touch Screen Interface (TSI)

B.   Provide Touch Screen Interface system with runtime program for each staff workstation where shown on the drawings. Each TSI station shall have a LCD monitor, touch screen overlay, keyboard and mouse. The TSI shall provide a graphic user interface to its respective control system.

C. Screen icons may be selected by Touch Screen Interface activation over the icon or by placing the mouse pointer over the icon and clicking the mouse button. Provide right and left mouse button-swapping function for right or left-handed user.

D. TSI Software Development Station

1. Provide same features as required for a TSI station plus;

2. Provide a complete TSI development system including development and runtime environments, application builder, libraries, utilities, demonstration programs, communication servers, and drivers. This workstation will be located in the Communication Room and used for system development, troubleshooting and emergency spare parts.

E. Graphic User Interface (GUI) Software

1. Provide a GUI software package that will graphically display custom icons and graphics that can be programmed to respond to mouse and Touch Screen Interface pointing device. Graphics shall be capable of graphic animation and display of 16M colors.

2. Provide Non-proprietary software that is commercially published and may be programmed and modified for customized applications by third party vendors without license from the original vendor. Proprietary software that is not commercially available for purchase or requires authorization from the original vendor for application programming or modification by third party vendors is not permitted.

3. Once installed, the Owner shall be able to modify the GUI software through a third party vendor or Owner employee for any system application changes, modifications, updates, trouble shooting and repair.

4. Operating Software

5. Provide the operating software recommended by the GUI software publisher for the specific GUI software used.

F. Tone Generators

1. Provide tone generation from internal CPU sound card to speaker to audibly annunciate intercom calls, alarms, Touch Screen Interface input feedback and other events.

2. Provide a different tone for each type of audibly annunciated event. Demonstrate different types of tones to the Owner for approval.

1.5 SYSTEM PERFORMANCE

A. Response Time:

1. Control: The maximum time lag between touching any control icon and activation of its associated control function (i.e. door unlock, intercom/CCTV select, etc.)

shall not exceed 250 milliseconds. This represents the speed at which control activation begins and does not include the electro-mechanical response time of the device (i.e. additional time may be taken by the device in order to operate).

2. Indication/Alarm: The maximum time lag between any input event (i.e. call request, door position alarm, etc.) and the state change of its associated icon shall not exceed 250 milliseconds.

3. Screen Changes: The time lag required to leave one screen display and generate another screen shall not exceed 500 milliseconds.

4. Recovery Time: In the event of a major system fault, the system must recover (reboot) within 45 seconds of system reset.

5. Restoration Time: In the event of a system fault due to major data loss or data file corruption, the system must be capable of complete restoration through Flash drive or DVD ROM drive within 20 minutes of initiation of data restoration.

B. Flexibility:

1. Graphic User Interface Application Changes: Accommodate and permit editing or down loading of system administrator database changes, background graphic changes, icon changes, nomenclature and text annotation changes, and other GUI software modifications from any programming terminal equipped with GUI application software. System software changes and modifications shall be possible by the Owner or third party vendor.

2. Future Upgrades: Support migration from the original operating environment application to future upgrades. Have software development support to provide these future upgrades at reasonable cost to the Owner.

PART 2 - PRODUCTS

2.1 TOUCH SCREEN INTERFACE

A. Provide equipment and components including but not limited to the following or approved equal from other manufactures. All products shall have the features described herein. The materials listed below establish the minimum quality and standards that are to be met:

1. LCD Touch Monitor Elographics, IntelliTouch Series
Touchsystems, Apollo 19
Z Microsystems, Orion 20R

2. Touch Screen Interface PC System Dell, Gateway, HP

3. GUI Software Intelli-Site
Wonderware InTouch 7.0
Cimplicity

4. Network Switch Cisco 1000 Base-T

B. LCD Touch Monitor

   1.   Minimum Size: 19-inch nominal diagonal display

   2.   Display Type: Active matrix TFT LCD

   3.   Touch Media: Surface Acoustic Wave (SAW)

   4.   Minimum Resolution: 1280 x 1024 at 75 Hz.

   5.   Minimum View Angle: Horizontal +/- 80 deg or 160 degrees total

   6.   Mounting: Desk Top

   7.   Audio: 2 Watts per channel in head speakers

   8.   Warranty: Monitor – 3 years, SAW – 10 years

C. TOUCH SCREEN INTERFACE PC System

   1.   Minimum Processor and System Bus: Intel Quad Core 2.4GHz

   2.   Dynamic RAM: 12GB

   3.   1.0 TB minimum Ultra ATA 100

   4.   DVD ROM Drive

   5.   Minimum Ports: Four universal serial bus (USB),one 1Gb ethernet.

   6.   BIOS: Full Plug-and-Play compliance.

   7.   Provide with keyboard and mouse for configuration and troubleshooting, but disconnect and deliver to Owner prior to final acceptance.

