



Illinois Department of Transportation

2300 South Dirksen Parkway / Springfield, Illinois / 62764

May 30, 2007

SUBJECT: FAP Route 317 (US 24 /150)
Project ITS-0217 (101)
Section D4 ITS SYSTEM 2007
Peoria & Tazewell County
Contract No. 68694
Item No. 299, June 15, 2007 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 page i of the Table of Contents of the Special Provisions.
2. Revised pages 3 and 11 – 22 of the Special Provisions.
3. Added pages 50 – 52 to the Special Provisions.
4. Revised sheet 1 of the Fold-Up Plans.
5. Added sheet 27A to the Fold-Up Plans.

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,

Eric E. Harm
Interim Bureau Chief
Bureau of Design and Environment

A handwritten signature in black ink, appearing to read 'Ted B. Walschleger P.E.' with a small 'P.E.' to the right.

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

cc: J. E. Crowe, Region 3, District 4; Roger Driskell; Estimates; Design & Environment File

TBW:RS;jc

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SYSTEM IMPLEMENTATION, EQUIPMENT INTEGRATION AND SUPPORT

Description. The Contractor shall ensure that all components meet the minimum specifications, are compatible with one another, and are integrated to enable the system to perform all functions to the satisfaction of the Engineer.

All furnished components shall be subject to a 60 day burn-in period. The system along with all of its components shall be fully and functionally operational before any acceptance testing will be initiated. The Contractor shall notify the Department a minimum of three days in advance to schedule the acceptance testing. During the acceptance tests, the Contractor shall demonstrate the system to the Engineer to show that it meets all of the required design and installation parameters. After, the system has been accepted by the Engineer, the system shall begin a sixty-day "burn-in" period immediately after the successful completion of the acceptance test. During the "burn-in" period, all components shall perform continuously, without any interruption of operation, for a period of sixty days. In the event that there are operational problems during the burn-in period, the burn-in period shall reset back to day one.

After the successful completion of the burn-in period, the system will have completed final acceptance.

System Integration:

The Contractor shall be responsible for providing a completely functional fiber optic CCTV link where video and pan-tilt-zoom capabilities from each CCTV camera is available at the local control panels and at the fiber optic CCTV link video receivers installed at each node. Video and PTZ operation will be verified using a video monitor and laptop equipped with the CCTV diagnostic software.

A Department representative will program all proposed video encoders and video decoders, existing video switch parameters, and network parameters to complete integration of the seven proposed CCTV cameras into the existing system.

This work will not be paid for separately, but shall be included in the contract bid price.

SEEDING, MINOR AREAS

Effective July 1, 1990

Revised January 1, 2007

Seeding, fertilizing, and mulching shall be done in accordance with Article 250 of the Standard Specifications except for the following revisions:

All areas disturbed by the work performed shall be seeded, fertilized, and mulched in accordance with Article 251.03(a). The materials may be purchased locally and placed as directed by the engineer.

The estimated area is approximately 0.01 acre. The seed mixture shall be applied at 100 pounds/acre (110 kg/ha). The mixture shall be one that contains a high percentage of Kentucky Blue Grass. All seeds shall meet the purity and noxious weed requirements of Article 1081.04 of the Standard Specifications, and be approved by the engineer.

The fertilizer nutrients shall be applied at a rate of 270 lbs. (300 kg) of actual nutrients per acre (hectare). The fertilizer furnished shall be ready mixed material having a ratio of (1-1-1).

The contractor shall provide the engineer with the test results from the seed container and the chemical analysis of the fertilizer nutrients.

The seed, fertilizer, and mulch will not be measured for payment but will be considered included in the cost of TRENCH AND BACKFILL FOR ELECTRICAL WORK; TRENCH AND BACKFILL FOR ELECTRICAL WORK, SPECIAL; CONCRETE HAND, SPECIAL; CONCRETE FOUNDATION, TYPE D, and CONCRETE FOUNDATION, TYPE E 36 INCH DIAMETER.

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All optical fibers shall be spliced as indicated on the Plans. If no information is provided, mainline splices will concatenate the fibers from the two cable segments, that is, the colors of the buffer tubes and fibers shall be the same across the splice. For splices that breakout the individual fibers, the fibers shall be spliced in accordance with the Plans.

Slack Storage of Fiber Optic Cables.

A part of these items, slack fiber shall be supplied as necessary to allow splicing the fiber optic cables in a controlled environment, such as a splicing van or tent. After splicing has been completed, the slack fiber shall be stored underground in handholes or in the raised base adapters of ground mounted traffic controller cabinets.

The following amounts of slack cable shall be provided:

<u>Location</u>	<u>Length of Slack Cable (Ft.)</u>
Gulfbox	3.0
Junction Box	3.0
Handhole	10.0
Double Handhole	20.0
Controller Cabinet	5.0

Fiber optic cable shall be tagged inside handholes with yellow tape containing the text: "CAUTION - FIBER OPTIC CABLE."

Method of Measurement. The fiber optic cable of the number of fibers specified will be measured for payment as the number of linear feet of cable, including lengths stored as splicing slack, actually furnished installed and tested.

Basis of Payment. FIBER OPTIC CABLE of the number of fibers specified shall be paid for at the contract unit price per foot , which cost shall include the cost of furnishing all labor, material, documentation, tools and equipment to install and test the fiber optic cable.

Fiber optic patch panels, splice closures, connectors, splice vaults and handholes will be supplied and paid for under other contract items.

FIBER OPTIC FUSION SPLICE

Description. The Contractor will splice optical fibers from different cable sheaths and protect them with a splice closure at the locations shown on the Plans. Fiber splicing consists of in-line fusion splices for all fibers described in the cable plan at the particular location.

