



Illinois Department of Transportation

2300 South Dirksen Parkway / Springfield, Illinois / 62764

September 12, 2011

SUBJECT: Various Routes
Project CM-000S (860)
Section 2009-0871
Various Counties
Contract No. 60I34
Item No. 2, September 23, 2011 Letting
Addendum A

NOTICE TO PROSPECTIVE BIDDERS:

Attached is an addendum to the plans or proposal. This addendum involves revised and/or added material.

1. Revised pages 6 - 22, 29 & 30 of the Special Provisions.

Prime contractors must utilize the enclosed material when preparing their bid and must include any Schedule of Prices changes in their bidding proposal.

Bidders using computer-generated bids are cautioned to reflect any and all Schedule of Prices changes, if involved, into their computer programs.

Very truly yours,

Scott E. Stitt, P.E.
Acting Engineer of Design and Environment

A handwritten signature in cursive script, reading "Ted B. Walschleger P.E.".

By: Ted B. Walschleger, P. E.
Engineer of Project Management

cc: Diane O'Keefe, Region 1, District 1; Mike Renner; Estimates

TBW:MS:jc

CCTV CONTROL SYSTEM

Description. The work includes upgrading existing CCTV server control and display software currently in place at IDOT District 1. Also included are upgrades at remote sites to enable four Illinois State Police headquarters (Districts 2, 5 15 and Chicago), Cook County Sheriff and IDOT Emergency Traffic Patrol (ETP) to have access (viewing only, no pan-tilt-zoom (ptz) control) to all of IDOT's traffic cameras. All locations shall be able to view up to four cameras at one time. Work at the remote sites include installing new equipment such as computer workstations, video decoders, auxiliary display monitors, Ethernet switches, routers, multiplexers, network/video cabling, etc.

Submittals. The Contractor shall assemble and submit a complete and detailed description of the system including the proposed equipment, system interconnects, and software.

At the preconstruction meeting, the contractor shall at a minimum identify the following:

CCTV System Integrator and Subcontractors, CCTV Control and video management software vendor, radio/antenna manufacturer, video decoder manufacturer and Ethernet switch/router manufacturer.

The system submittal package shall be complete and shall document compliance with all specified system requirements. It shall include product data of all manufactured components, interconnecting cabling, accessories and appurtenances. It shall include dimensioned shop drawings of any fabricated equipment and sub-assemblies (such as equipment rack layouts). The submittal shall include overall system diagrams and detailed interconnection diagrams for all parts of the system. The submittal package shall identify the details of non-equipment requirements of the system, such as specified maintenance training, and it shall include letters of commitment relative to specified extended maintenance support of key vendor items as specified. As a minimum, the submittal package shall include, but not be limited to:

1. System installation schedule
2. System hardware, complete
3. Fiber Optic Transceivers & other fiber optic hardware
4. Video Decoders
5. Video Monitors
6. Video Workstation equipment and software
7. Video Administration and Central Control Hardware and software
8. Power Supplies and associated appurtenances
9. Equipment racks associated appurtenances

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10. All interconnecting power, signal and control cable, connectors and appurtenances
11. All mounting accessories and hardware
12. Overall System Diagram
13. Sub-System Location Diagrams
14. Point-to-Point Interconnection Diagrams
15. Dimensioned Rack Layout Drawings
16. All installation and maintenance manuals or a schedule to provide them
17. Shop Floor Testing Plan, location and interconnection details
18. Video and Communications Maintenance Training Plans
19. Documentation of Extended Warranty provisions, as specified
20. Plan for providing specified documentation
21. Cable Tray Schedule for submitting Test Plans

Products.

Video Surveillance Control and Management System

The software solution allows viewing and control of IP and analog video simultaneously through a single interface. The software solution has the ability to integrate equipment from different manufacturers and link external access control and alarm systems. The software solution has the ability to provide automated actions in response to alarms, display video on external monitors and/or video walls, secure system access through operator passwords and access privileges, use mouse controls to pan, tilt, zoom, and focus a camera, archive video on network video recorders or digital video recorders, support client-multiple server and server to server architectures, and provide a scripting language that can be used to automate common tasks.

