Illinois Department of Transportation
2300 South Dirksen Parkway / Springfield, Illinois / 62764

February 20, 2009

SUBJECT: FAI Route 74 (I-74)
Project IM-HPP-074-3 (062) 093
Section D4 I-74 ITS SYSTEM-2
Peoria & Tazewell Counties
Contract No. 68273
Item No. 1X, March 6, 2009 Letting
Addendum B

NOTICE TO PROSPECTIVE BIDDERS:

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

1. Revised pages 1 and 2 of the Schedule of Prices.
2. Revised sheets 3, 19 and 20 of the Plans.
3. Revised the Table of Contents to the Special Provisions.
4. Revised the entire Special Provisions.
5. Added pages 79 - 85 to 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,

Charles J. Ingersoll, Chief
Bureau of Design and Environment

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

cc: Joseph E. Crowe, Region 3, District 4; Bill Frey; Estimates

TBW:DB:jc

ILLINOIS DEPARTMENT OF TRANSPORTATION
SCHEDULE OF PRICES
CONTRACT NUMBER - 68273

State Job # - C-94-101-02
PPS NBR - 4-00053-0000
County Name - PEORIA- TAZEWELL-
Code - 143 - 179 -
District - 4 - 4 -
Section Number - D4 I-74 SYSTEM-2

Project Number IM-HPP-074-3/062/093

Route FAI 74

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
** X0323912	E PEO PUB SF BLD NODE	L SUM	1.000				
X0326248	ATMS SOFTWARE CORE	L SUM	1.000				
X0326249	CARD CAGE CHASSIS	EACH	1.000				
** DELETED							
X0326251	ATMS SOFTWARE CAD P	L SUM	1.000				
** X0326252	COMPUTER WORKSTATION	EACH	14.000				
** X0326253	LCD MONITOR	EACH	28.000				
X0326254	LAPTOP COMPUTER	EACH	4.000				
X0326255	APPLICATION SERVER	EACH	1.000				
X0326256	WEB SERVER	EACH	1.000				
X0326257	TAPE BACKUP UNIT	EACH	2.000				
X0326258	NETWORK SECURITY APPL	EACH	1.000				
** X0326259	DIGITAL VIDEO ENCODER	EACH	13.000				
X0326260	ETHERNET SWITCH MAT O	EACH	1.000				
** X0326261	KVM SWITCH	EACH	4.000				
X0326262	REMOTE POWER MAN UNIT	EACH	10.000				
		** REVISED : FEBRUARY 19, 2009					

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Route FAI 74

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
X0326263	EQUIPMENT CABINET	EACH	1.000				
X0326264	UPGRADE EX ANALOG VS	L SUM	1.000				
X0326265	VIRUS SOFTWARE	L SUM	1.000				
X0326266	ETHERNET SWITCH	EACH	2.000				
X0326267	VIDEO SERVER	EACH	1.000				
** X0326342	DIGITAL VIDEO DECODER	EACH	4.000				
X8620020	UNINTER POWER SUPPLY	EACH	2.000				
X8710050	FO ETN DROP REPEAT SW	EACH	4.000				
67100100	MOBILIZATION	L SUM	1.000				
		** REVISED : FEBRUARY 19, 2009					

INDEX
FOR
SUPPLEMENTAL SPECIFICATIONS
AND RECURRING SPECIAL PROVISIONS

Adopted January 1, 2009

This index contains a listing of SUPPLEMENTAL SPECIFICATIONS and frequently used RECURRING SPECIAL PROVISIONS.

ERRATA Standard Specifications for Road and Bridge Construction (Adopted 1-1-07) (Revised 1-1-09)

SUPPLEMENTAL SPECIFICATIONS

RECURRING SPECIAL PROVISIONS

The following RECURRING SPECIAL PROVISIONS indicated by an "X" are applicable to this contract and are included by reference:

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STATE OF ILLINOIS

SPECIAL PROVISIONS

The following Special Provisions supplement the "Standard Specifications for Road and Bridge Construction," adopted January 1, 2007, the latest edition of the "Manual on Uniform Traffic Control Devices for Streets and Highways," and the "Manual of Test Procedures for Materials" in effect on the date of invitation for bids, and the Supplemental Specifications and Recurring Special Provisions indicated on the Check Sheet included herein which apply to and govern the construction of FAI Route 74 (I-74), Section D4 I-74 ITS System-2 in Peoria and Tazewell Counties, Contract No. 68273 and in case of conflict with any part or parts of said Specifications, the said Special Provisions shall take precedence and shall govern.

LOCATION OF PROJECT

This project is located in Peoria and Tazewell Counties in Illinois. Work will be performed at the following locations:

Peoria: IDOT District Four Headquarters (401 Main Street), Peoria Department of Public Works (3505 N. Dries Lane), Peoria Emergency 911 Communications Center (542 S.W. Adams Street).

East Peoria: East Peoria Public Safety Building (201 W. Washington Street), East Peoria Public Works Building (2232 E. Washington Street).

DESCRIPTION OF PROJECT

The Department requires services to provide itself and its partner agencies with ATMS (Advanced Traffic Management System) control software and hardware to enable real time monitoring and control of the Intelligent Transportation System (ITS) that has been installed as part of the I-74 Reconstruction Project in Peoria and East Peoria. This system is the result of a federally funded initiative between IDOT, the Federal Highway Administration (FHWA), and numerous local agencies (ITS stakeholders) to provide real time traffic monitoring, and video surveillance capabilities for the I-74 corridor. The system was designed to provide enhanced traffic management, increase motorist safety, reduce motorist travel times, and improve incident response times.

The objective of this project is to provide motorists with real-time travel information to alleviate congestion and increase safety. This contract will meet this objective by integrating all of the different field components of the Intelligent Transportation System which include dynamic message signs, surveillance cameras, and detector stations into a central software package.

The ATMS software will provide the following:

- Integration of all field components of the Peoria area Intelligent Transportation System, including dynamic message signs, surveillance cameras, highway/rail interface, and detector stations into a central software package that will be implemented at each ITS operator workstation.

- Video and data consolidation and distribution to ITS operators and stakeholders through the use of a system map, surveillance camera viewing and control applications (workstation based), and data archival and retrieval capabilities.

- ITS data consolidation and distribution to the traveling public through the use of dynamic message signs, an external web page with congestion maps and video images, and the media.

- A mechanism to export incident data from the Peoria and East Peoria computer aided dispatch (CAD) systems for use with the ATMS software. The ATMS software will have the functionality to process this information.

- External interface (XML) for information exchange with a future systems.

MANDATORY PRE-BID MEETING

The work in this contract can only be performed by a qualified Contractor who has expertise in the fields of ITS component configuration, ITS system integration, and ITS software development.

Prospective bidders should familiarize themselves with all aspects of this Contract prior to bidding. All bidders must be pre-approved, by IDOT, District Four, and the IDOT Central Bureau of Operations, prior to bidding the contract.

Prospective bidders shall submit qualification information for review at the mandatory pre-bid meeting.

The meeting will be conducted to review details of the work for prospective bidders at the following location:

- Date: Monday, February 9, 2009
  Time: 10:00 A.M.
  Location: Illinois Department of Transportation
  401 Main Street, Suite 600
  Peoria, IL 61602-1111

Pre-bid meeting attendance is mandatory for all prospective bidders.

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SITE INSPECTION

Pre-bid site inspection locations, itinerary and program schedules will be finalized and distributed at the pre-bid meeting. Bidders are expected to be familiar with the type and extent of systems covered under the contract. Certain items will be made available for detailed inspection during the pre-bid site inspection. Bidders are encouraged to request inspection items prior to the pre-bid meeting. The Department reserves the right to limit the inspections.

CONTRACTOR QUALIFICATION SUBMITTAL

The Contractor shall be experienced in the design, implementation, and maintenance of advanced traffic management system (ATMS) control software.

All prospective bidders shall submit the following special qualification information for review and evaluation at the pre-bid mandatory meeting:

- A detailed summary of the Contractor's experience and technical capabilities by providing descriptions of past services that are similar to those required in this contract. The Contractor shall be specific and identify projects, dates, and results. As part of the evaluation process, the Contractor shall provide contacts for each project. Successful projects that are completed on time and on budget are of interest to the Department in its evaluation process.

- A list of key employees that will be working on the contract. The Contractor shall describe the roles and responsibilities of each staff member that would be assigned to work on the project. The Contractor shall submit resumes that describe each of the key employees educational and work experiences.

- A proposed work plan that describes the methodology for the design, development, integration, and implementation processes that will be used in this contract. These processes shall be described in detail.

- A list of organizations, including points of contact (name, address, and telephone number), which can be used as references for work performed in the area of service required. Selected organizations may be contacted by the Department to determine the quality of work performed and personnel assigned to the project.

The above information shall be submitted at the pre-bid meeting and addressed to each of the following in sealed envelopes:

- Aaron Weatherholt, P.E.
  Engineer of Operations (Acting)
  2300 South Dirksen Parkway
  Springfield, IL 62764

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- Joseph E. Crowe, P.E.
  Deputy Director of Highways,
  Region Three Engineer
  Attn. Mr. Shane Larson, P.E.
  401 Main Street
  Peoria, IL 61602-1111

CONTRACTOR QUALIFICATION EVALUATION

The Department will evaluate the submittal based upon the following general guidelines:

- Experience: The Department will evaluate the depth of the Contractor's experience in providing the proposed services as well as experience in related fields and other governmental work, including work for the Illinois Department of Transportation.

- Capability: The Department will evaluate the depth of the Contractor's capability in providing the proposed services as well as the capability of the Contractor's staff as listed on the resumes.

- Performance: The Contractor will evaluate the Contractor's performance based upon the submitted list of projects. The Department may contact the project references that were submitted by the Contractor. Successful projects that are completed on time and on budget are of interest to the Department in its evaluation process.

- Methodology: The Department will evaluate the Contractor's methodology for providing the services outlined in this contract.

- Resources: The Department will evaluate the Contractor's resources that will be available for the execution of this contract. The Department will examine the submittal information to determine if the Contractor has sufficient available tools and technical resources to perform the proposed services; and, the location and accessibility to services.

The submitted information will be reviewed and if it is determined that the prospective bidder is qualified to bid, the bidder will be issued an "Authorization to Bid."

The Department will be the sole judge of Contractor qualifications and will make the sole determination regarding the Contractor's eligibility to bid on the contract.