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Two splices are identified. A mainline splice includes selected fibers from each cable run as shown in the plan sheets. In a lateral splice (IL 116 & US 24 CCTV camera splice in proposed handhole), the buffer tubes in the mainline cable are dressed out and those fibers identified on the plans are accessed in and spliced to lateral cables.

Materials.

Splices in Traffic Signal Cabinets

Each traffic signal cabinet already has an existing 12 or 24 fiber interconnect center installed inside the cabinet. The existing fiber optic cables are terminated with ST connectors inside the interconnect centers. The Contractor shall splice single mode fibers, as shown in the plan sheets, together using a fiber protection sleeve to protect and support the fusion splice point. The fusion protection sleeve shall consist of the following components:

Outer Tube: Polyolefin (Shrink Wrap)
Inner Tube: Ethylene Vinyl Acetate (EVA)
Tension Strength Member: Stainless Steel Rod

A splice holder shall be used to secure the fiber protection tube to prevent damage to the splice.

Any work that is required to prepare the existing fibers for splicing will not be paid for separately, but shall be included in the unit bid price for this pay item. The single mode fiber is still in the buffer tubes and will need to be broken out, cleaned, and prepared for splicing in accordance with industry standards. In the event that the existing connectors are damaged during splicing operations, the Contractor shall restore them at no additional cost to the Department.

Splice Closures (IL 116 & US 24 CCTV Handhole Only)

Splice closures shall be designed for use under the most severe conditions such as moisture, vibration, impact, cable stress and flex temperature extremes as demonstrated by successfully passing the factory test procedures and minimum specifications listed below:

Physical Requirements:

The closures shall provide ingress for up to four cables in a butt configuration.

The closure shall prevent the intrusion of water without the use of encapsulates.

The closure shall be capable of accommodating splice organizer trays that accept mechanical, or fusion splices. The splice closure shall have provisions for storing fiber splices in an orderly manner, mountings for splice organizer assemblies, and space for excess or un-spliced fiber. Splice organizers shall be re-enterable. The splice case shall be UL rated.

Closure re-entry and subsequent reassembly shall not require specialized tools or equipment. Further, these operations shall not require the use of additional parts.

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The splice closure shall have provisions for controlling the bend radius of individual fibers to a minimum of 1.5 in (38 mm).

Factory Testing of Splice Closures:

Compression Test: The closure shall not deform more than 10% in its largest cross-sectional dimension when subjected to a uniformly distributed load of 1335 N at a temperature of 0°F and 100°F (-18°C and 38°C). The test shall be performed after stabilizing at the required temperature for a minimum of two hours. It shall consist of placing an assembled closure between two flat parallel surfaces, with the longest closure dimension parallel to the surfaces. The weight shall be placed on the upper surface for a minimum of 15 minutes. The measurement shall then be taken with weight in place.

Impact Test: The assembled closure shall be capable of withstanding an impact of 28 N-M at temperatures of 0°F and 100°F (-18°C and 38°C). The test shall be performed after stabilizing the closure at the required temperature for a minimum of 2 hours. The test fixture shall consist of 20 lb (9 kg) cylindrical steel impacting head with a 2 in (5 cm) spherical radius at the point where it contacts the closure. It shall be dropped from a height of 12 in (30 cm). The closure shall not exhibit any cracks or fractures to the housing that would preclude it from passing the water immersion test. There shall be no permanent deformation to the original diameter or characteristic vertical dimension by more than 5%.

Cable Gripping and Sealing Testing: The cable gripping and sealing hardware shall not cause an increase in fiber attenuation in excess of 0.05 dB/fiber @ 1550 nm when attached to the cables and the closure assembly. The test shall consist of measurements from six fibers, one from each buffer tube or channel, or randomly selected in the case of a single fiber bundle. The measurements shall be taken from the test fibers before and after assembly to determine the effects of the cable gripping and sealing hardware on the optical transmission of the fibers.

Vibration Test: The splice organizers shall securely hold the fiber splices and store the excess fiber. The fiber splice organizers and splice retaining hardware shall be tested per EIA Standard FOTP-II, Test Condition I. The individual fibers shall not show an increase in attenuation in excess of 0.1 dB/fiber.

Water Immersion Test: The closure shall be capable of preventing a 10 ft (3 m) water head from intruding into the splice compartment for a period of 7 days. Testing of the splice closure is to be accomplished by the placing of the closure into a pressure vessel and filling the vessel with tap water to cover the closure. Apply continuous pressure to the vessel to maintain a hydrostatic head equivalent to 10 ft (3 m) on the closure and cable. This process shall be continued for 30 days. Remove the closure and open to check for the presence of water. Any intrusion of water in the compartment containing the splices constitutes a failure.

Certification: It is the responsibility of the Contractor to insure that either the manufacturer, or an independent testing laboratory has performed all of the above tests, and the appropriate documentation has been submitted to the Department. Manufacturer certification is required for the model(s) of closure supplied. It is not necessary to subject each supplied closure to the actual tests described herein.

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Construction Requirements.

The closure shall be installed according to the manufacturer's recommended guidelines. For all splices, the cables shall be fusion spliced.

The Contractor shall prepare the cables and fibers in accordance with the closure and cable manufacturers' installation practices. A copy of these practices shall be provided to the Engineer 21 days prior to splicing operations.

Using a fusion splicer, the Contractor shall optimize the alignment of the fibers and fuse them together. The Contractor shall recoat the fused fibers and install mechanical protection over them.

Upon completing all splicing operations for a cable span, the Contractor shall measure the mean bi-directional loss at each splice using an Optical Time Domain Reflectometer. This loss shall not exceed 0.1 dB.