Quality Assurance. The system shall be manufactured for the intended purpose of an installation in a commercial / industrial, 24 hour day, 7 days per week, and 365 days per year operating environment.

Warranty. Provide original equipment manufacturers warranty documentation for acceptance by the Owner. Warranty and Software Assurance Period: 5 years. Premium software Assurance is required.

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The existing system is a Cameleon video management system is manufactured by ICx 360 Surveillance, Inc. This contract shall upgrade all existing servers and workstations to Cameleon ITS, latest version at time of contract Letting. All additional workstations provided under this contract shall be Cameleon ITS, latest version at contract Letting. Contacts: Mark Brown (250) 388-7232 mark.brown@icxt.com.

In additional all existing workstations shall be upgraded to Windows 7 Ultimate, 64 Bit Edition. All new workstations being provided under this contract shall also include Windows 7 Ultimate, 64 Bit Edition. This work shall be included in the bid unit price for CCTV Server Upgrades.

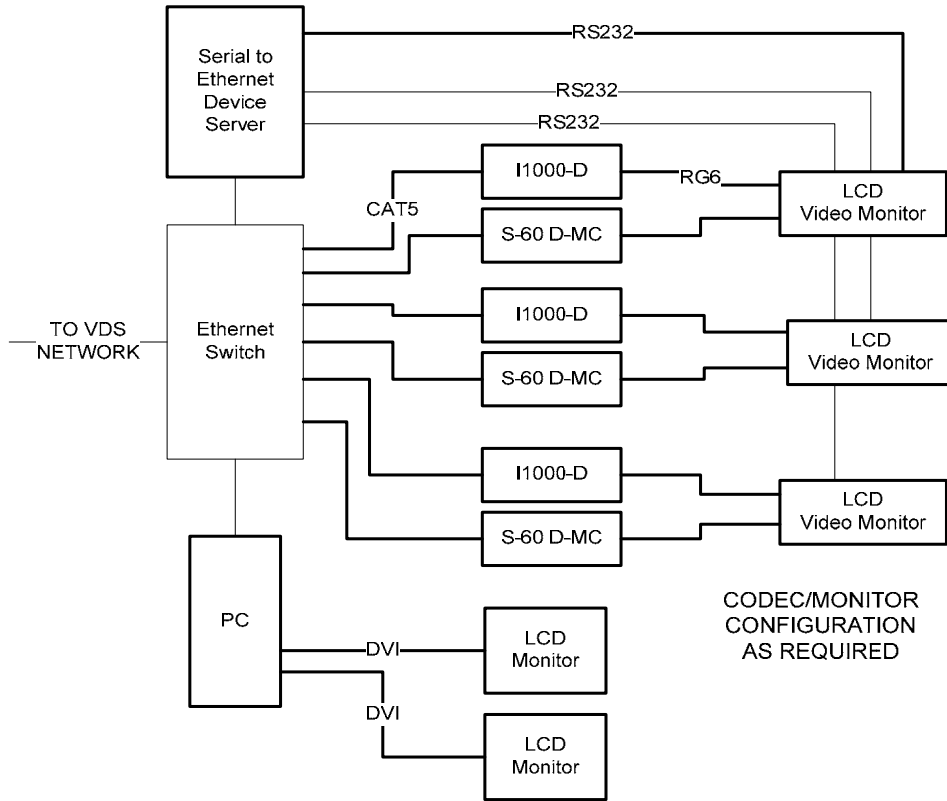
Video Distribution System (VDS) Work Station

Manufacturer: Dell or approved equal.

The Video Work Station shall be Type A or Type B as described herein. All Video Workstations shall have Cameleon ITS client software with associated licensing and well as Microsoft Office Professional 2010.