DATE OF COMPLETION
Effective November 5, 2008

The development of the ATMS software under the provisions of this contract requires that the Contractor meet several specific milestones to ensure that the software can be successfully deployed and integrated into the existing Intelligent Transportation System.

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The milestones and their associated dates of completion are as follows:

Milestone 1

Initial document submittal: The Contractor shall submit all required documentation as outlined in the section titled "Initial Documentation Submittal."

The Contractor shall meet this milestone within 45 calendar days of contract award.

Milestone 2

Pre-deployment software testing and verification: The Contractor shall install the ATMS software on a minimum of one workstation located at the IDOT District Four Communications Center to demonstrate that the software has at least fifty (50%) percent of the required functionality as described in the central software technical requirements in the section titled "ATMS SOFTWARE (CORE MODULE)".. The Contractor shall also demonstrate that the ATMS software is capable of partial integration into the existing ITS system.

The Contractor shall meet this milestone within 120 calendar days of contract award.

Milestone 3

System acceptance and testing plan submittal: The Contractor shall submit a detailed system deployment, acceptance, and testing plan. The plan shall provide information on all processes including methods for defining, documenting, and addressing issues that arise during deployment and the operational testing period.

The Contractor shall meet this milestone within 180 calendar days of contract award.

Milestone 4

ATMS software deployment and operational testing: The Contractor shall deploy the ATMS software in all locations for use by the ATMS operators. The software shall be fully operational and have all of the required functionality. The software will begin the 60-day operational test. The Contractor shall also deploy the ATMS external web interface for operational testing as part of this milestone.

The Contractor shall meet this milestone within 300 calendar days of contract award.

Milestone 5

Completion of outstanding issues: The Contractor shall correct all outstanding issues with the ATMS software to the satisfaction of the Department after the completion of the operational test period.

The Contractor shall meet this milestone within sixty (60) calendar days of receiving the list of outstanding issues from the Department.

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Milestone 6

Completion of training: The Contractor shall complete all training for the ATMS software to the satisfaction of the Department after the completion of Milestone 5.

The Contractor shall meet this milestone within thirty (30) calendar days of receiving the list of outstanding issues from the Department.

The Contractor shall have all required equipment and materials installed, tested and operational within the time frames specified below, unless directed otherwise by the Engineer:

All work on this contract shall be completed by September 30, 2010.

FAILURE TO COMPLETE THE WORK ON TIME
Effective November 5, 2008

Should the Contractor fail to complete the work on or before any of the dates specified in these Special Provisions, or within such extended time allowed by the Department, the Contractor shall be liable to the Department in the amount specified in Article 108.09 of the Standard Specifications. The amount is not a penalty but is for liquidated and ascertained damages for each calendar day beyond the date of completion or extended time as may be allowed. Such damages may be deducted by the Department from any monies due the Contractor.

In fixing the damages as set out herein, the desire is to establish a certain mode of calculation for the work because the Department's actual loss, in the event of delay, cannot be predetermined, would be difficult of ascertainment, and a matter of argument and unprofitable litigation. This mode is an equitable rule for measurement of the Department's actual loss and fairly takes into account the loss of use of the ITS system if the project is delayed in completion. The Department shall not be required to prove any actual losses to recover these liquidated damages provided herein, as these damages are very difficult to ascertain. Furthermore, no provision of this clause shall be construed as a penalty, as such is not the intention of the parties.

A calendar day is every day on the calendar and starts at twelve midnight (12:00 a.m.) and ends at the following twelve midnight (12:00 a.m.), twenty-four hours (24 hrs.) later. No payment will be paid for any day less than twenty-four hours.

INITIAL DOCUMENTATION SUBMITTAL

Within forty-five (45) calendar days upon award of the project, the Contractor shall submit the following items to the Department for approval:

Within ten days of contract award, The Contractor shall meet with the Department at the IDOT District 4 Communication Center, to discuss the project timeline and ATMS software specifications prior to submitting any required documentation.

- A point-by-point response to every technical software requirement specified in the section titled "ATMS SOFTWARE (CORE MODULE)". Responses to the technical

requirements must be in the same sequence and designated as they appear in this document. A succinct explanation of how each requirement will be met shall be included.

- Proposed work plan for ATMS software design, development, and deployment. The work plan shall contain detailed schedules that coincide with the milestones for review and approval by the Department. This schedule shall include the anticipated delivery, installation, and testing schedule for all equipment and components. It is desired to have this schedule depicted in a critical path format with the controlling item identified.

- Detailed system drawings that depict system processes and software architecture. The Contractor shall submit schematics showing all interconnections included in the system, including those between the existing equipment and the proposed system and locations of proposed equipment.

- Detailed information on the ATMS graphical user interface including visual screen prints that show the menu layout, mouse, and keyboard functionality for the end user. The Contractor shall submit a functional software model of the proposed ATMS graphical user interface that demonstrates the complete user interface including the complete menu structure, keyboard usage, keyboard shortcuts, mouse usage, and all applicable menus including right and left mouse click menus.

- Detailed information on the external web interface that describes and depicts all required components. The Contractor shall develop and submit a functional software model of the external web interface that contains all of the required elements.

- Shop drawings for all hardware, software, and other items that will be used in this contract.

After the initial documentation submittal, the Contractor shall meet with the Department, at the District Four headquarters, to discuss the review and subsequent approval and/or revisions of these items.

This work will not be paid for separately, but shall be included in the contract bid price for ATMS SOFTWARE (CORE MODULE).

PROJECT MANAGEMENT

The Contractor shall provide project management, administration, and internal coordination activities required for a successful project, including, but not limited to the following:

- Monthly progress reports summarizing, per subtask, the work conducted during the reporting period
- Regular coordination and communications with the Department and any other parties associated with the deployment of the Central System.; and
- Minutes of meetings held with the Department and any other parties associated with the deployment of the Central System.

This work will not be paid for separately, but shall be included in the contract bid price for ATMS SOFTWARE (CORE MODULE). Revised 02/20/2009

EXISTING ITS SYSTEM COMPONENTS

The existing ITS system components are shown on the plan sheets. The existing system components are configured and comprise a fully operational system.

The Contractor shall use the existing infrastructure to the greatest extent. The Contractor shall provide the Department with documentation detailing the specific hardware specifications for approval prior to procurement and deployment.

This work will not be paid for separately, but shall be included in the contract bid price for ATMS SOFTWARE (CORE MODULE) .

ATMS SOFTWARE LICENSING

The ATMS software developed under this contract shall be licensed for unlimited use within the State of Illinois and IDOT Districts 1 through 9 with unlimited device and unlimited user licenses for deployment in the districts and statewide. The Department shall have the right to have any vendor perform modifications to the final ATMS software for the addition of future ITS components. The Contractor will retain the ability to continue selling the ATMS software to other parties, complete with all enhancements that were made to the initial software product through this contract. The Contractor will also have the ability to make modifications to the ATMS software.

The Contractor shall create and maintain documentation for the software in accordance with the best industry standards including the creation and/or subsequent revisions of the application programming interface, software architecture/design documentation, and technical documentation including source code and specific interface documentation.

In the event that the Contractor or its assigned agent is no longer able to provide support for the ATMS software or there is no upgrade path offered for the software, the Contractor shall make this documentation available to the Department upon request.

In the event that the Contractor chooses to provide an ATMS package that incorporates software that is licensed to other governmental entities, the Contractor shall secure all licensing rights prior to commencing work on this contract. The licensing documentation shall be submitted with the initial documentation submittal.

The Contractor shall provide thirty full user software licenses for all other software that is required for the operation of the ATMS software.

This work will not be paid for separately, but shall be included in the contract bid price for ATMS SOFTWARE (CORE MODULE).

ATMS SOFTWARE DEPLOYMENT

As part of the deployment, the Contractor shall perform the following:

- Integrate the proposed system with the existing infrastructure.
- Install and configure all hardware required to provide the system functionality as specified.

- Submit detailed schematics showing all interconnections included in the system, including those between the existing equipment and the proposed system and locations of proposed equipment. The existing system drawing CAD files will be made available to the Contractor upon request.

- Submit a detailed System Acceptance Test Plan for review and approval by the Department. This System Acceptance Test Plan shall include two tests: the System Configuration Test and the System Operational Test. The System Configuration Test will validate the system and demonstrate that the ATMS software is configured correctly and works with the existing equipment. The System Operational Test is a sixty day operational test that will demonstrate that the ATMS software is fully functional and meets all of the requirements. Upon approval of the System Acceptance Test Plan by the Department, the Contractor shall carry out the System Acceptance Tests within the time frame required to meet the milestone dates.

  The 60-day operational test will be suspended in the event of serious issues including, but not limited to, system instability, system crashes, excessive system reboots, system lockups, and system non-performance. The 60-day operational test will not be restarted until the Contractor has corrected the issues to the satisfaction of the Department.

  At the end of the sixty-day (60-day) operational test period, the Department will provide the Contractor with a list of any outstanding issues that will need to be corrected by the Contractor prior to final acceptance of the ATMS software. The Contractor shall address and correct these issues to the satisfaction of the Department within a sixty-day (60-day) time period.

This work will not be paid for separately, but shall be included in the contract bid price for ATMS SOFTWARE (CORE MODULE).

ATMS SOFTWARE SUPPORT AND WARRANTY

The Contractor shall provide the following:

- The Contractor shall warranty the ATMS software for a one year period. The warranty shall include parts, labor, and materials and shall begin after final acceptance by the Department.

- All hardware equipment supplied under this contract shall have a minimum two-year, manufacturer's warranty (parts and labor) that begins after final acceptance.

- All computer workstations and servers shall have a minimum three-year, manufacturer's warranty (parts and labor) with on-site service.

- All ATMS system software and the core system hardware (application server, web server, etc.) shall be supported through a twenty-four (24) hours per day, seven (7) days per week contact list with a two-hour response time during normal working hours Monday through Friday and an eight hour response time during weekends and holidays for callback to initiate support.

Warranty and maintenance requirements:

- Failed hardware components shall be replaced within one (1) business day or less from the receipt of the telephone call.

- Ten operations manuals and five maintenance manuals shall be supplied as part of the system.

- One complete set of manuals, in electronic format, shall be supplied on a CD or DVD for all systems and hardware provided as part of the contract.

- All instruction sheets and other documentation required to be furnished by the manufacturer for materials and supplies and for operations shall be delivered to the Engineer prior to the acceptance of the project, with the following warranties and guarantees:

    - The manufacturer's standard written warranty for each piece of equipment furnished under the contract.