The Contractor shall measure the end-to-end attenuation of each CCTV fiber optic link, from connector to connector, using an optical power meter and source. This loss shall be measured from both directions and shall not exceed 0.5 dB per installed kilometer of single mode cable. Measurements shall be made at both 1300 and 1550 nm for single mode cable. For multimode cable, power meter measurements shall be made at 850 and 1300 nm. The end-to-end attenuation shall not exceed 3.8 dB/installed kilometers at 850nm or 1.8 dB per installed kilometer at 1300nm for multimode fibers.

As directed by the Engineer, the Contractor at no additional cost to the Department shall replace any cable splice not satisfying the required objectives.

The Contractor shall secure the Splice Closure to the side of the splice facility using cable support brackets. All cables shall be properly dressed and secured to rails or racks within the handhole or traffic signal cabinet. No cables or enclosures will be permitted to lie on the floor of the splice facility. Cables that are spliced inside a building will be secured to the equipment racks or walls as appropriate and indicated on the Plans.

Method of Measurement. Fiber optic splice of the type specified will be measured as a unit, completely installed and tested with all necessary splices completed within the closure, and the closure secured to the wall of the splice facility.

Basis of Payment. FIBER OPTIC FUSION SPLICE of the type specified, measured as provided above, will be paid for at the contract unit price each, which price shall be payment in full for furnishing and installing the splices and enclosures, performing all required testing, including all labor, tools, equipment, and incidentals necessary to complete the work.

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CLOSED-CIRCUIT TELEVISION DOME CAMERA

Description. This work shall consist of furnishing and installing an integrated Closed-Circuit Television (CCTV) Dome Camera Assembly, camera brackets, and all other items required for operation. This assembly shall contain all components identified in the Materials Section and shall be configured as indicated on the plan sheets.

Materials.

The CCTV camera shall be a Vicon Model SVFT-PRS23 Dome Camera Assembly (or approved equal) for integration into the existing ITS system components.

General

The camera assembly shall be of the dome type and shall consist of the camera, lens, and pan/tilt motor, internal to the dome, along with the camera controller with a maximum weight of 15 lbs. External interfaces to the dome shall include a standard NTSC video BNC connector, RS-232 data connector for control, and 24 VAC power if required by the CCTV Dome Camera.

The camera assembly shall have a variable-speed manual pan and tilt, and shall include a "pre-set" timed rotation capability to allow the camera to be automatically oriented to predefined positions via the central software.

The Contractor shall provide a totally operational assembly with all cabling and terminations matched to support the selected components.

CCTV Camera and Lens

The CCTV camera and lens shall comply with the following specifications:

Image Sensor:	¼ inch (6.35 mm) Color Interline Transfer CCD
Signal format:	Compatible with all applicable National Television Standards Committee (NTSC) specifications, have 470 horizontal lines and 350 vertical lines at 60 Hz and 30 full frames per second.
Color balance:	Through-the-lens type, with less than 10 IRE units unbalance from 285° to 580° K.
Video Signal:	NTSC and PAL Standard
Iris:	Automatic with Manual Override
Focus:	Remotely Controlled and Automatic or Manual
Pixels:	768(H) X 494(V)
Day/Night Switchover	Day (color) / Night (mono) automatic with manual override
Sensitivity:	
Color:	
Full Video:	6.5 Lux at F1.4 (AGC OFF) for 1.0 volt peak-to-peak ±3.0 dB (75-ohm, unbalanced)

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80% Video:	Maximum of 0.55 Lux for 80 percent video measured at the faceplate. (AGC ON)
B & W:	0.015 Lux at F1.4 (AGC OFF) for 1.0 volt peak-to-peak ± 6.0 dB (75-ohm, unbalanced)
Signal/noise Ratio:	Greater than 45 dB with AGC off, CCIR weighting
Zoom Range:	1 to 10X analog (Minimum)
Software Zoom:	1 to 8X digital (Minimum)
Temperature:	-22°F to 158°F (-30°C to 70°C)
Relative Humidity	0 to 90 %
Drive Mechanism	Direct Gearing (No Drive Belts)
Pan (Horizontal)	360 Degrees Continuous Manual: Variable speed, < 1 degree/sec to >50 Degrees/sec (minimum for large movements)
Preset Operation:	120 Degrees/sec (minimum) at 0.5 degree accuracy or 220 degrees/sec (minimum) at 0.1 degree accuracy
Tilt (Vertical)	0-180 Degrees Manual: Variable speed, < 1 degree/sec to > 40 Degrees/sec Preset: 120 Degrees/sec (minimum)
Pre-Sets:	60 minimum with automatic rotation of preselected presets
Privacy Zones	5 (minimum) programmable zones that can be set for video blanking
Sector Identification	15 (minimum) independent sectors in the horizontal plane
Alarm Processing	2 (minimum) on-board alarm inputs

External synchronization: Color lock and burst phase adjustment shall be available along with horizontal phase adjustment.

The camera shall have a built-in programmable character generator capable of superimposing camera identification on the video display. The identification shall be programmable for up to two lines of 24 characters per line. Text characters shall be white with a black border 28 horizontal TV lines in height. The camera identification shall be programmable from a laptop computer, using the RS-232 connector in the control cabinet.

The control/receiver driver shall accept control commands through a standard RS-232 interface. This port shall operate at user adjustable speeds between 2400 and 9600 bps. The receiver/driver shall be assigned a user selectable address and be capable of responding to a minimum of 64 unique addresses via software or dip switch.

Each unit shall only respond to commands directed to its unique address. The receiver/driver shall provide confirmation via the full duplex RS-232 communications port in response to all commands. In addition, the unit shall have at least two dry-contact alarm inputs and two auxiliary dry-contact outputs.