   8.   Support of Multi-Threaded Operations

   9.   Integrated Sound Card with events library configured to generate system chimes, alarm tones, and other required sound events.

   10. Graphics Accelerator Card, 256MB with resolution of 1280 x 104 pixels with 64k color.

   11. Integrated 10/100/1000 Ethernet

D. GUI Software

   1.   Provide GUI software with the following key features:

   2.   Open architecture design, full integration support

   3.   User-defined alarm and event processing.

4. User-defined graphic interface with drag & drop

5. Standard and custom reporting

6. SQL/ODBC connectivity to relational database management system

7. Full network support

8. Windows Support: True 64-bit Microsoft Win-64 specification compliant with support for the OLE for Process Control (OPC) specification.

E. Network Switch

1. Description: Stackable 1000Base-TX Fast Ethernet hub.

2. RJ-45 Port Quantity: 24 minimum.

3. Other Ports: Minimum of one BNC and one AUI.

4. Protocol: Dual 10/100/1000Base-TX standards support with automatic negotiation between standards.

F. Cable and Connectors

1. Network Cable: Category 6 copper cable complying with TIA/EIA 568A and TSB-67 standards.

2. Network Connectors: RJ-45.

G. UPS Backup

1. Provide a minimum of 1 hour UPS battery backup for each TSI workstation.

2.2 JAIL AND DOOR CONTROL

A. Closed Circuit Television (CCTV) Integration: Activation of intercom call-in, selection of intercom stations from the control panel, or activation of other devices as shown on the Drawing schedules shall cause specific cameras to be displayed on the call-up monitor.

1. Resetting the intercom system or other device shall reset the CCTV alarm.

2. Provide all necessary interfaces between systems to accomplish the specified operation.

B. Door and Lock Status Sensors

1. Door position sensors not provided under the hardware Specification Section shall be Sentrol 1076 where applicable.

2. Contacts for gates shall be Sentrol 2600T series with mounting accessories as required.

C.   Lock Power Supplies

1.   Furnish and install 24VDC power supplies for all 24VDC electrically controlled door locks. Refer to hardware schedule for power supplies furnished under that Section.

2.   Size all AC and DC power supplies to permit simultaneous continuous-duty activation of all door locks, with an additional minimum 30% capacity on each supply. Calculate voltage drop to locks; show calculations on shop Drawings. Size lock control wiring to provide proper lock operation. Separately fuse wiring to each AC and DC lock.

3.   Furnish and install interface relays between door controllers and lock power supplies. Install noise suppression diodes on all DC locks as close as possible to the lock and at the control relay coil. Supply suppression MOV's for all 120VAC locks. Mount all interface relays within equipment enclosures.

4.   Lock power supplies shall be Securitron or approved equal.

2.3   UNINTERRUPTABLE POWER

A.   Provide a minimum of 1 hour UPS battery backup for Electronics Monitoring and Control System equipment. Refer to Section 284619, Part 2.6.

PART 3 - EXECUTION

3.1   REQUIREMENTS

A.   Refer to Section 280000, for requirements regarding As-Built Drawings, Training, Commissioning, Acceptance Testing, Reports, and Warranty.

B.   Special coordination is required with the Owner regarding programming requirements. Meet with the Owner's representatives and submit proposed labels for all input and output points for Owner review and comment. Software labels shall be consistent between various integrated systems, including Access Control, and CCTV.

C.   Special coordination is required with Central Control casework, consoles, and furniture supplier.

D.   Coordinate with hardware installer for wiring of locks and sensors.

E.   Install conduit and wiring for lock control and door position status wiring for locks in compliance with National Electrical Code requirements for Class 1 wiring. All wiring for security systems shall be installed in conduit, including wiring between the security equipment room and the Control Consoles.

F.   Provide a minimum of 16 hours of scheduled training for the equipment furnished under this Section, including programming, operation, service, and maintenance.

END OF SECTION 28 46 00