    - The Contractor's written guarantee that, for a period of two years after the date of final acceptance of the project, all necessary repairs to or replacement of said warranted equipment, or apparatus shall be made by the Contractor at no cost to the Department.

    - The Contractor's written guarantee for satisfactory operation of all hardware and software furnished and constructed under the contract for a period of two years (three years for computer workstations and servers) after final acceptance of the project.

    - The Contractor shall furnish a warranty certificate that lists each component and includes the equipment description and details, serial numbers, effective dates, and the details of the warranty regarding materials and labor. The warranty period shall begin on the date of final acceptance and the warranty certificate shall reflect this date.

The Contractor will not be responsible for components that are not provided under this contract.

This work will not be paid for separately, but shall be included in the contract bid price for ATMS SOFTWARE (CORE MODULE).

SYSTEM IMPLEMENTATION, EQUIPMENT INTEGRATION AND SUPPORT

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.

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All other work (labor, equipment, and materials) required for the implementation of this contract, including but not limited to, misc. software and hardware, firewalls, VPN software, reconfiguration of existing components, programming, licenses, etc. will not be paid for separately, but shall be included in the contract bid price for the ATMS SOFTWARE (CORE MODULE).

ATMS SOFTWARE TRAINING

As part of the deployment, the Contractor shall provide on-site training for technicians and operators of the system and equipment. This training will address normal operations of the system, routine system maintenance, provisioning and system setup, and fault diagnosis and system repair.

The Contractor shall provide the following training:

- Two (2) 8-hour ATMS operations training sessions with capacity for twelve (12) participants for IDOT District Four operators.
- Two (2) 4-hour ATMS operations training sessions with capacity for four (4) participants for Peoria (EPPW) and Peoria Department of Public Works (DPW) operators.
- Two (2) 4-hour ATMS operations training sessions with capacity for ten (10) participants for the East Peoria (EPPS) and Peoria 911(ECC) operators.
- One (1) 8-hour ATMS maintenance training session with capacity for four (4) participants for IDOT District Four ATMS system administrators.

All training sessions shall be held at the IDOT District Four Communication Center or partner agency locations. Training shall be hands-on with ample time for questions. The Contractor shall submit a training outline to the Department for approval prior to commencing training. The Contractor shall furnish training manuals that contain a course outline, ATMS software operation information, hands-on training exercises, and any other pertinent items for each participant.

This work will not be paid for separately, but shall be included in the contract bid price for ATMS SOFTWARE (CORE MODULE).

ATMS SOFTWARE SYSTEM REQUIREMENTS (CORE SOFTWARE MODULE)

The Central System shall interface with the existing field equipment and ITS network to provide an integrated operational platform. The fundamental functions include: Video Management (VM), Data Collection (DC), Information Dissemination (ID), Incident Management (IM), and System Administration (SA).

The ATMS software shall meet or exceed the following requirements:

REF. ID	REQUIREMENT DESCRIPTION
VM01	Using the GUI, an ATMS operator shall be capable of selecting a camera and monitor and place video from the camera on the proposed computer workstation monitor and/or existing analog video monitors and video wall. The system shall provide the capability for video to be viewed through the ATMS software on a separate workstation monitor.
VM02	To decrease CCTV camera contention between two or more ATMS operators, the system shall support camera control prioritization based on the operator ID and Permissions Matrix or operator ID and assigned rights.

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VM03	The system shall enable an ATMS operator, with proper permissions, to select a preset camera position for all cameras supporting camera presets.
VM04	The system shall support Virtual Private Network (VPN) connections over a high speed internet connection to allow a remote ATMS operator to access system hardware, view digital video from CCTV cameras, and select video presets for the system.
VM05	The system shall enable an ATMS operator, with proper permissions, to establish a new preset camera position for any camera from any ATMS workstation.
VM06	The system shall allow an ATMS operator, with proper permissions, using the GUI, to control a camera including pan, tilt, zoom, focus, iris, selection of presets, and selection of tours for individual cameras. Other camera operations not listed above that are available through a camera manufacturer's system, may be operated through the camera manufacturer's keyboard and/or joystick.
VM07	Using a high speed internet VPN connection, a remote ATMS operator, with the proper permissions, shall be able to select and view video from the switch, select video presets, and control the selected camera's PTZ functions.
VM08	When an ATMS operator selects a CCTV camera icon on the system map, a window shall appear that contains the selected CCTV camera's controls and the camera's video image shall be placed on the workstation monitor. CCTV camera control (pan, tilt, and zoom) may also be operated through the use of a standard mouse equipped with a scroll wheel.
VM09	The system shall not preclude the use of existing remote joysticks and keypads from selecting video and controlling cameras.
VM10	The system shall allow ATMS operators with a higher level of assigned rights to seize a camera for a specific length of time. During this period of time, operators with a lower level of permission shall not be allowed to control the seized camera; however, control of other cameras shall not be affected.
VM11	The system shall allow a user, with proper permissions assigned by the system administrator, to return a seized camera to "open" status.
VM12	The system shall display the "owner" of a seized camera.
VM13	The system shall not decrease the inherent number of cameras or ATMS operators that can be supported by the video switch and camera control system.
VM14	The system shall support all preset camera positions available to operators in the existing camera and camera control system.
VM15	The system shall provide pre-identified "tours" of selected cameras.
VM16	The individual camera tours shall be created, modified, and selectable by the system administrator.
VM17	The individual tours shall be selectable by a time of day and specific day schedules.
VM18	The individual tours shall be selectable by an ATMS operator, with proper permissions as defined by the System Administrator, from any workstation connected to the ITS network and by a remote ATMS operator via a high speed internet VPN connection.
VM19	In addition to supporting legacy communication protocols, the system shall be upgradeable to communicate with NTCIP compliant CCTV cameras using the NTCIP protocol.
VM20	The system shall control the video switching system to allow the display of video images on the video wall located in the IDOT Communication Center.
VM21	The system shall be capable of selecting multicast IP video and placing it for viewing on an ATMS workstation monitor. The system shall allow for multiple video images to be tiled for viewing and CCTV control on the workstation monitors.

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VM22	The system shall enable an ATMS operator, with the appropriate permissions, from any ATMS workstation to select and publish video image snapshots and/or streaming video from a minimum of 50 cameras to an Internet website. The image snapshots shall be JPG images and the image resolution shall be configurable by the system administrator. The System Administrator shall be able to adjust the resolution and frames per second of the streaming video. The publishing interval for the snapshots shall be configurable by the system administrator and shall support, as a minimum, intervals of one (1), two (2), and five (5) minutes.
VM23	When a CCTV camera icon is selected from the published Internet website map, the current video image snapshot or streaming video from the camera shall be displayed along with a short description including the location of the CCTV camera and the date and time of the image snapshot.
VM24	When a camera is disconnected from the Internet, the image on the Internet shall display the information: “No Video” or similar on a blank background.
VM25	When a camera is “seized” by an ATMS operator, the system shall restrict the output of the video switch system feeds to the lowest tier of permissions (refer to the Permissions Matrix). The output of the video switch system feeds shall be restored to the lower tier when the camera is returned to a preset position. The system shall provide a manual override to this restriction.
VM26	The system administrator shall be able to adjust the period of time that an ATMS operator may seize a camera. The time period shall be defined in minutes and shall be assignable based upon the operator ID and Permissions Matrix.
VM27	The system shall support preset camera positions based on time of day and specific day schedules.
VM28	The system shall include a minimum of three legacy protocols for other manufacturers CCTV cameras that are still currently available for purchase. The legacy protocols shall be selectable by the System Administrator for use with the system.
DC01	The system shall poll the RTMS units, retrieve all required data, and store it in a SQL or ODBC compliant database.
DC02	The system shall poll the Type 2070 loop controllers, retrieve all required data, and store it in a SQL or ODBC compliant database.
DC03	System polling shall be at system administrator-selected intervals of thirty (30) seconds to five (5) minutes in thirty-second (30 sec.) intervals. Intervals should include thirty (30) seconds, one (1) minute, two (2) minutes, three (3) minutes, four (4) minutes, and five (5) minutes. Intervals should be consistent with data collection rates supported by the field hardware.
	The system shall utilize the existing 2070 field controllers and hardware to obtain speed, volume, occupancy, and vehicle classification data. The Contractor shall install software on all of the 2070 controllers that utilizes a two detector loop configuration to determine vehicle speed and classification. The software will be tested and calibrated using a radar gun for data accuracy.
DC05	In addition to supporting legacy communication protocols, the system shall poll existing NTCIP compliant hardware using the proper NTCIP protocol.
DC06	The system shall communicate with existing and future field equipment using existing protocols including Internet Protocol (IP) over the existing communications network. The system shall support serial communications, TCP/IP, and cellular modems for communication with field components.
DC07	The system shall be capable of polling field equipment using leased telephone lines and modems.
DC08	The system, as a minimum, shall store the date, time, and volume by lane, speed by lane, occupancy by lane, and bin numbers or other data required for vehicle classification.
DC09	The system shall filter and smooth the data to produce processed data. The system administrator shall have the capability to select and modify filtering and smoothing parameters.