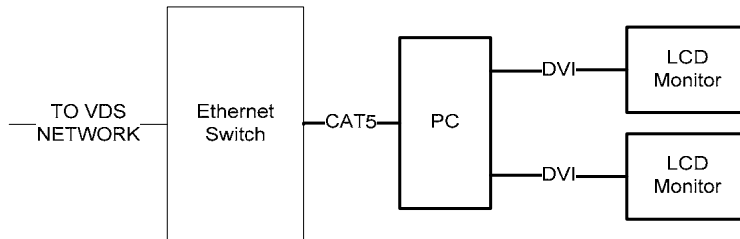
Type A. Type A workstations shall include hardware video codecs, one to three of each existing manufacturer, depending on number of video monitors specified for the location, and associated equipment to automatically software switch the selection of the video from the codecs to the auxiliary video monitors. The number of auxiliary monitors shall be as specified for each location. The auxiliary monitors are specified elsewhere herein and shall include any video signal conversion necessary, i.e. composite to RGB etc. A concept diagram for the Type A workstation is as follows:

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VIDEO DISTRIBUTION SYSTEM
 WORKSTATION TYPE A

A concept diagram for the Type B workstation is as follows:



VIDEO DISTRIBUTION SYSTEM
 WORKSTATION TYPE B

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The Cameleon ITS software shall be configured to allow for a drag and drop operation for displaying video on the auxiliary monitors without the manual switching of monitor inputs.

Type B. Type B video workstations do not include hardware codecs.

Video Workstation hardware requirements, Type A and Type B:

CPU	Quad Core Xeon W3530 2.80GHz, 8M L3 Cache, 4.8 GT/s
Installed Memory	6 GB 1333MHz, DDR3 SDRAM, ECC
Hard Drive	Two 500 GB SATA, 7.2KRPM with 16MB Data Cache, in a RAID 0 Configuration
Video Card	Dual 512MB PCIe x 16 NVIDIA Quadro FX 580 Quad Monitor DVI + 2DP
Operating System	Windows 7 Ultimate, 64 Bit
Case	Mid-tower Case
Dimensions	W: 7 in H: 18 in D: 19 in (Approx.)
Power Supply	875W minimum
Ports	11 USB 2.0, 1 Serial, 1 Parallel, 2 PS/2, 1 RJ-45, 1 ESATA, Stereo Line In and Out
Expansion Slots	2 PCI-e x 16 Slots Wire as x 8, 2 PCI-e x 16 Gen 2 (150W each), 1 PCIX 64 bit
DVD	16X DVA+/- RW Data Only
Keyboard	Dell, USB, Quiet Keyboard, No Hot Keys
Mouse	USB 2 Button Optical Mouse with Scroll
Monitors	Two, LCD Flat panel, LED, 21.5",16:9 ratio, antiglare, 1920x1080 at 60Hz. 0.248 mm Dot pitch, 5 ms response time. Signal input DVI-D and VGA, coordinated with graphics card. Image brightness 250 cd/m ² min. Image viewing angles: 170°H, 160°V. Image contrast ratio 10,000,000:1 min. LG E2290V or approved equal.
Monitor Stand	Ergotron LX dual lift stand or as approved by Engineer. The stand shall have a 5" min. height range and each monitor shall have a 15° forward and -5° back tilt adjustment.

Hardware Video Decoders

For compatibility with existing equipment the decoders shall be iMpath Networks; Model I-Volution; i1000-D and NKF-Optelecom Sigura S-60 D-MC. These decoders shall be included in all Type A workstations and shall be provided with associated chassis and power supplies. These codecs shall also be coordinated with the video conference system specified elsewhere herein.

Auxiliary Display Monitor

Section includes: Auxiliary Display Monitor.

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Manufacturer: Samsung SMT-3211, LG M3204CCBA or approved equal.