The Contractor shall fully document and provide to the Department the communication protocol implemented on the receiver/driver. This protocol shall be open and allow third-party development of control software.

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The video shall be synchronized to the 60 Hz power source. A phase adjustment shall be provided for roll-free vertical interval switching at the video switch. In addition, a video isolation amplifier shall be provided to address potential interference.

A variable speed electronic shutter shall be provided which shall be adjustable from 1/100 to 1/10,000 of a second, in a minimum of seven steps. An Automatic White Balance Control shall be provided to adjust the white balance dynamically in response to the varying light conditions encountered in outside environments.

Environmental Enclosure/Housing

The environmental enclosure shall be designed to physically protect the integrated camera from the outdoor environment and moisture via a sealed and pressurized enclosure. If the option exists in the standard product line of the manufacturer, the assembly shall be supplied with an integral sun shield. The enclosure shall be fully water and weather resistant with a NEMA 4 rating or better.

The camera dome shall be constructed of distortion free acrylic or equivalent material that must not degrade from environmental conditions. The environmental housing shall include a camera-mounting bracket. In addition, the environmental housing shall include a heater, blower, and power surge protector. An integral fitting compatible with a standard 1-1/2 in (38.1 mm) NPT pipe, suitable for outdoor pendant mounting shall also be provided.

The enclosure shall be equipped with a heater controlled by a thermostat. The heater shall turn on when the temperature within the enclosure falls below 40° F (4.4°C). The heater shall turn off when the temperature exceeds 60°F (15.6°C). The heater will minimize internal fogging of the dome faceplate when the assembly is operated in cold weather.

In addition, a fan shall be provided as part of the enclosure. The fan will provide airflow to ensure effective heating and to minimize condensation.

The enclosure shall be equipped with a hermetically sealed, weatherproof connector, located near the top for external interface with power, video, and control feeds.

The complete camera assembly shall meet or exceed the following environmental specifications:

- a) Temperature: -40°F to +122°F (-40°C to +50°C)
- b) Humidity: 100% MIL-E-5400T, para 3.2.24.4
- c) Altitude: 0 to 1.9 mile (0 to 3.05 km), MIL-E-5400T, para 3.2.24.2
- d) Vibration: Swept 5-60 Hz, 2.1 mm amplitude: (15 Gs at 60 Hz),
Random 60-1000 Hz .5 Gs RMS

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- e) Shock: 15 Gs, 3 axis. MIL-E-5400T, para 3.2.24.6
- f) Sand & Dust: MIL-E-5400T, para 3.2.24.7
- g) Fungus and Salt: MIL-E-5400T, para 3.2.24.8
- h) Atmosphere: MIL-E-5400T, para 3.2.24.9
- i) Explosion: MIL-E-5400T, para 3.2.24.10
- j) EMI: FCC Rules, part 15, subpart J, for Class A devices
- k) Acoustic Noise: +150 dB

CCTV Dome Camera Mounting Supports

Mounting supports shall be configured as shown on the camera support detail plans and as approved by the Engineer. Mount shall be of aluminum construction with enamel or polyester powder coat finish. Braces, supports, and hardware shall be stainless steel. Wind load rating shall be designed for sustained gusts up to 90 mph (145 km/hr), with a 30% gust factor. Load rating shall be designed to support up to 75 lb (334 N). For roof or structural post/light pole mounting, mount shall have the ability to swivel inward for servicing. The mounting flange shall use standard 1-1/2 inch (38.1 mm) NPT pipe thread.

120 VAC and 24 VAC Power Supply

If required by the CCTV Dome Camera, a 24 VAC output/120 VAC input NEMA rated power supply shall be provided in the equipment cabinet. Transformer rating shall not be less than 100 VA. The 24 VAC output is to be fused and is to be capable of handling up to 4 amps of total load. Input connectors shall be of the compression type and be designed to terminate #12-16 AWG conductors. Output connectors shall be screw-type barrier strips and be designed to terminate #16-20 AWG conductors. The power supply shall be mounted and wired into the equipment cabinet as described in these Special Provisions and as shown on the Plans.

Connecting Cables

The Contractor shall provide composite cabling that includes power conductors, coaxial video feed, and RS-232 control wires to connect the integrated CCTV dome camera assembly to the equipment cabinet designated on the Plans from which the camera shall be powered. Compatible connectors shall be supplied to mate with the integrated CCTV dome camera assembly. In addition, the other end of the cable, to be terminated in the equipment cabinet, shall be terminated with an RS-232 connector compatible with the communications equipment supplied under other bid items, a BNC connector to terminate the NTSC video feed, and lugs to terminate the AC power feed.

All conductors connecting the CCTV Dome Camera to the pole mounted or ground mounted cabinets shall be provided with solid-state surge protection where they enter the equipment cabinet. Cabling and surge protection shall be included with the CCTV Dome Camera Assembly.

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Surge protection of the video coaxial cable shall meet or exceed the following specifications:

Clamp voltage:	6 Volts
Peak surge current:	500 Amps for 10 x 700 us
Protection type:	Line to ground
Attenuation:	0.1 dB @ 10 MHz.
Response time:	< 1 nanosecond
Impedance:	75 ohms
Connector type:	BNC
Technology:	Hybrid; both avalanche semiconductors and gas tube

Specifications for surge protection of remaining camera cable conductors shall be as follows:

Clamp voltage:	15 Volts
Peak surge current:	500 Amps per line for 10 x 700 us
Protection type:	Line to ground
Response time:	< 1 nanosecond
Connector type:	terminal strip
Technology:	Hybrid; both avalanche semiconductors and gas tube

Diagnostic Software

PC based diagnostic software shall be supplied which shall allow all camera functions accessible via the control/receiver driver to be viewed or exercised. A cable shall be provided with a standard 9-PIN PC RS232 port, to connect the receiver driver to the command port of the integrated CCTV dome camera assembly. A copy of this PC diagnostic shall be supplied with every assembly. The program shall operate under Windows XP and be capable of configuring and controlling a CCTV dome camera assembly and its functions (position, zoom, focus, iris, power, color balance, etc.) from within it. This includes storing and recalling preset positions for fast system configuration.