DC10	Using the processed data, the system shall calculate the average speed, average volume, and total volume for all lanes at each detection site for a user defined time period.
DC11	The system shall store and print reports of traffic information including, but not limited to, volume, speed, and occupancy and export traffic count information in a comma separated text format for use with other IDOT software.
DC12	The system shall export traffic count information in XML format for use with other IDOT software.
DC15	The system shall be capable of supporting, as a minimum, 100 RTMS sites and 10 ILDS sites.
ID01	The system shall generate a system map to be used as the backdrop of system status and ITS field hardware locations.
ID02	The system map shall contain multiple layers that can be selected by ATMS operators based upon permissions. As a minimum, the map shall contain separate layers for DMS, CCTV cameras, congestion indicators, vehicle detectors (RTMS and ILDS), queue detection systems, roadway weather stations (RWIS), events including incidents, construction/work zones, police and fire, IDOT facilities, public works facilities, and landmarks. The system map shall display the entire geographical boundary of District Four. Each selectable layer shall have a pre-defined view that displays all of the elements when selected by the end user. The screen layout and design shall be subject to approval by the Department.
ID03	The system map shall be scalable by selecting a location, dragging the cursor, and deselecting and by utilizing the scroll wheel on a standard mouse to zoom in and out of the map.
ID04	The system map shall be based on a GIS database (Navteq, TeleAtlas, or approved equal). The roadway data contained in the GIS database shall be accurate and reflect the current interstate configuration. The system administrator shall have the ability to apply GIS database updates to the base system map.
ID05	The system map shall display, as a minimum, a north arrow, a legend, freeways and major highways, the Illinois River, major bridges, the Greater Peoria Airport, and the Civic Center. The system shall allow the system administrator to add additional points of interest onto the system map.
ID06	The system map shall use colored line segments or icons to identify current conditions. Conditions displays and icons shall include traffic conditions, traffic incidents, the locations of all field components, and failed field components. Condition displays will be based upon available and processed data from the field devices and the CAD interfaces.
ID07	The system shall provide a GUI to allow the system administrator to set and modify multiple vehicle detector color thresholds and alarm thresholds.
ID08	The system map shall use separate distinct and identifiable icons to identify field hardware, construction zones, and incident locations.
ID09	The system map shall allow an ATMS operator with assigned rights to turn on or off different map layers and icons including field device icons, construction zone icons, and incident icons.
ID10	The system shall allow the system administrator to add, modify, or delete system elements to/from the system including field hardware devices (CCTV cameras, DMS, ILDS, RTMS, HRI, and RWIS Sites) and the interstate network configuration.
ID11	When a field hardware icon is selected on the system map, the system shall display as a minimum the following information: 1) field hardware ID, 2) freeway or route, 3) field hardware type, 4) field hardware configuration, 5) location (mile markers, coordinates, etc.), and 6) field hardware operational status. The system shall store a minimum of twenty-five preset map views that can be recalled by an ATMS operator. The views can be created and named by the system administrator and an ATMS operator with assigned rights.
ID12	Using the collected data from the ILDS and RTMS field hardware, average speeds (measured or calculated) and volumes, the system shall update the information on the system map.

ID13	The system shall make available to the ATMS operator both detector station data and individual lane by lane data in accordance with the capabilities of the field hardware.
ID14	The system shall publish the system map including the CCTV layers, DMS layers, congestion indicators, roadway weather sensors, incident layers, HRI status, landmarks, and construction zone layers to an Internet website. The system map publishing rate and output location shall be configurable by the system administrator.
ID15	When an ATMS operator selects a DMS icon on the system map, the system shall update and display the current message placed on the DMS.
ID16	The system shall publish the current traffic data collected by the field hardware to the Internet website at intervals defined by the system administrator. The field hardware icons and colored roadway segments on the Internet map shall be used to access the current traffic data. Lane by lane data shall not be made available on the Internet website.
ID17	Using the Peoria ECC CAD interface data, the system shall be capable of positioning and displaying an icon depicting an accident or other traffic incident on the system map.
ID18	Incident icons corresponding to an incident record shall be shown on the system map.
ID19	The system shall allow the ATMS operator to approve and edit incident information prior to placement on the internet and remove information when deemed sensitive or inappropriate for public broadcast.
ID20	The system shall display icons denoting construction zones on the system map. The icons shall be clickable and upon opening shall provide, at a minimum, a description of the work being done, road conditions (i.e., lane closures), contact information of the engineer on site, comments, and other custom fields as defined by the operational needs of the Department.
ID21	The system shall publish the current construction zone information to the Internet websites at intervals defined by the system administrator. The construction zone icons on the Internet map shall be used to access current construction zone information. The system shall allow the system administrator to filter sensitive information from being published to the Internet website.
ID22	Non-reporting detector stations or faulty data shall be indicated on the system map.
ID23	The system shall allow ATMS operators to access information in the database and publish a system report. The system shall support editing and creating new customized system reports by the system administrator. The system shall store custom reports in a user selectable list. The system administrator shall have the capability of adding, modifying, or deleting reports from the list.
ID24	The system shall provide the following individual reports: 1) equipment failures, 2) detector data (station and lane-by-lane data), 3) incident data, 4) DMS usage, and 5) system failures.
ID25	The system administrator shall define and modify reports, their content, format, and reporting interval. The system shall publish these reports to a network printer, webpage, and email.
ID26	The system shall be capable of generating reports in Adobe® PDF, text, word, and html file formats.
ID27	The system shall archive Department selected data (excluding video or video image snapshots) and make it available to ATMS operators for a period of not less than six months. The system shall automatically schedule the data to be exported to a file and deleted from the system database (to limit the database size).
ID28	The system shall not decrease the number of DMSs that can be supported by the DMS communication protocol. The system shall support a minimum of fifty (50) DMSs.

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ID29	The system shall allow an ATMS operator, with assigned rights, to place a message on the DMS. The system shall provide the ATMS operator with a preview of how the message will appear on the DMS.
ID30	The system shall provide the capability to display the current time and date information on the DMS.
ID31	A message library with room for at least 500 messages shall be provided.
ID32	The system library shall contain additional space for not less than 100 message templates that can be used to create new messages in a standard format.
ID33	If supported by the DMS, the system shall provide confirmation of a message being displayed by displaying the information received from DMS based on a query to the DMS controller in the field.
ID34	The system shall queue messages to be sequenced on the DMS at a time interval determined by the ATMS operators.
ID35	The system shall display messages on any DMS based upon date and time.
ID36	The system shall display messages on any DMS based on time of day.
ID37	The system shall display messages on any DMS for a specified amount of time, selected by the author of the message on the DMS.
ID38	The system shall cause the sign to display the message immediately or upon a selected time-delay.
ID39	Any ATMS operator, with assigned rights, shall be able to compose messages using the standard templates and words checked against an unacceptable word list. The system shall block transmission of any message that contains unacceptable words as defined in the unacceptable word list. The system shall provide spell checking functionality prior to sending a message to a DMS.
ID40	The unacceptable words list shall be edited only by the system administrator or an ATMS operator with assigned rights. The system administrator or AMTS user shall be able to add and delete words or phrases from the unacceptable word list.
ID41	The system shall support standard NTCIP functions for the DMS signs in accordance with basic operational needs and fonts supplied by the manufacturer of the DMS. The system shall include the basic message functionality provided by the DMS manufacturer's software, including but not limited to multiple screen messages and display times for each screen.
ID42	The system shall communicate with the DMS controller using NTCIP commands.
ID43	An ATMS operator, with assigned rights shall be able to edit, modify the display, or remove any existing message on a DMS. Changes to existing messages shall be sent to the sign to be displayed as a new message.
ID44	The system shall allow an ATMS operator to send a message or a message set to an ATMS operator defined collection of DMSs (i.e. one or more DMS). The system shall store the defined collections of DMSs so that they can be recalled by an ATMS operator.
ID45	The system shall automatically send pre-written emails based upon events identified by the system administrator. Email alerts shall include loss of video, faulty detectors, failed field hardware, and loss of communication between network nodes. The system administrator shall have the capability to modify individual alarm thresholds.
ID46	The system shall provide an interface for retrieving historical data and producing reports. The system shall export report data in CSV (comma separated values) and text formats that can be retrieved by the system administrator.
ID47	The system shall integrate data from the existing Highway Railroad Information (HRI) system and indicate the status of each monitored at grade railroad crossing to the ATMS operator on the system map. The system shall publish the current HRI information to the Internet website at intervals defined by the system administrator. The HRI icons on the Internet map shall be used to access current HRI information.
ID48	The system shall allow the system administrator to add, modify, and delete system map layers.

ID49	The system shall allow the system administrator to add, modify, or delete system map device icons to/from the system map including but not limited to field hardware icons, construction zone icons, incident icons, and the interstate network configuration.
ID50	The system shall publish the current DMS messages to the Internet website at intervals defined by the system administrator. The DMS icons on the Internet map shall be used to access the current DMS messages.
ID 51	The system shall interface with the Department's Roadway Weather Information System (RWIS) server and display weather information on the system map. The system shall be able to publish this information to the internet website if requested by the Department.
IM01	The system shall allow ATMS operators to create an incident record in the database and to enter data into the record.
IM02	The incident record shall request, as a minimum, the following information from the ATMS operator: 1) road or route, 2) location (including county, mile-marker, and coordinates), 3) incident type, and 4) incident description.
IM03	The system shall provide additional incident report fields for any custom information relating to the incident. Custom information shall include the basic characteristics of the event including property damage, number and type of vehicles involved, injuries, pavement condition, and weather as input by ATMS operators.
IM04	The system shall log in the database the incident location, details, and an ATMS operator's actions in response to the incident.
IM05	The system shall require an ATMS operator response before deleting an incident record.
IM06	The system shall have a library for incident response plans. These plans shall identify actions to take by the ATMS operators, including messages to display on the DMS, agencies to notify, personnel to notify, email to transmit, special traffic timing plans to implement, and other instructions. These plans shall be referenced by type of incident and location. ATMS operators shall manually execute an incident response plan, however, the system may also support automated incident response plan execution. The system shall allow ATMS operators to recall incident response plans from the library and implement them.
IM07	The system shall allow an ATMS operator with assigned rights to create an incident response plan using a common template. The system shall allow the ATMS operator to modify, and delete existing incident response plans.
IM08	The system shall publish incident information to the Internet website at intervals defined by the system administrator. The incident icons on the Internet map shall be used to access current incident information. The system shall allow the system administrator to filter sensitive information from being published to the Internet website. The system shall allow the ATMS operator to preview and edit incident information prior to publishing it in the internet website. The ATMS operator shall have the ability to accept or reject incidents from being published on the internet website.
SA01	The system shall support a minimum of three simultaneous Virtual Private Network (VPN) connections, over a high speed internet connection. VPN connections to the system shall only be made from an IDOT owned laptop or workstation.
SA02	The system shall support and provide VPN capability for system operation, modification, and administration. ATMS operator capabilities will be based on the rights assigned to the user by the by the system administrator. The system shall allow the system administrator to define a VPN access list based on operator IDs. ATMS operators not included in the VPN access list will not be capable of connecting to the system through a VPN connection.
SA03	The system shall indicate the status of all cameras as available from the Vicon cameras and video switch. The system shall monitor the alarms in the camera and video switch and the status of communications to the camera and video switch interfaces and provide the ATMS operator a visual indication of an alarm and the location of the alarm. The system shall log all alarms, including the loss of communications between a camera and the IDOT CC.
SA04	The system client software and interfaces shall be capable of operating on a Windows XP Professional operating system.