Specifications		
Picture	Screen Size	32"
	Resolution	1366 x 768 pixels, 500TV Lines
	Display Area	31.5" diagonal
	Brightness (Typ.)	410 cd/m ² min.
	Color Supported	16.7 Mil
Panel	Contrast Ratio	1,000:1
	Response Time (G to G)	8 msec
	Viewing Angle (H/V)	178°/178°
	Type	Internal
Video Signal		Analog RGB, DIV-D, Composite S-Video, Component Video
Sync. Signal		Separate H/V, Composite, SOG
Connector		D-Sub, RS232C Cable, DVI-D, USB 2.0, S-Video, CVBS Video, BNC
Power	Power Consumption	160W
	Power Consumption at Stand-By	<1W
	Power Supply	120V
Multimedia Speakers		10W x 2ch (Option)
Wall Mount	VESA Wall Mount Standard	Mounting Kit Available
Cabinet Color		Black
Physical Specifications	Product Weight (with/ without Stand)	47.0/35.4 lbs
	Dimension (w/o Stand)	30.7" x 18.9" x 4.2"
Environmental Conditions	Operating Temperature	50°F-104°F (10°C - 40°C)
Special Features		<ul style="list-style-type: none"> - Anti-Image Retention - Matrix Video Wall - PIP/PBP - Safety Lock - Signal Balance - Vertical Input - External AC Devices - RS232C Display Control
Accessories		<ul style="list-style-type: none"> - RCA Adapter - Power Cord - Remote Controller
Operation		Rated for 24/7 operation

Ethernet Switch

Manufacturer: Cisco Model 2960 or approved equal.

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Environmental	Temperature:	0 to 40 °C (32 to 113 °F)
	Humidity	10% to 85% (non-condensing)
Backplane	10,100 Mbps full duplex	
Port Density	8	
Physical Characteristics	Weight (maximum)	3 pounds
	Dimensions (nominal)	1.73" x 8.1" x 10.6"; the equipment shall mount in a standard EIA 19-inch rack
Power	120VAC±10%; redundant power supplies (The power supplies shall be removable while the equipment is operating with no degradation.)	
Optical Interface	GBIC; single mode long haul and multimode short haul	
Link Power Budget	17 dB at 1310 nm; 8.3 µm fiber core	
Network Interface	Physical Connector	RJ-45
	Network Rates	10/100 MHz Ethernet
Regulatory Compliance	Safety UL Listed	UL 60950
	EMC	47 CFR (FCC) Part 15, Type A certification
	Environmental	GR-63-Core Network Equipment Building Standards
	Telecom	47 CFR (FCC) Part 68 compliance
Supported protocols	Ethernet	IEEE 802.3; 10BaseT
	Fast Ethernet	IEEE 802.3u; 100BaseTX
	Virtual LAN trunking/tagging	IEEE 802.1Q; IEEE 802.3ad
	Spanning Tree Protocol	IEEE 802.1D; IEEE 902.1w; and IEEE 802.1s
	Security	IEEE 802.1x

Optical Switch

Section includes: Optical switch for ISP District Chicago tower hut.

Manufacturer: Cisco or approved equal.

IDOT has a microwave repeater at ISP District Chicago. This repeater is only in-out and has no capability to connect the ISP facility to IDOT's network. The proposed SONET MUX and Ethernet switch shall connect in between the repeater radios to pull off a 100 Mbps fiber line into the ISP Building. The existing repeater line shall be fully operational throughout construction. The contractor shall coordinate and determine work required.

RG-6 Coaxial Cable

Section includes: RG-6 Coaxial Cable and Cable Connectors.

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Manufacturer: The coax cable shall be a Belden 1695A precision video cable, or approved equal complying with the following specifications. The center conductor shall be an 18 AWG, Solid Bare Copper conductor, the insulation shall be plenum rated foam FEP insulation, and the shield shall consist of an Aluminum Foil-Polyester outer shield with 100% shield coverage plus tinned copper Braid Shield with 95% shield coverage.

Coaxial connectors shall be BNC or as required by the equipment to which the cables connect. The connectors shall attach to the cable by crimping or by a cord-grip clamping action. Connectors shall be plated for corrosion resistance and good electrical connections. All BNC connectors shall be physically designed to fit the specified cable without adaptation and shall have a characteristic impedance of 75 ohms. Connectors with a characteristic impedance of 50 ohms are not acceptable and shall be replaced by the Contractor at no additional cost to the State.

The connectors shall be Amphenol part number 31-70000 or approved equal.