Camera Control

The camera and assembly shall accept and respond correctly to commands issued by the software program and provide all responses anticipated by the software.

Construction Requirements.

General

The Contractor shall prepare a shop drawing detailing the complete CCTV Dome Camera Assembly and installation of all components to be supplied for approval of the Engineer. Particular emphasis shall be given to the cabling and the interconnection of all of the components.

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The Contractor shall install the CCTV dome camera assembly at the locations indicated in the Plans. The CCTV Dome Camera Assembly shall be mounted on a pole, wall, or other structure.

Camera assembly cables shall be terminated in the Equipment Cabinet, as indicated in the plans. This cabinet includes communication and power interfaces. Power supplied to the CCTV dome camera shall be 24, 89, or 120 VAC and is subject to manufacturers supplied equipment and shall be approved by the Engineer.

The Contractor shall install the composite cable with sufficient length to terminate all required camera functions in the equipment cabinet and at the dome. The Contractor shall terminate the cable at both ends.

Appropriate connectors shall be furnished and installed to interface the in-cabinet components to the integrated dome camera assembly. The Contractor shall mount the in-cabinet components in the equipment cabinet and connect them to AC power, communications, and video feeds.

Testing

The Contractor shall test each installed CCTV Dome Camera Assembly. The test shall be conducted from the field cabinet using the standard communication protocol and a laptop computer. The Contractor shall verify that the camera can be fully exercised and moved through the entire limits of Pan, Tilt, Zoom, Focus and Iris adjustments, using both the manual control and presets. In addition, a video monitor shall verify that the video signal meets or exceeds the specified requirements. The Contractor shall maintain a log of all testing and the results. A representative of the Contractor and a representative of the Engineer shall sign the log as witnessing the results. Records of all tests shall be submitted to the Engineer prior to accepting the installation.

Documentation

One copy of all operations and maintenance manuals for each CCTV component shall be delivered for each assembly installed. In addition, full documentation for all software and associated protocols shall be supplied to the Department on a 3.5-inch floppy disk(s) and a CD-ROM. The Department reserves the right to provide this documentation to other parties who may be contracted with in order to provide overall integration or maintenance of this item.

Warranty

The Contractor shall warranty all materials and workmanship including labor for a period of two years after the completion and acceptance of the installation, unless other warranty requirements prevail. The warranty period shall begin when the Contractor completes all construction obligations related to this item and when the components for this item have been accepted, which shall be documented as the final completion date in the construction status report. This warranty shall include repair and/or replacement of all failed components via a factory authorized depot repair service. All items sent to the depot for repair shall be returned within two weeks of the date of receipt at the facility. The depot location shall be in the United

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States. Repairs shall not require more than two weeks from date of receipt and the provider of the warranty shall be responsible for all return shipping costs. The depot maintainer designated for each component shall be authorized by the original manufacturer to supply this service. A warranty certificate shall be supplied for each component from the designated depot repair site indicating the start and end dates of the warranty. The certificate shall be supplied at the conclusion of the system acceptance test and shall be for a minimum of two years after that point. The certificate shall name the Department as the recipient of the service. The Department shall have the right to transfer this service to other private parties who may be contracted to perform overall maintenance of the facility.

Method of Measurement. The closed circuit television dome camera bid item will be measured for payment by the actual number of CCTV dome camera assemblies furnished, installed, tested, and accepted.

Basis of Payment. Payment will be made at the contract unit price for each CLOSED CIRCUIT TELEVISION DOME CAMERA including all equipment, material, testing, documentation, and labor detailed in the contract documents for this bid item.

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20 AMP, 1 POLE CIRCUIT BREAKER

Description. This work shall consist of furnishing a single pole, rated 20 A circuit breaker that is mounted on an aluminum plate and is installed in a small panel board in an existing cabinet at the location shown on the Plans or as designated by the Engineer. This work shall be in accordance with the requirements set forth under Section 805 and 1086 and Article 1068.01(e)(3) in particular of the Standard Specifications.

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POLE MOUNTED EQUIPMENT CABINET TYPE C

Description. This work consists of furnishing and installing a pole mounted equipment cabinet and peripheral equipment at locations indicated in the Plans. These cabinets will be utilized to house critical electrical, optical, and communications equipment as defined in other contract pay items.

Materials. Materials shall be in accordance to the following specifications.

General. The equipment cabinet shall conform to the details shown on the plan sheet. Equipment cabinets shall be mounted and anchored on the poles and structures at locations indicated in the Plans. In addition, all mounting hardware and brackets required to install the equipment cabinet on the pole shall be stainless steel and provided. The mounting heights and pole diameters shall be as specified by the Engineer.

The Type C cabinet shall be a NEMA 3R Single Door Enclosure, constructed from .125" thick aluminum, with minimum outside dimensions of 41" (H) x 24" (W) x 16" (D). The cabinet shall have a natural finish.

The cabinet shall be furnished with two adjustable height shelves, a three point latching mechanism with nylon rollers, 3/4" dia. stainless steel pad-lockable handle, three position door stop (90, 120, 180 degrees), neoprene door gasket, door louvers, overhang vent slots, continuous stainless steel door hinge, interior stiffeners for pole mounting, and all stainless steel hardware. The cabinet shall also have a Corbin #2 dead bolt lock or equal. The key shall be removable in the lock position only. Two keys shall be supplied for each lock, and all equipment cabinet locks shall be keyed the same. The cabinet shall be equipped with a thermostatically controlled ventilation fan and a 250W heater strip (complete with protective shield).