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SA05	The system file/application server shall be capable of operating on a Microsoft Windows Server, Unix, or Linux platform. The Contractor shall provide a minimum of three days of in-state training for two Department personnel for the system file/application server operating system and create interfaces that will allow the IDOT system administrator to review system conditions, restart, reboot, clean, restore, program new configurations, and perform routine maintenance on the system when required.
SA06	The system shall log all ATMS operator login and logout events including a timestamp.
SA07	The system shall log key ATMS operator actions including time, date, ATMS operator, and the corresponding action. Actions to be logged, as a minimum, camera blocking, incident response and system process restarts.
SA08	The system shall allow ATMS operators to log on from any workstation on the IDOT ITS network.
SA09	The system shall authenticate ATMS operators by a combination of operator ID and password.
SA10	The system shall accept a minimum of 100 operator IDs.
SA11	The system shall identify detectors with “extended calls” or “no calls” for an interval defined by the system administrator. The system administrator shall have the ability to modify detector thresholds (counts per minutes, no activity periods, time of day parameters, etc.) that the system uses to determine if a detector is faulty. These detectors shall be “flagged” for bad data and the system shall not utilize data from these detectors.
SA12	The system shall produce a report, defined by the system administrator, identifying sensors with suspected bad-data.
SA13	The system shall log the ATMS operator, content, and action for all messages sent to the DMS. All logs shall include the time and date.
SA14	The system shall synchronize all system clocks to WWV or GPS satellite service, once every twenty-four (24) hours.
SA15	The system shall require the system administrator to set the password and operator ID when adding a new ATMS operator to the system. The system shall require users to change their system passwords every thirty days or at some other specified time interval.
SA16	The system administrator and a user with assigned rights shall be able to set a new password for an existing ATMS operator.
SA17	The system shall protect (encrypt) authentication data to prevent unauthorized system access.
SA18	The system shall use VPN security to protect system data for remote ATMS operators.
SA19	Only the system administrator shall have access to authentication data.
SA20	The system shall utilize the existing system network and IP addressing scheme.
SA21	The system shall provide the system administrator the ability to monitor the database performance, compact the database, repair the database, backup the database, and restore the database when necessary. The system shall have specific interfaces created for these actions.
SA22	The backup system shall be modifiable by the system administrator including the ability to schedule automatic backups.
SA23	The system shall have a minimum of three (3) levels of database access privileges including: Level 1) browse data; Level 2) browse, insert, and edit data; and Level 3) browse, insert, edit, and delete data.
SA24	The system administrator shall be able to upgrade software and apply software patches to the system. The software upgrades and patches should have the capability to be applied remotely.

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SA25	The system shall include a backup system for backing up the system and restoring the system after a system failure.
SA26	The backup system shall use tape as the medium for storing system backup information and data.
SA27	The system shall support a minimum of four levels of "permission" for selecting and controlling field equipment including cameras and DMS and editing system configuration and access including database access. The permission levels shall be according to the Permissions Matrix contained within this attachment. User rights can also be based on alternative permission models that allow the system administrator to assign specific capabilities to each user and to create groups of users that have similar permissions.
SA28	The system shall support levels of permission or specific system user rights that are applied to individual operator IDs. The system administrator shall set all operators ID permissions and/or user rights for each individual operator.
SA29	The system administrator shall be able to add new operators to the system and edit or delete existing operators from the system.
SA30	The system shall have an icon that an ATMS operator can click that will send an email directly to the system administrator. The ATMS operator will utilize this feature to notify the system administrator when assistance is required.

USER PERMISSION MATRIX

The example below shows one option for assigning system rights based upon pre-defined groups of users that where each user within the group has the same rights.

LEVEL	CLASSIFICATION	PERMISSIONS	REAL-WORLD USER
Top	System Administrator	▪ Add/remove users ▪ Set/change passwords ▪ Level 3 database access	IDOT Administrator
High	"Power" User	▪ Change own password ▪ Level 3 database access ▪ Full camera selection, viewing, control ▪ Create/change DMS messages	IDOT Traffic staff, ECC/EPPS/City of Peoria/City of East Peoria shift managers
Medium	Operator	▪ Change own password ▪ Level 2 database access ▪ Full camera selection, viewing, control ▪ Create/change DMS messages	IDOT/ECC/EPPS/City of Peoria/City of East Peoria operators
Public	Media/Internet	▪ Partial camera selection and viewing (The system administrator shall be able to determine which cameras are available)	Media/Internet

Alternatively, the system software can have the capability for the system administrator to assign specific rights to each user and the ability for the system administrator to create, edit, and delete groups of users that have the same system rights as shown in the examples below.

This approach would be preferred as it provides the system administrator with the flexibility to assign specific user rights and create, edit, and delete groups of users. This approach allows the system administrator to have complete control over the system users.

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System Rights: User "A"		
Subsystem	Example Actions (will vary depending on system)	Permission
CCTV	View CCTV Digital Video	Yes
CCTV	CCTV Camera Control	Yes
CCTV	Select CCTV Camera Presets	Yes
CCTV	Program CCTV Camera Presets	No
CCTV	Select CCTV Camera Tours	Yes
CCTV	Program CCTV Camera Tours	No
CCTV	Select CCTV Event Schedule	Yes
CCTV	Program CCTV Event Schedule	No
DMS	View DMS messages	Yes
DMS	Send DMS message from library	Yes
DMS	Create DMS message	Yes
DMS	Send DMS message from Event Scheduler	Yes
DMS	Edit Unacceptable Words library	No

Custom Group Members		
System Administrator Group	Group "A"	Group "B"
User "X"	User "A"	User "B"
User "Y"	User "D"	User "C"
	User "F"	User "E"
	User "G"	

Technical Requirement Descriptions

Below is a description of each requirement defined in the matrix that shall be used to supplement the requirements.

1. Video Management (VM)

1.1 The video management system is a vital part of the Peoria ITS system. Specific requirements include:

1.1.1 The system shall not decrease the inherent number of cameras or ATMS operators that can be supported by the video switch and camera control system. [Reference VM13].

1.1.2 To decrease CCTV camera contention between two or more ATMS operators, the system shall support camera control prioritization based on operator ID and the Permissions Matrix or Operator ID and assigned rights. The system shall allow ATMS operators with a higher level of permission to seize a camera for a specific length of time.

During this period of time, the system shall indicate the "owner" of a seized camera and operators with a lower level of permission shall not be allowed to control the camera, however control of other cameras shall not be affected. The system administrator shall be able to adjust the period of time that an ATMS operator may seize the camera. The time period shall be defined in minutes and shall be assignable based upon the operator ID

and assigned user rights. The operator shall be allowed to return the camera to "open" status. When the camera is "seized" by an ATMS operator, the system shall exclude output of the video switch feeds to the lowest tier of permissions (refer to the Permissions Matrix). When the camera is disconnected from the Internet, the image on the Internet site shall display the information: "No Video" or similar on a blank background. The system shall override the output of the video switch system feeds to local media outlets in case of an emergency or incident. The output of the video switch system feeds shall be restored to the lowest tier when the camera is returned to a preset position. The system shall provide a manual override to this restriction. [reference VM02, VM10, VM11, VM12, VM25, VM26, and VM27].

1.1.3 Using the GUI an ATMS operator shall be capable of selecting a camera and monitor and place video from the camera on the computer workstation monitor and/or analog video monitors and video wall. The system shall provide the capability for video to be viewed through the ATMS software on a separate workstation monitor. When an ATMS operator clicks on the desired CCTV camera icon on the system map, a window shall appear that includes the camera's controls. The controls shall provide pan, tilt, zoom, focus, selection of presets, and selection of tours for individual cameras. Other camera operations may be performed through the camera manufacturer's control hardware or software (keyboards and/or joysticks). Existing keypads, joysticks and video switchers will be kept in operation after the installation of the ATMS system as backup. The latency for viewing digitized video and camera control through the system software shall not exceed the existing latency with the analog keypads. The system shall not create excessive latency that causes delays with pan, tilt, and zoom functionality. When an ATMS operator selects a CCTV camera icon on the system map, a window shall appear that contains the selected CCTV camera's controls and the camera's video image shall be placed on the workstation monitor. CCTV camera control (pan, tilt, and zoom) may also be operated through the use of a standard mouse equipped with a scroll wheel. [Reference VM01, VM06, VM07, and VM08].

1.1.4 Using a virtual private network (VPN) connection, a remote ATMS operator, with proper permissions, shall be able to select and view video from the switch, select video presets, and control the selected camera's PTZ functions. [Reference VM11 and VM12].

1.1.5 The system shall support all presets available to ATMS operators in the basic camera and camera control system. The system shall support preset camera positions based on time of day and specific day schedules. [Reference VM19, and VM27].

1.1.6 The system shall allow an ATMS operator, with proper permissions, to select a preset camera position and establish a new preset camera position for all cameras supporting camera presets from any ATMS workstation. [Reference VM03 and VM05].

1.1.7 The system shall support Virtual Private Network (VPN) connections over high speed internet to allow a remote ATMS operator to access system hardware, view digital video from CCTV cameras, and select video presets for the system. [Reference VM04].

1.1.8 The system shall not preclude the use of existing remote joysticks and keypads from selecting video and controlling cameras. [Reference VM09].

1.1.9 The system shall provide pre-identified "tours" of selected cameras. [Reference VM15].

1.1.10 The individual tours shall be created, modified, and selected by the system administrator. The tours shall not be programmable or modified by a system operator or by a remote ATMS operator. [Reference VM16].

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2.1.1 The individual tours shall be selectable based upon time of day and specific day schedules [Reference VM17].

2.1.2 The system administrator, ATMS operator, and remote ATMS operator shall be able to select a tour of view. [Reference VM18, VM19].

2.1.3 The software shall log when a camera is moved from a preset or off of a tour and log which ATMS operator ID moved the camera and the time and date. [Reference VM20].

2.1.4 The system shall be capable of selecting multicast IP video and placing it on an ATMS workstation monitor. The system shall provide the capability for video to be viewed on a separate workstation monitor (separate from the GUI). [Reference VM22].

2.1.5 The system shall provide the capability for any ATMS operator with proper permissions from any ATMS workstation to select and publish video image snapshots and/or streaming video from a minimum of 50 cameras to an Internet website. The System Administrator shall be able to adjust the resolution and frames per second of the streaming video. The image snapshots shall be JPG images and the image resolution shall be configurable by the system administrator. The publishing interval for the snapshots shall be configurable by the system administrator and shall support, as a minimum, intervals of 1, 2, and 5 minutes. When an ATMS user selects a CCTV camera icon from the published Internet website map, the current video image snapshot and/or streaming video from the camera shall be displayed along with a short description of the image including the location of the CCTV camera, direction of the camera and the date and time of the image snapshot. The streaming video feed shall time out and disconnect after a pre-set time period to conserve bandwidth and network resources. The time period shall be configurable by the system administrator. The CCTV camera point of reference (direction) may be provided through the use of static camera images [Reference VM23 and VM24].