Electrical Characteristics	Impedance	75 +/- 1.5 ohms					
	Inductance	0.106 microH/ft.					
	Capacitance	16.2 pF/ft. (nominal)					
	Conductor Shield						
	Velocity of Propagation	82 % (nominal)					
	Delay	1.24 nS/ft. (nominal)					
	Nom. Conductor Dc Resistance @ Deg. C	206.4 ohms/1000 ft.					
	Nom. Shield Dc Resistance @ 20 Deg. C	2.8 ohms/1000 ft.					
	Return Loss	23dB min, 5-850 MHz; 21dB min, 851–3000 MHz					
	Max. Operating Voltage	not less than 300 Vrms (UL)					
	Nominal Attenuation	MHz	dB/100'	MHz	dB/100'	MHz	dB/100'
		1.0	.24	100	1.84	750	5.00
		3.6	.45	135	2.10	1000	5.89
		5.0	.54	143	2.16	1500	7.33
	7.0	.63	180	2.42	2000	8.57	
	10.0	.72	270	2.97	2250	9.14	
	67.5	1.57	360	3.43	3000	10.67	
	71.5	1.60	540	4.25			
	88.5	1.75	720	4.95			
Physical Characteristics	Temperature Rating	- 30 to +75 DEG. C					
	Min. Bend Radius	10x cable O.D. or 2.75"					
	Max. Pulling Tension	69 LBS					
	Nom. Weight/1000 ft	40 LBS					
	Jacket Color	BLACK for CMG cable; Violet for CMP cable					
	Applicable Specifications	UL/NEC: CMR/CMP C(UL)/CEC: CMG					
	Flame Resistance	UL: 1666 VERTICAL SHAFT CSA: FT4					

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Cat-6 Ethernet Cable

Section includes: Cat-6 Ethernet Cable Connectors.

Manufacturer: The cable shall be Belden part number 1874A or approved equal. The terminations shall be crimp-on RJ-45, Ideal Industries 85-396 or approved equal.

Cable Type	4 twisted pair, 23 AWG bare copper with polyolefin insulation
Insulation Requirements	Unshielded with plenum rated FEP Teflon insulation
Applicable Specifications	ANSI/TIA/EIA-568-B.2-1 Category 6, UL verified to Category 6

Fiber Optic Multiplexer

Manufacturer: Optimux-45 Model OP-45B-8X-48 or approved equal.

Main & Backup Links	Data Range (T3)	44.736 Mbps
Electrical Interface	DC Power Module	-48 VDC
	Standards	G.703, G.824
	Line Code	B3ZS
	Impedance	75Ω, unbalanced
	Range	According to ITU-T Rec. G.703
	Connectors	Two shielded BNC connectors
Tributary Channels	Interface Type	Balanced or unbalanced (according to order)
	Number of Channels	E1: 6 T1:8
	Standards	G.703, G.823, G.824
	Date Rate	E1: 2.048 Mbps T1: 1.544 Mbps
	Line Code	E1: HDB3 or AMI T1: B8ZS or AMI
	Impedance	E1: 120Ω, balanced or 75Ω, unbalanced T1: 100Ω, unbalanced
	Range	According to ITU-T Rec. G.703
	Jitter	E1: According to ITU-T G.823; T1: According to ITU-T Rec. G.703
	Connectors	Balanced: Shielded RJ-45 Unbalanced: Two shielded mini-BNC
Supervisory and Management Ports	Control Port	Interface: RS-232 Connector: DB-9
	Ethernet Port	Interface: 10BaseT Connector: RJ-45

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Execution.

Installation Qualifications:

1. Installer shall be certified by the manufacturer as qualified to install, operate and maintain product(s) specified.
2. Install the system in accordance with the equipment manufacturers recommended procedures.

Commissioning

Manufacturer's Engineer shall be on site for configuration, commissioning assistance and owner turnover. Manufacturer's Engineer shall be available for min. of 5 workdays (8hrs/day) including travel, lodging and meal expenses for Engineer.