All cables shall be labeled utilizing marking tags.

The cabinet shall be equipped with a main power panel as shown on the cabinet plan detail sheet. The power panel shall include one 30A main breaker, one 15A breaker for the cabinet fan, heater strip, and light, one 15A equipment breaker, neutral bus bar, ground bus bar, 15A GFI receptacle, two terminal blocks, one surge protector, and one six outlet power strip with integral surge protection. The power panel shall include a plexi-glass safety shield that covers the power panel.

Surge Protectors

The Contractor shall install surge protection on all external cables. This will include primary power as well as signal and control cables. The camera surge protector shall be a Transtector Model CCTV PTZ-4 or approved equal that meets or exceeds the following minimum specifications:

Added 05/30/2007

Service Voltage: 24VDC
Protection Type: CCTV/Video/Coax
Mounting: Panel
Technology: Silicon Avalanche Diodes
Connectors: Coax (BNC), RS-232/422/485 (Screw Terminals)
Protection Modes: Line to Line, Line to Ground
Joules: 13
Surge Current Ratings: 190A
Response Time (Max): 5 nanoseconds
Operating Temperature: -40°C to +65°C

The cabinet equipment surge protector shall be an ECO SHA-1210IRS or approved equal.

A surge protector shall protect each leg of the primary power feed. This surge protector shall be installed as a precautionary measure against possible damage resulting from voltage surges on all incoming power lines. The 120V AC single-phase surge protector shall incorporate a series choke and shall have a maximum clamp voltage of 340 V at 20 kA with a 5 ns response.

In addition, the surge protector shall have the capability of removing high-energy surges and shall block high-speed transients. The surge protector shall comply with the following specifications:

Peak Current:	20,000 amps (8 X 20 us wave shape)
Occurrences:	20 times at peak current
Minimum Series Inductance:	200 microHenrys
Continuous Series Current:	50A
Temperature Range:	-40°F to 185°F (-40°C to +85°C)

Power Strip

The cabinet power strip shall have a minimum of six outlets and integral surge suppression that meets or exceeds the following minimum specifications:

- Let Through Voltage: <85 Volts
- Operating Voltage: 120VAC, 50/60H
- UL Suppressed Voltage Rating: 330V
- Energy Rating: 320J
- Peak Current NM/CM: 13k Amps NM, 13k Amps CM
- EMI/RFI Noise Filtration: >25-60dB

The power strip shall be wired directly to the protected power terminals on the cabinet surge arrester.

Added 05/30/2007

Fluorescent Light

The cabinet shall be equipped with a fluorescent lamp assembly. The fixture shall be equipped with cold-weather ballast. The light shall be door switchable.

CCTV Local Control Panel

The cabinet shall be equipped with a CCTV local control panel that will enable the CCTV camera to be tested at the cabinet. The local control panel shall include user-selectable RS-422 or RS-232 camera control and a video output. The CCTV local control panel shall conform to the specifications listed under the pay item for CCTV LOCAL CONTROL PANEL.

Construction Requirements.

The Contractor shall prepare and submit shop drawings that detail all of the components to be supplied, along with associated mounting hardware for the pole mounted equipment cabinet. The shop drawings must be approved by the Engineer prior installation of the completed cabinet in the field.

The Engineer reserves the right to inspect and/or factory test any completed cabinet assemblies prior to shipment of the material to the project site. Any deviations from these specifications that are identified during such testing shall be corrected prior to delivery of the assembly to the project site.

The AC power service to be run to the equipment cabinet shall be terminated. The cost of providing the AC power service connection is included in other bid items as designated in the Plans. In addition, the cabinet shall be connected to an adequate ground following the Standard Specifications. Power service shall be activated and the Contractor shall perform tests to verify that proper line service is being obtained.

The Contractor shall terminate any inbound and outbound fiber optic, telephone, or wireless antenna leads in the equipment cabinet as shown in the Plans. The Contractor shall terminate any twisted pair communication cable on the termination panel in the equipment cabinet as shown in the Plans. Lugs shall be installed at the end of each conductor suitable for connection to the barrier terminal blocks.

Method of Measurement. This item shall be measured for payment by each pole mounted equipment cabinet type C in-place.

Basis of Payment. This work shall be paid for at the contract unit price each for POLE MOUNTED EQUIPMENT CABINET TYPE C, and shall include all equipment, material and labor detailed in the specifications and as shown on the Plans.

Added 05/30/2007

INDEX OF SHEETS

1. COVER SHEET
2. COMMITMENTS AND NOTES
- 3-4. SUMMARY OF QUANTITIES
- 5-6. SCHEDULE OF QUANTITIES
7. 1L 116 & US 24 CCTV DETAILS
8. 1L 116 & BLACKJACK CCTV DETAILS
- 9-10. COMMUNICATION (FIBER) LINE DIAGRAMS (EAST PEORIA)
11. US 150 & 1L 6 CCTV DETAILS
12. US 150 & ALLEN RD. CCTV DETAILS
13. US 150 & 1L 40 CCTV DETAILS
14. US 150 & PROSPECT CCTV DETAILS
15. US 150 & 1L 29 CCTV DETAILS
- 16-19. COMMUNICATION (FIBER) LINE DIAGRAMS (PEORIA)
- 20-21. EPPS NODE DETAILS
- 22-23. DRIES LN. NODE DETAILS
- 24-25. 1DOT NODE DETAILS
26. STEEL LIGHT POLE DETAIL
27. LIGHT POLE FOUNDATION DETAIL