2.1.6 The software shall interface with the video switching system to allow the display of video images on the video wall located in the IDOT communications center. The video wall consists of four analog video monitors and a Christie GraphXMaster Digital Light Projection Cube which is controlled by a Jupiter Fusion video wall controller. The system shall allow an ATMS operator to select up to five pre-defined video layouts for display on the Christie. The system shall be capable of selecting multicast IP video and placing it for viewing on an ATMS workstation monitor. The system shall allow for multiple video images to be tiled for viewing (minimum of six images on each workstation) and CCTV control on the workstation monitors. [Reference VM21].

2.1.7 The system shall include a minimum of three legacy protocols for other manufacturers CCTV cameras that are still currently available for purchase. The legacy protocols can be selected by the System Administrator for use with the system. In addition to supporting legacy communication protocols, the system shall be upgradeable to communicate with NTCIP compliant CCTV cameras using the NTCIP protocol. The legacy protocols shall be selectable by the system administrator [Reference VM 19 and VM28].

3. Data Collection (DC)

3.1 The data collection system is a vital part of the Peoria ITS system. Specific requirements include:

3.1.1 The system shall save traffic data by polling the RTMS units and Type-2070 controllers, retrieving the data, and storing the data in either a SQL or ODBC compliant database. The polling interval shall be at system administrator selected intervals ranging from 30 seconds to 5 minutes at 30 second intervals including as a minimum: 30 seconds, 1 minute, 2 minutes, 3 minutes, 4 minutes, and 5 minutes. Intervals should be consistent with data collection rates supported by the field hardware. [References DC01, DC02, DC03].

3.1.2 The system shall be capable of supporting, as a minimum, 50 RTMS sites and 10 ILDS sites. The addressing and port limitations imposed by the existing system hardware and protocols shall not limit the number of detector hardware (RTMS, ILDS) that can be defined in the system. [Reference DC15].

3.1.3 The system shall utilize the existing 2070 field controllers and hardware to obtain speed, volume, occupancy, and vehicle classification data. The Contractor shall install new software on all of the 2070 controllers that utilizes a two detector loop speed trap configuration to determine vehicle speed and classification. The use of 2070 software that calculates the speed from one detector loop will not be allowed. The Department shall measure the vehicle speed data with a radar gun and compare it with the controller speed to verify data accuracy. The Contractor shall calibrate the software and the calculated speed shall be accurate within 5% of the measured speed. The Contractor shall submit catalog cut sheets for the software and all other components for review and approval by the Department prior to commencing work. In addition to supporting legacy communication protocols, the system shall poll existing NTCIP compliant hardware using the proper NTCIP protocol. Currently, the 2070 controllers and LedStar dynamic message sign controllers support NTCIP. Communication to other field equipment will have to use non-NTCIP legacy communication protocols. [References DC04 and DC05].

3.1.4 The system shall be capable of communicating with the field equipment using existing protocols including Internet Protocol (IP) over the existing communication network and leased telephone lines with modems. The system shall support serial communications, TCP/IP, and cellular modems for communication with field components. [References DC06 and DC07].

3.1.5 The system shall, as a minimum, store the traffic data as data, time, volume by lane, speed by lane, occupancy by lane, and bin numbers or other data as required for vehicle classification. Lane by lane information shall not be made available on the public website. The system shall filter and smooth the data to produce processed data. The system administrator shall have the ability to select and modify filtering and smoothing parameters. Based on the processed data, the system shall calculate the average speed, average volume, and total volume for all lanes at each detection site for a user defined time period. [References DC08, DC09, and DC10].

3.1.6 The system shall store and print reports of traffic count information, including but not limited to, volume, speed, and occupancy and export traffic count information in a comma separated value (CSV) text format for use with other IDOT software. The system shall export traffic count information in an XML format for use with other IDOT software. [References DC11 and DC12].

4. Information Dissemination (ID)

4.1 The primary tool to be used to disseminate data and information shall be a map of the Peoria area, depicting the extents of the Peoria ITS reference area. Specific requirements include:

4.1.1 The system shall generate a system map to be used as the backdrop of system status and ITS field hardware locations. The system map shall contain multiple layers that can be selected by ATMS operators based upon assigned user rights. As a minimum, the map shall contain separate layers for DMS, CCTV, congestion, vehicle detectors (RTMS, ILDS), roadway weather stations (RWIS), events including incidents, construction/work zones, police and fire, IDOT facilities, public works facilities, and landmarks. The system map shall display the entire geographical boundary of IDOT District Four and McClean County. Each selectable layer shall have a pre-defined view that displays all of the elements when selected by the end user. The screen layout and design shall be subject to approval by the Department. The system shall allow the system administrator to add, modify, and delete system map layers and icons. The system map shall be scalable by selecting a location, dragging the cursor, and deselecting and by utilizing the scroll wheel on a standard mouse to zoom in and out of the map. The system map shall be based on a GIS database (Navteq, TeleAtlas, or approved equal). The roadway data contained in the GIS database shall be accurate and reflect the current interstate configuration. The system administrator shall have the ability to apply GIS database updates to the base system map. [References ID01, ID02, ID03, ID04, ID48, and ID49].

4.1.2 The system map shall display, as a minimum, a north arrow, a legend, freeways and major highways, the Illinois River, major bridges, the Greater Peoria Airport, and the Civic Center. The system shall allow the system administrator to include additional points of interest. Current conditions shall be identified using colored line segments or icons. The map shall display: traffic conditions, traffic incidents, the locations of all field components, and failed field components. Condition displays will be based upon available and processed data from the field devices and CAD interfaces. Separate distinct and identifiable icons shall be used to identify field hardware, construction zones, and incident locations. An ATMS operator with assigned rights shall be able to turn on or off the different map layers, field device icons, construction zone icons, and incident icons. [References ID05, ID06, ID08, and ID09].

4.1.3 The system shall have an editor or specific user interface to allow the system administrator to add, modify, or delete system elements to/from the system including field hardware devices (CCTV cameras, DMS, ILDS, RTMS, HRI, and RWIS Sites) and interstate network configuration. The system shall have an operator interface (graphics and map) editor by which the system administrator can make changes and additions while the system is on-line without the need of a programmer or software engineer and without the need for a system restart). [Reference ID10].

4.1.4 When a field hardware icon is selected on the system map, the system shall display as a minimum the following information: 1) field hardware ID, 2) freeway or route, 3) field hardware type, 4) field hardware configuration, 5) location (mile markers, coordinates, etc.), and 6) field hardware operational status. The system shall store a minimum of twenty-five preset map views that can be recalled by an ATMS operator. The views can be created and named by the system administrator and an ATMS operator with assigned rights. [Reference ID11].

4.1.5 Non-reporting detector stations or faulty data shall be indicated on the system map. [Reference ID22].

4.1.6 The system shall provide a GUI to allow the system administrator to set and modify multiple vehicle detector color thresholds and alarm thresholds. Data from RTMS units and loop-detector stations will be used to determine the traffic flow indicators for roadway segments shown on the system map. The system shall allow the system administrator to

modify the thresholds (volume, speed, occupancy, or some type of detection algorithm) that are used to determine the particular traffic flow indicator. The system shall also include alarm thresholds, programmable by the system administrator, that will alert an ATMS operator when certain thresholds have been met including speed and occupancy thresholds. The alert may be through the use of a pop-up window or similar device. It's envisioned that an ATMS operator could then use a CCTV camera to investigate the alert. [Reference ID07].

4.1.7 Incident icons corresponding to an incident record shall be shown on the system map. [Reference ID18].

4.1.8 The system shall allow an ATMS operator to approve, edit, and remove incident information prior to placement on the internet when deemed sensitive or inappropriate for broadcast. [Reference ID19].

4.1.9 The system shall display icons denoting construction zones on the system map. These icons shall be clickable and upon opening shall provide, at a minimum, a description of the work being done, road conditions (i.e., lane closures, etc.). contact information for the engineer on the site, comments, and other custom fields as defined by the operational needs of the Department [Reference ID20].

4.1.10 Using the collected data from the radar and detector loop stations, average speeds (measured or calculated) and volumes, the system shall update the information on the system map. The system shall make available to an ATMS operator both detector station data and individual lane by lane data in accordance with the capabilities of the existing field hardware. [References ID12 and ID13].

4.1.11 When an ATMS operator selects a DMS icon on the system map, the system shall update and display the current message placed on the DMS. [Reference ID15].

4.1.12 The system shall publish the system map to an Internet website at intervals defined by the system administrator. The published system map shall contain, as a minimum, CCTV camera layers, DMS layers, congestion indicators, roadway weather sensors (RWIS), incident layers, HRI status, landmarks, incident and construction zone layers. Each layer shall have icons for each field device and/or element. The system map publishing rate and output location shall be configured by the system administrator. The system and internet web pages shall be created by utilizing currently accepted industry standards and common programming techniques to minimize the amount of work required for future revisions. [Reference ID14].

4.1.13 The system shall publish the current traffic data, construction zone information, DMS messages, incident information, and HRI data collected by the system to the Internet website at intervals defined by the system administrator. The field hardware, incident, colored roadway segments, and construction zone icons on the published system map shall be used to access the current data from the Internet locations. The system shall allow the system administrator to filter sensitive information from being published to the Internet website. Specifically, lane by lane data shall not be made available to the public. [References ID16, ID21, ID47, ID50, IM09].

4.1.14 Using the Peoria ECC CAD interface data, the system shall be capable of positioning and displaying an icon depicting an accident or other traffic incident on the system map. [Reference ID17].

4.1.15 The system shall archive Department specified data (excluding video or video snapshots) and make it available to ATMS operators for a period of not less than six months. The system shall automatically schedule for the data to be exported to a file and deleted from the system database to limit the database size. [Reference ID27].

4.1.16 The system shall automatically send pre-written emails based upon events identified by the system administrator. Email alerts shall include loss of video, faulty detectors, failed field hardware, and loss of communication between network nodes. The system administrator shall have the capability to modify individual alarm thresholds. [Reference ID45].