User/Owner Training: Manufacturer shall provide training course for users consisting of min. of 3 working days (8hrs/day) including travel, lodging and meal expenses for Training Technician.

Site Work Descriptions

CCTV Server Upgrades

Furnish and install:

- Upgrade existing CCTV server software and device licenses "Chameleon Enterprise" to "Chameleon Enterprise ITS Version 4" Control and Management System at IDOT District 1 Communications Center.
- Automated backup of server data to Network Attached Storage, NAS, 1 TB min. storage. The NAS shall include 2 1TB hard drives in a RAID 0 configuration. The NAS shall be the standard product of an established manufacturer.
- Upgrade the existing VDS Workstations to the present Cameleon ITS client software.
- Upgrade the existing workstations operating systems to Windows 7 Ultimate, 64 Bit Edition. Any hardware modifications required for the upgrade shall be included in the cost of this item and not be paid for separately as well as the re-installation of any existing software after the OS upgrade..
- Microsoft Office Professional 2010 shall be provided for all existing Workstations and laptops listed below.

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The Existing installed equipment is as follows:

360 Servers and Workstations			
Name	Location	Existing OS	Upgrade to Windows 7
Primary Server	Equipment Room	Win Serv	Not Req'd.
Backup Server	Equipment Room	Win Serv	Not Req'd.
Workstation 1	ComCenter	XP Pro	Req'd.
Workstation 2	ComCenter	XP Pro	Req'd.
Archiving Workstation	Equipment Room	XP Pro	Req'd.
Maintenance Laptop 1	Electrical Design	XP Pro	Req'd.
Maintenance Laptop 2	Storage	XP Pro	Req'd.
TSC Workstation	TSC Control Room	XP Pro	Req'd.
Elec. Maint. Work Station	TSC, Oak Park	XP Pro	Req'd.
Exway Ops. Work Station	Expressway Operations	XP Pro	Req'd.

- A Video work station Type B, shall be provided and installed in the Communications Center.
- A Video work station Type B, shall be provided and installed in the Electrical Design Section, location 1N-092. The existing network connection shall be utilized. This workstation shall also have a full licensed copy of LANDesk Management Suite, latest version at time of bidding.
- 360 surveillance Cameleon ITS software licenses. A 200 unit license pack shall be included as a part of this item.
- A video conference system shall be provided and installed to enable video conferencing between the Communications Center, Traffic Systems Center and The Emergency Traffic Patrol Headquarters. The video conference system shall be integrated into the existing Video Distribution System. The video conferencing system shall use hardware codecs, encoders and decoders, which integrate audio and video. The codecs shall be of either existing codec manufacturer, but in no case can they be a mix of both. Control of the video conferencing system shall be through the Cameleon ITS client. Microphones (two per location) and color PTZ video conference cameras (one ceiling mount and one desk mount) shall be provided at all three locations. Video conference cameras shall be a minimum of D1 resolution and in no case will "web cams" be allowed.
- A black and white laser printer shall be provided and installed in the Communications Center equipment room. The printer shall have a built in network interface and shall be a HP P1606dn or approved equivalent by the Engineer.

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Electrical Work, IDOT ETP

Furnish and install:

- Video work station Type A.
- 360 surveillance software license
- Video decoders
- (2) 32" auxiliary display monitors including codecs, control devices and all required mounting hardware
- Cat-6 cabling
- RG-6 coax cabling
- (2) new 20A-120V circuits in existing electrical panel including all wiring, conduit, junction boxes, fittings, anchors, mounting hardware and receptacles

Electrical Work, IDOT Building E

This item shall consist of upgrading an existing SONET node at IDOT Building E as shown on the Drawings. The existing SONET currently takes fiber optic backbone running eastward down the Kennedy Expressway and connects it to IDOT District One Headquarters via microwave transmission. IDOT also has fiber line at Building E running westward to IDOT Headquarters that can be used as alternate path; however current mode of operation for a transfer from microwave to fiber path in the event of a microwave transmission failure would have to be performed manually due to existing SONET configuration. This work shall include all labor, materials and equipment required for SONET to automatically switch over from primary microwave path to back up fiber path. The contractor shall coordinate and determine work required. The existing SONET shall be fully operational throughout construction.