27A POLE MOUNTED EQUIPMENT CABINET DETAIL

STANDARDS

- 701001-01 US 150 (WAR MEMORIAL DR.) & 1L 6
- 701006-02
- 701101-01
- 701106-01 US 150 (WAR MEMORIAL DR.) & ALLEN RD.
- 701421-01
- 701601-04
- 701701-04 US 150 (WAR MEMORIAL DR.)
- 702001-06 & 1L 40 (KNOXVILLE AVE.)
- 814001-01
- 878001-05

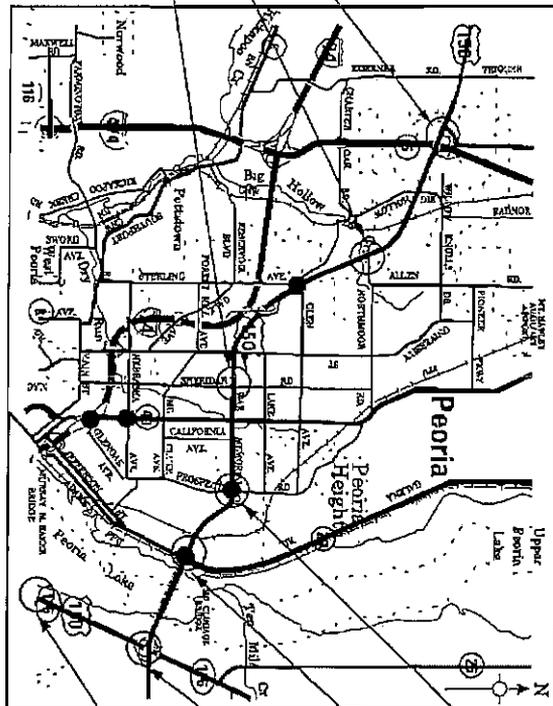
LOCATION OF IMPROVEMENT

PEORIA COUNTY LOCATIONS:
 CITY OF PEORIA - INTERSECTIONS OF US 150 (WAR MEMORIAL DR.) WITH 1L 6, ALLEN RD., 1L 40 (KNOXVILLE AVE.), PROSPECT AVE., AND 1L 29 (ADAMS ST.), PUBLIC WORKS DEPARTMENT, AND 1DOT D4 ITS EQUIPMENT ROOM

PEORIA

TAZEWELL COUNTY LOCATIONS:
 CITY OF EAST PEORIA - US 24 & 1L 116 (MAIN ST.), 1L 116 & BLACKJACK, 1L 116 & 1L 8 (CAMP ST.), AND EAST PEORIA PUBLIC SAFETY BUILDING.

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 FAP 317 (US 24150)
 SECTION D4 ITS SYSTEM 2007
 PROJECT ITS-0217 (101)
 PEORIA-TAZEWELL COUNTIES
 C-75-002-03



US 150 (WAR MEMORIAL DR.) & PROSPECT AVE.

US 150 (WAR MEMORIAL DR.) & 1L 29 (ADAMS ST.)

1L 116 (MAIN ST.) & US 24

1L 116 (MAIN ST.) & BLACKJACK

DESCRIPTION OF WORK

THIS PROJECT CONSISTS OF INSTALLING CCTV DOME CAMERAS, ITS EQUIPMENT CABINETS, FIBER OPTIC CABLE, CONDUIT AND HANDHOLES; ONE CAMERA POLE, CONCRETE FOUNDATIONS, FIBER OPTIC VIDEO TRANSMISSION SYSTEMS, VIDEO ENCODERS AND DECODERS, TERMINATING, FUSION SPLICING, AND TESTING OF EXISTING AND PROPOSED FIBER OPTIC CABLE; AND ALL OTHER COLLATERAL WORK REQUIRED TO COMPLETE THE IMPROVEMENTS.