4.2 For record keeping and archiving, the system shall allow ATMS operators to publish standard reports. Specific requirements include:

4.2.1 The system shall allow ATMS operators to access information in the system database and publish a standardized default system report as well as customized reports created by the system administrator in a number of formats including text, rich text formatting (RTF), Word documents, html, and Adobe® PDF format. The system shall support editing and creating new customized system reports by the system administrator. This includes defining and modifying the standard report content, format, and reporting interval. The system shall publish these standard reports to a network printer, webpage, email and Adobe PDF. The system shall store custom reports in a user selectable list. The system administrator shall have the capability of adding, modifying, or deleting reports from the list. [References ID23, ID25, and ID26].

4.2.2 The system shall provide the following reports: 1) equipment failures, 2) detector data (station and lane by lane), 3) incident data, 4) DMS usage, and 5) system failures. [Reference ID24].

4.2.3 The system shall provide an interface for retrieving historical data and producing reports. The system shall export report data in CSV and text formats that can be retrieved by the system administrator. [Reference ID46].

4.3 The system shall allow information to be disseminated to the public via changeable message signs (DMS) located in the field. Specific requirements include:

4.3.1 The system shall not decrease the number of DMSs that can be supported by the DMS communication protocol. The system shall support a minimum of fifty (50) DMSs. [Reference ID28].

4.3.2 The system shall allow an ATMS operator, with rights as assigned by the system administrator, to place a message on the dynamic message sign. The system shall provide the ATMS operator with a preview of how the message will appear on the message boards. [Reference ID29].

4.3.3 The system shall provide confirmation of a message being displayed by displaying the information received from the DMS based on a query to the DMS controller in the field. [Reference ID33].

4.3.4 The system shall provide the capability to display the current time and date information on the DMS. [Reference ID30].

4.3.5 A message library with room for at least 500 messages shall be provided. The library shall contain additional space for not less than 100 message templates that can be used to create new messages in a standard format by any ATMS operator given proper permissions. [References ID31 and ID32].

4.3.6 The system shall display messages on any DMS based up on the date and time, and based on the time of day. The message duration on the DMS shall be selected by the ATMS operator placing the message. The system shall cause the sign to display the message immediately or upon a selected time-delay. The ATMS operator with assigned rights shall be able to edit, modify the display, or remove any existing messages on the DMS. Changes to the existing messages shall be sent to the sign to be displayed as a new message. [References ID35, ID36, ID37, ID38 and ID43].

4.3.7 An ATMS operator shall be able to compose DMS messages using standard templates. The system shall compare any composed messages against a list of unacceptable words and block transmission of any message that contains unacceptable words or phrases as defined in the unacceptable word list. The system shall provide spell checking functionality. The unacceptable words list shall be edited only be the system administrator or user with assigned rights. The system administrator or user will be allowed to add or delete words and phrases from the unacceptable words list. [References ID39 and ID40].

4.3.8 The system shall support standard NTCIP functions for the DMS signs in accordance with basic operational needs and fonts supplied by the manufacturer of the DMS. The system shall include the basic message functionality provided by the DMS manufacturer's sign control software, including, but not limited to multiple screen messages and display times for each screen. [reference ID41].

4.3.9 The system shall communicate with the DMS controller using NTCIP. [Reference ID42].

4.3.10 The system shall queue messages to be sequenced on the DMS at a time interval as determined by the ATMS operator. [Reference ID34].

4.3.11 The system shall allow an ATMS operator to send a message or message set to an ATMS operator defined collection of DMSs (i.e. one or more DMS). The system shall store the defined groups of DMS's so that they can be recalled by an ATMS operator. [Reference ID44].

4.3.12 The system shall integrate data from the existing Highway Railroad Information (HRI) system and indicate the status of each monitored at grade railroad crossing to the ATMS operator on the system map. The system shall publish the current HRI information to the internet website. The system administrator shall have the ability to turn on or off this layer for internet publishing. [Reference ID47].

4.3.13 The system shall interface with the Department's Roadway Weather Information System (RWIS) server and display sensor information for each existing weather station the system map. The RWIS Scan Web 5.10 system server has been recently upgraded and can be accessed through the internet. The system administrator shall have the capability to add to or delete RWIS sites from the system. The system shall publish this information to the internet website if requested by the Department. The system administrator shall have the ability to turn on or off this layer for internet publishing. [Reference ID51].

5. Incident Management (IM)

5.1 The system shall allow ATMS operators to manage incidents by creating incident records and by following pre-determined incident response plans. Specific requirements include:

5.1.1 The system shall allow ATMS operators to create an incident record in the database and to enter data into the record. The incident record will request as a minimum the following information from the ATMS operator: 1) road or route, 2) location (including mile-marker and coordinates), 3) incident type, 4) incident description, and 5) comments. [References IM01, IM02].

5.1.2 The system shall log in database the incident location, details, and the ATMS operator's actions in response to the incident. [Reference IM04].

5.1.3 The system shall require an ATMS operator response before deleting an incident record. The system shall allow the ATMS operator to preview and edit incident information prior to publishing it on the internet website. The ATMS operator shall have the ability to accept or reject incidents for publishing on the internet website. The system shall notify the ATMS operator of all pending and open events. The system shall store the incident information in the database and shall have the capability for an incident record to be emailed. [Reference IM05 and IM08].

5.1.4 The system shall publish incident information to the Internet website at intervals defined by the system administrator. The incident icons on the Internet map shall be used to access current incident information. The system shall allow the system administrator to filter sensitive information from being published to the Internet website. [Reference IM09].

6. System Administration (SA)

6.1 The control and management of the system is done through the system administrator. Specific requirements include:

6.1.1 The system shall identify detectors with "extended calls" or "no calls" for an interval defined by the system administrator. The system administrator shall have the ability to modify detector thresholds (counts per minutes, no activity periods, time of day parameters, etc.) that the system uses to determine if a detector is faulty. These detectors will be "flagged" for bad data. Detectors with suspected bad data will be identified in a report produced by the system. [References SA11 and SA12].

6.1.2 The system file server shall operate on a Microsoft Windows Server, Unix, or Linux platform. The operating system shall be the latest release available. The Contractor shall provide a minimum of three days of in-state training for a maximum of two Department personnel for systems operating on Unix or Linux platforms and create interfaces that will allow the system administrator to review system conditions, restart, reboot, clean, backup, restore, and perform routine maintenance on the system when required. The system client software and interfaces shall operate on a Microsoft Windows Platform (Windows XP Professional . [References SA04 and SA05].

6.1.3 The system shall synchronize all system clocks to WWV or GPS satellite service, at least once every twenty-four (24) hours. [Reference SA14].

6.1.4 The system shall utilize the existing system network and IP addressing scheme. [Reference SA20].

6.1.5 The system shall prevent unintended ATMS operators from accessing the system by authenticating an ATMS operator from any workstation on the IDOT ITS network by a combination of operator ID and password. The system shall accept a minimum of 100 operator IDs. The system administrator shall be able to add, modify, or delete existing operators from the system. The system shall require the system administrator to set the password and ID when adding a new operator to the system and allow the system administrator and user with assigned rights to set the password for an existing operator. The system shall support a minimum of three simultaneous Virtual Private Network (VPN) connections. VPN connections shall only be made from IDOT owned laptops or workstations. The system shall use VPN security to protect system data for remote ATMS operators. The system shall require users to change their system passwords every thirty days or at some other specified interval. The system shall have the capability for users to customize their views and desktop. The system shall store individual user profiles. [References SA01, SA08, SA09, SA10, SA15, SA16, SA18, and SA29].

6.1.6 The system shall protect (encrypt) authentication data to prevent unauthorized system access. Only the system administrator shall access authentication data. [References SA17 and SA19].

6.1.7 The system shall support and provide VPN capability for system operation, modification, and administration. Operator capabilities will be based on the Permission Matrix and the rights assigned to the operator by the system administrator. The system shall allow the system administrator to define a VPN access list based on operator IDs. Operators not included in the VPN access list will not be capable of connecting to the system through a VPN connection. [Reference SA02].

6.1.8 The system shall log the ATMS operator, content, and action for all messages sent to the DMS. [Reference SA13].

6.1.9 The system shall provide the system administrator with the ability to monitor the database performance, perform common database utilities (repair, compact, etc.), backup the database, and restore the database when necessary. The system shall have specific user interfaces created for these actions. In addition, the system shall include a backup device(s) for backing up the system and restoring the system after a system failure. This backup system shall use tape as the medium for storing system backup information and data. The backup system shall be modifiable by the system administrator including the ability to schedule automatic backups. [References SA21, SA22, SA25, and SA26].

6.1.10 The system shall have a minimum of three (3) levels of database access privileges including: 1) browse data; 2) browse, insert, and edit data; and 3) browse, insert, edit, and delete data. [Reference SA23].

6.1.11 The system administrator shall be able to upgrade software and apply patches to the software. The software should have the ability to apply the updates remotely. [Reference SA24].

6.1.12 There shall be a minimum of four (4) levels of permissions for selecting and controlling field equipment including CCTV cameras and DMS along with configuring and accessing system resources. These levels shall be able to be applied to individual operator IDs that the operators use to log onto the system. The system administrator shall set all operator permissions and/or assign specific user rights. User rights can also be based on alternative permission models that allow the system administrator to assign specific capabilities to each user and to create groups of users that have similar permissions. [References SA27 and SA028].

6.1.13 The system shall have an icon that an ATMS operator can select that will send an email directly to the system administrator. The ATMS operator will utilize this feature to notify the system administrator when assistance with the software is required.

Payment Schedule: The payment schedule for this pay item is listed below:

- Initial documentation submittal (10%)
- Pre-deployment software testing and verification. (15%)
- System acceptance test plan submittal and approval by the Department. (10%)
- System acceptance test initiation. The acceptance test is comprised of two parts: a system configuration test to verify that system is configured correctly and that it works with the existing and proposed equipment, and a 60-day operational test to demonstrate that the system is functional and meets the requirements. The 60-day operational test will be stopped in the event of serious issues including, but not limited to, system instability, system crashes, excessive system reboots, system lockups, and system non-performance. The 60-day operational test will not be restarted until the Contractor has corrected the issues to the satisfaction of the Department. (25%)
- Successful implementation of ATMS external web components. (10%)
- Successful completion of system acceptance test and completion of all outstanding issues. (20%)
- System documentation delivery. (5%)
- System training completion. (5%)

Basis of Payment: This work will be paid for at the contract unit price per lump sum for ATMS SOFTWARE (CORE MODULE) which price shall be payment in full for all labor, materials, and equipment required to furnish and install ATMS software that meets all of the requirements described above with deployment, integration, and testing as specified in this document, complete.