Electrical Work, ISP District 2

Furnish and install:

- Video Workstation Type A.
- 360 surveillance software license
- Network Ethernet switch
- 32" auxiliary display monitor and codecs, control devices and all required mounting hardware

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- (2) M13 T1 to fiber multiplexers
- Cat-6 cabling
- RG-6 coax cabling
- (1) new 20A-120V circuit in existing electrical panel including all wiring, conduit, junction boxes, fittings, anchors, mounting hardware and receptacles

Electrical Work, ISP District 5

Furnish and install:

- Video Workstation Type A
- 360 surveillance software license
- Network Ethernet Switch
- 32" auxiliary display monitor and codecs, control devices and all required mounting hardware
- Cat-6 cabling
- RG-6 coax cabling

Electrical Work, ISP District Chicago

Furnish and install:

- (2) Video Workstations, Type A with 3 of each codec manufacturer; total 6.
- (2) 360 surveillance software licenses
- (3) 32" auxiliary display monitors and codecs, control devices and all required mounting hardware
- Network Ethernet switch
- Optical switch
- Cat-6 cabling
- RG-6 coax cabling

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Electrical Work, ISP District 15

Furnish and install:

- Video Workstation Type A
- 360 surveillance software license
- 32" auxiliary display monitor and codecs, control devices and all required mounting hardware
- Cat-6 cabling
- RG-6 coax cabling

Electrical Work, ISTHA M5

Furnish and install:

- Core wall of new tower building for proposed conduit
- Install new junction box inside new tower building
- Route/extend/connect existing Cat-6 cable between new/old tower building to radios
- (1) new 20A-120V circuit in existing electrical panel including all wiring, conduit, junction boxes, fittings, anchors, mounting hardware and receptacles

Electrical Work, ISTHA Plaza 99

Furnish and install:

- (1) new 20A-120V circuit in existing electrical panel including all wiring, conduit, junction boxes, fittings, anchors, mounting hardware and receptacles

Method of Measurement. Work for each individual location shall be counted separately and measured as lump sum for payment when furnished, installed, connected, field tested and accepted.

Basis of Payment. Payment shall be made for each location as follows:

CCTV SERVER UPGRADES

ELECTRICAL WORK, IDOT ETP

ELECTRICAL WORK, IDOT BUILDING E

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ELECTRICAL WORK, ISP DISTRICT 2

ELECTRICAL WORK, ISP DISTRICT 5

ELECTRICAL WORK, ISP DISTRICT CHICAGO

ELECTRICAL WORK, ISP DISTRICT 15

ELECTRICAL WORK, ISTHA M5

ELECTRICAL WORK, ISTHA PLAZA 99

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CONDUIT IN TRENCH, 2" DIA., PVC COATED RIGID GALVANIZED STEEL

Description. This item shall consist of furnishing and installing PVC coated rigid galvanized steel conduit at the locations shown on the drawings.

Materials. Material shall be in accordance with Section 1088.01 in the Standard Specifications.

Construction. PVC Coated Rigid Steel Conduit. In addition to the methods described in Article 810.03(a) the following methods shall be observed when installing PVC coated conduit. PVC coated conduit pipe vise jaw adapters shall be used when the conduit is being clamped to avoid damaging the PVC coating. PVC coated conduit shall be cut with a roller cutter or by other means approved by the conduit manufacturer.

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The vendor must crossconnect, via existing CAT-6 cable, DS1 circuits to the DVM repeater located in the old shelter for continuation on the M5 to ISP Chicago District microwave link.

At M5 the existing antenna and cable shall be removed from the old tower. AT ISP District 2 the existing radio, antenna and cable shall be removed. The link outage shall not exceed 48 hours. Contractor shall dispose of all removed equipment.

At ISP District 2 the radio will be located in an equipment shelter near the tower.