SHEET 1 OF 27
 D-94-023-07



JULIE
 JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION
 1-800-492-0123

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS

SUBMITTED *J. E. C...* 20 07

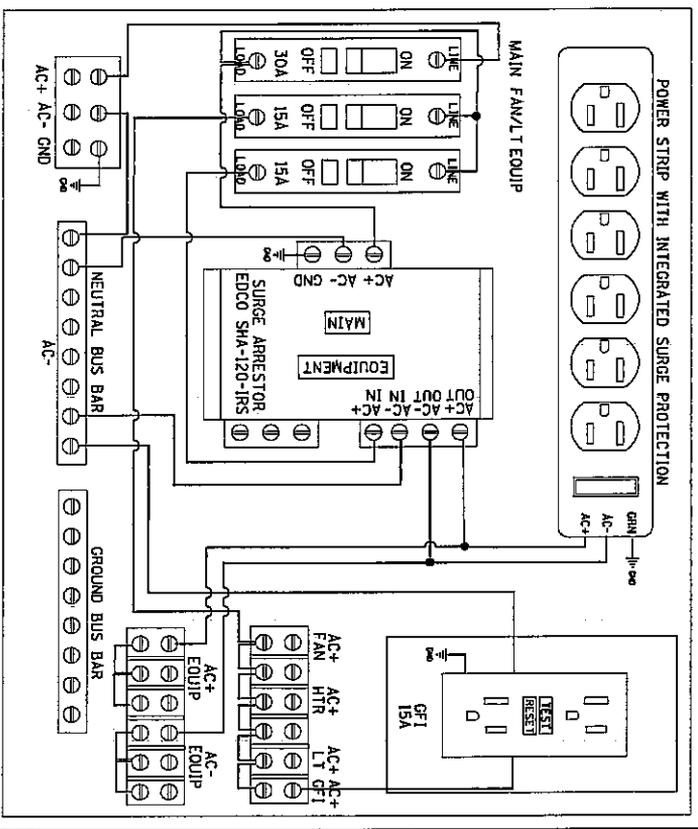
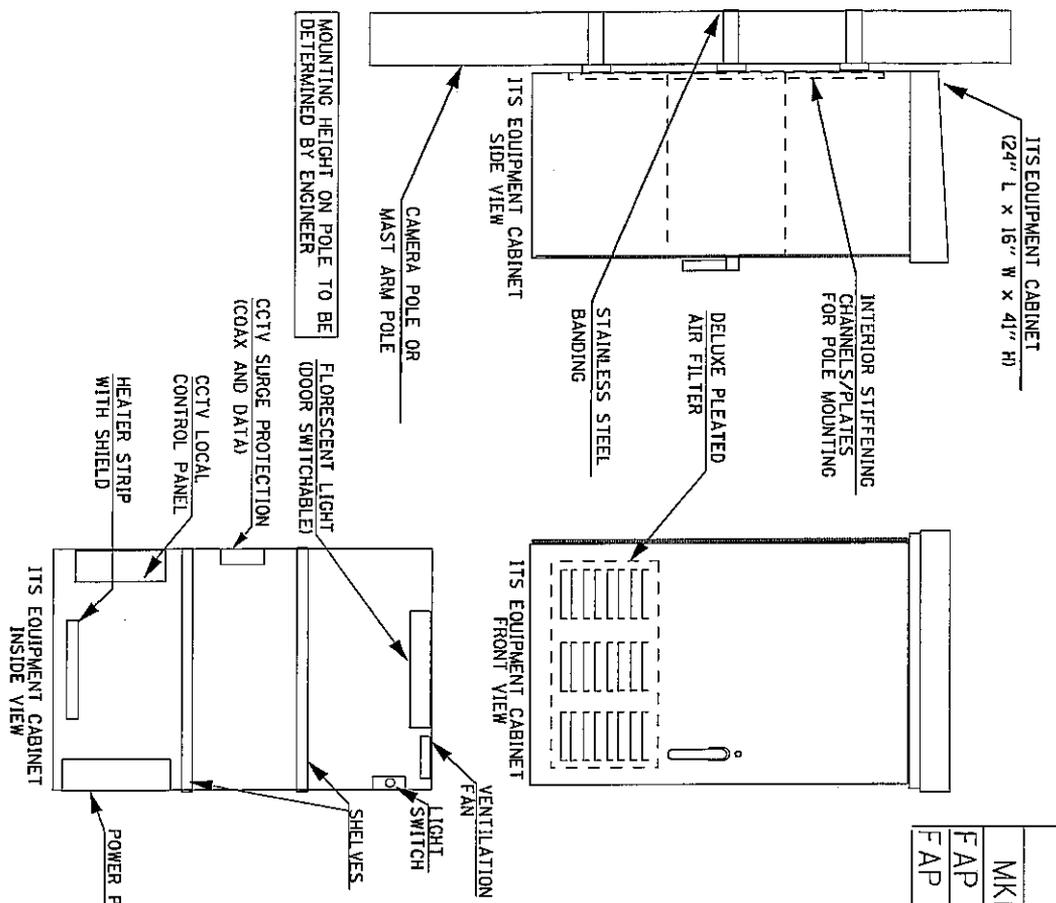
DEPUTY DIRECTOR OF HIGHWAYS REGION ENGINEER

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REVISSED 5/30/07

CONTRACT NO. 68694
 CATALOG NO. 033469-00D

ROUTE	SECTION	COUNTY	SHEET
MKD. DESIG.	D4 ITS	PEORIA	TOTAL
FAP 317 US 24	SYSTEM 2007	TAZEWELL	27
FAP 317 US 150			27A



NOTES

1. THE ITS EQUIPMENT CABINET SHALL BE A NEMA TYPE 3R CABINET WITH MINIMUM OUTSIDE DIMENSIONS OF 41" (H) X 24" (W) X 16" (D). THE CABINET SHALL BE CONSTRUCTED FROM .125" THICK ALUMINUM AND HAVE A NATURAL FINISH.
2. THE CABINET SHALL BE FURNISHED WITH TWO ADJUSTABLE HEIGHT SHELVES, A THREE POINT LATCHING MECHANISM WITH NYLON ROLLERS, 0.75" DIA. STAINLESS STEEL PAD-LOCKABLE HANDLE, THREE POSITION DOOR STOP (90, 120, 180 DEGREES), NEOPRENE DOOR GASKET, DOOR LOUVERS, OVERHANG VENT SLOTS, CONTINUOUS STAINLESS STEEL DOOR HINGE, INTERIOR STIFFENERS FOR POLE MOUNTING, Z CORBIN DEAD BOLT LOCK, AND ALL STAINLESS STEEL HARDWARE.
3. THE CABINET SHALL BE EQUIPPED WITH A DOOR SWITCHABLE FLORESCENT LIGHT ASSEMBLY, 15A GFI RECEPTACLE, SURGE SUPPRESSOR, THERMOSTATICALLY CONTROLLED VENTILATION FAN AND Z50 WATT HEATER STRIP WITH SHIELD, PLEXI-GLASS POWER PANEL SAFETY SHIELD, SIX OUTLET POWER STRIP WITH INTEGRAL SURGE PROTECTION, CCTV LOCAL CONTROL PANEL, CCTV SURGE PROTECTION (COAX AND DATA), AND ALL OTHER COMPONENTS REQUIRED FOR INSTALLATION.

NEW SHEET

POLE MOUNTED EQUIPMENT CABINET, TYPE C DETAIL