Both locations have existing:

- a. -48 VDC power
- b. A dehydrator
- c. 4 inch waveguide entry port

System 2 – ISP District 5 to ISTHA Toll Plaza 99

System 2 is a link between ISTHA 167th Street Toll Plaza (Plaza 99) and ISP District 5. The link shall be Monitored Hot Standby (MHSB) and will operate in the FCC Part 101 licensed 11 GHz band. Both locations have existing towers and shelters in place.

Both locations have existing:

- a. A dehydrator
- b. 4 inch waveguide entry port

System 3 – IDOT Emergency Traffic Patrol to monopole on Dan Ryan

System 3 is comprised of two independent links, for two independent networks, between a new equipment shelter to be located on the west side of the Dan Ryan Expressway south of 33rd Street and the Emergency Traffic Patrol (ETP) Center. The links shall be Monitored Hot Standby (MHSB) and will operate in the FCC Part 15 unlicensed 5.8 GHz band. Each link shall the performance as specified.

At the Dan Ryan site the Contractor shall install antenna(s) on a new 100 ft. monopole and equipment rack inside a new cabinet. The radios shall be located in the cabinet and connected to the antenna via coaxial cable. The monopole and cabinet/cabinet foundation will be paid for separately.

At the ETP site the radios shall be rack mounted and connected to the antenna(s) via coaxial cable. In addition, the Contractor shall provide 10 foot long pipe mount to be attached to the side of the building for antenna placement, install a ground bar, and install a 4 inch coaxial cable entry port.

Each site will have 120 VAC available but the Contractor shall provide -48 VDC power.

Radio Specifications.

Introduction: The equipment shall operate in the upper 6 & 11 GHz licensed bands and in the 5.8 GHz unlicensed bad. The equipment shall provide advanced transport solutions for both TDM and packet-based data services.

Clause by Clause Compliance Statement: The Supplier shall furnish clause-by-clause compliance for each and every clause and sub-clause within this document. Where appropriate the Supplier should include detailed supporting information for each compliance / partial compliance.

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The following terms shall be used in the preparation of a compliance statement:

“FULLY COMPLIANT” Definition. *If the systems and functions offered fully meet the tender requirement.*

“PARTIALLY COMPLIANT” Definition. If the systems and functions offered partially meet the tender requirement. The reason why the offer is partially compliant shall be stated. If the vendor is able to fulfill the specified requirement later, the time schedule for this shall also be stated. In such cases, the Supplier shall clearly mention the extent to which other requirements or specifications are affected.

“NON-COMPLIANT” Definition. If the systems and functions offered cannot meet the requirements, the Supplier shall also state the reasons for it.
In case of absence or unclear statements of compliance for any specified requirement, that particular requirement will be interpreted as being “NON-COMPLIANT”.

MTBF: The terminal MTBF for the transmission system shall be not less than 30 years. Supplier shall provide measured field return data for the proposed equipment. Calculated MTBFs must be determined according to Bellcore methods TR332.

General Requirements: TL 9000 Compliance: The manufacturing facilities for microwave equipment shall be certified to the TL 9000 quality standard.

Product Lifetime and Support: The equipment shall have a lifetime of at least 10 years, and repair and return support shall be available throughout that period.

Point of Manufacture: Supplier shall state the location (city, state/province, country) where the proposed equipment is manufactured.

Technical Requirements:

Overview of Basic Requirements:

- All-indoor operation for FCC Part 15 unlicensed 5.8 GHz band
- All-indoor operation for FCC Part 101 Upper 6 & 11 GHz licensed bands
- Support 10 MHz channel bandwidth
- Ability to transport up to DS1 circuits in native state, pseudo-wire DS1's are not acceptable
- Ethernet airlink capacities at a minimum of 45 Mbps
- Software configurable DS1 traffic add/drop
- Comprehensive link, network and interface protection options.
- A protected (1+1) embedded Ethernet switch option with advanced QoS
- Adaptive modulation
- Secure network management
- 19" rack mounting.
- Operation from -48 VDC.

Frequency Band Coverage: The equipment shall be available for the following frequency bands:
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