ATMS SOFTWARE (CAD MODULE – PEORIA)

The Contractor shall develop a software module for the ATMS software that performs the following functions:

- The system shall accept data uploaded from the Peoria ECC (Emergency Communications Center) and CAD (Computer Aided Dispatch) system and store it in a database.
- The system shall sort the data, and flag and process applicable data (roadway and incident data) for viewing by the ATMS system operator and placement on the system map.

The Peoria ECC uses CAD software by Application Data Systems, Inc (ADSI). The contact person for ADSi is Joel House, 662-393-2046, joelh@e9.com and the contact person for the Peoria ECC is David Tuttle, 309-494-8035, dtuttle@ci.peoria.il.us.

All costs associated with creating the required data interfaces with the existing CAD system (third party work) shall be included in this pay item.

The Contractor shall coordinate the development and deployment of the proposed CAD interface with ADSI and the city of Peoria. The Contractor shall notify the Department and the city of Peoria at least four days prior to scheduling or performing any work to the city of Peoria CAD system.

The proposed CAD interface shall utilize data provided from the existing CAD system. The existing CAD system does not support latitude or longitude capabilities. The Contractor shall utilize the

The interface that will be provided by ADSI is described below:

There will be a new system called IDT. ADSi and Peoria IS will do all the things necessary to put this new system in place on the Peoria CAD computer. There is to be a directory on the CAD machine or some other server that will be accessible to the vendor through Samba or NFS. ADSi will need to modify the CAD program(s) that deal with incident and equipment statuses. We will generate a message every minute to go to the IDT system from each ST task.

The IDT program must be active when cad is active. This program(s) will receive data from CAD defined by Peoria. CAD will send all current active incidents every minute to the IDT system. The Table below describes the data elements. When the program receives the message from CAD, it will move the data into an internal table. Since it could receive data from each agency it will combine the sends into this one table. The file names will be the ATMSDATA and a suffix. The two files will have different suffixes. The suffix of .fil is the data file. After that file has been completely written to the directory, we then write a file with the .rdy suffix. This indicates the record has been fully written. Every minute it will delete the rdy file then write the two files. Below is an example of the two files.

```
drwxr-xr-x   2 adsi     adsi       11264 Apr 30 09:35 .
drwxr-xr-x  15 adsi      adsi       1536 Apr 08 07:47 ..
-rw-rw-rw-   1 adsi     adsi        8728 Apr 30 09:35 ATMSDATA.fil
-rw-rw-rw-   1 adsi     adsi           0 Apr 30 09:35 ATMSDATA.rdy
```

There will only be one file that will have all the data for active incidents. If the .rdy file is in the directory the .fil file is available for reading. There will be a time stamp for the time the file was written so the vendor can see if the data is old and not updating. The other way to handle that would be to delete the .rdy file after it is read so it will not be there until we write a new file.

The table below is the layout of the transfer file. It has data concerning the entire incident and all agencies that were involved.

TR-CAD-FILE	Variable	
TR-TRANSFER-DATE	8 bytes	CCYYMMDD format
TR-TRANSFER-TIME	6 bytes	HHMMSS format
TR-TRANSFER-NUMBEROFENTRIES	4 bytes	The number of incidents that will be in the table/array
Table Layout		This table will have an entry for each active incident. It will be variable depending on the number active at the time of the snapshot.
TR-INCDATE	8 bytes	Incident Date
TR-INCDATECENTURY	2 bytes	
TR-INCDATEYEAR	2 bytes	
TR-INCDATEMONTH	2 bytes	
TR-INCDATEDAY	2 bytes	
TR-INCTIME	6 bytes	Incident Time
TR-INCTIMEHRS	2 bytes	
TR-INCTIMEMIN	2 bytes	
TR-INCTIMESEC	2 bytes	
TR-INCEMTYPE.		Agencies on the Call
TR-INCEMTYPE1	1 byte	S if Sheriff
TR-INCEMTYPE2	1 byte	P if Police
TR-INCEMTYPE3	1 byte	F if Fire – *Not used at this time, reserved for future use*
TR-INCEMTYPE4	1 byte	E if EMS – *Not used at this time, reserved for future use*

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TR-INCSTREETINFO.		
TR-INCSTNAME	28 bytes	Street Name
TR-INCSTLADDR	5 bytes	Low address of range (100 Block) or exact address
TR-INCSTTYPE	2 bytes	Street type (ST, RD, CI, ...)
TR-INCSTJUSTR	2 bytes	Jurisdiction Code (initialize as spaces)
TR-INCSTDIRCT	2 bytes	Street Direction
TR-INCSTAPTNO	5 bytes	Apartment number for individual apartment records
TR-INCSTHADDR	5 bytes	high address of range (can only be 99 greater that low address) or exact address for singles
TR-INCCSNAME	28 bytes	Cross Street name (nearest or previous in a fixed direction)
TR-INCCSLADDR	5 bytes	Cross Street low address
TR-INCCSTYPE	2 bytes	Cross Street type (ST, RD, CI, ...)
TR-INCCSJUSTR	2 bytes	Cross Street Jurisdiction Code (set to spaces)
TR-INCCSDIRCT	2 bytes	Cross Street Direction
TR-INCCSAPTNO	5 bytes	Apartment number for individual apartment records
TR-INCRZIPCODE	5 bytes	Zip Code of Address
TR-INCINTERSECT	1 byte	"Y" if address was entered as an intersection, Otherwise "N"
TR-INCTYPEREMARK	65 bytes	Incident type description. This is the data that Peoria has associated the incident type record and is a plain language description of their code.
TR-INCREMARK1	65 bytes	First line of entered remarks
TR-INCREMARK2	65 bytes	Second line of entered remarks

This software module shall be part of the ATMS core software module and fully integrated into it. This module shall be subject to all of the requirements for the core software, including but not limited to, design, deployment, testing, etc.

The Contractor shall furnish and install the following items at the Peoria ECC:

- Dual Monitor Stand – Qty. 2

  The monitor stand shall be an Ergotron Model DS100 Dual-Monitor Desk Stand (Horizontal) or approved equal that meets the following specifications:

  Color: Black
  Features: Cable Management System (CMS), Portrait to landscape movement, Rotating, Tilt
  Material: Aluminum, Steel
  Recommended Display Size: Up to 24"
  Recommended Use: Dual flat panel
  Type: Stand
  Flat Panel Mount Interface: 100 x 100 mm, 75 x 75 mm
  Max Load Weight: 62 lbs
  Warranty: 5 years

- Rack-mounted computer – Qty. 1

  The computer will be installed in the existing rack located at the city of Peoria E-911 center. The Contractor shall furnish, configure, install, and test the computer to ensure correct operation with the existing CAD system and proposed CAD software interface. The computer shall meet or exceed the following minimum specifications:

The computer shall be sized accordingly to operate with the proposed ATMS software and ADSI CAD system interface. It is the Contractor's responsibility to determine if the following minimum specifications are adequate for use with the ATMS system CAD interface and IDT system and to upgrade the specifications as needed to comply with the proposed equipment. The cost of upgrading the computer workstations for use with the proposed equipment and software shall be included in the bid price for this pay item.

The computer shall be a HP ProLiant DL120 G5 Non-Hot Plug Server or approved equal that meets or exceeds the following minimum specifications:

- Operating System: Windows XP Professional (with latest service pack) or as required by ADSI interface
- Hard disk: 160 GB 3G Serial ATA (7200 rpm) Non Hot-swappable
- Motherboard: 1333 MHz FSB clock speed with minimum of 1 dedicated PCI –E slots. All slots shall support bus mastering.
  - A single Dual Core Intel Xeon E3110 processor (3.00 GHz CPU with 6 MB L2 cache and 1333 MHz FSB shall be provided.
  - Embedded Serial ATA/300 controller
  - The following ports shall be provided:
    One 9-pin serial connector; 16550-compatible
    PS/2 keyboard connector
    PS/2 mouse connector
    RJ-45 10/100/1000 NIC connector
    Four Type A USB 2.0 ports
    One management
    One SVGA display port
  - Two PCI Express x8 Expansion Slot (1 Low Profile and one Full Height)
  - Three 32-bit PCI slots, one PCI Express x 1, one PCI Express x16
  - Expansion bays: 2 x 5.25" External Removable Media Bay (1 Free), 2 x 3.5" Drive Bay Non Hot-swappable (1 Free)

- Memory: Minimum of 2 GB (2x1GB DIMM) of PC2-6400 ECC DDR-2-800 SDRAM memory (expandable to 8 GB min). At least one memory bank shall remain open for future expansion. A total of four slots shall be provided.
- Graphics Controller: 32MB Shared DDR2 SDRAM
- Case: IU Rack, Equipped with all brackets, hardware, and other items required for rack mounting
- Pointing Device: A 3-button, optical wheel mouse shall be supplied.
- Keyboard: A standard Windows keyboard shall be supplied
- Monitor: One 17" LCD monitor shall be supplied
- Network Interface: The workstation shall be supplied with an Integrated Network Interface Card (NIC) supporting 10/100/1000 MB/s and using 32-bit PCI bus-mastering technology. The card shall have a UTP (RJ-45) connector. The card shall be compliant with PCI local bus specification 2.0 and IEEE 802.3 for Ethernet. The card shall also support Netflex-3 technology.
- Warranty Three-year on-site parts and labor (Next Business Day) including telephone technical support

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- Recovery Media — Drivers, Application Software, and Operating System Installation and/or recovery media (CD or DVD) shall be included

- Network Security Appliance (Firewall) – Qty. 1

The firewall will be installed in the existing rack located at the city of Peoria E-911 center. The Contractor shall furnish, install, and test the network security appliance to ensure correct operation and adequate network protection and segregation between the IDOT ITS and city of Peoria networks. The Contractor shall work with the city of Peoria to configure the device. The network security appliance shall be a Juniper SSG 5 SB or approved equal that meets or exceeds the following minimum specifications:

IPSec VPN throughput.: 40 Mbps

RAM: 128 MB

Interfaces/Ports
Number of Ports: 8
Interfaces/Ports: 1 x WAN, 7 x RJ-45 10/100Base-TX

Technical Information
Virtualization: 10, 200 Policies, 3, 10 Security Zones, 4000 Concurrent Sessions, 25 Concurrent VPN tunnels

Firewall Protection: Deep Inspection Firewall, TCP Reassembly for Fragmented Packet Protection, Anti-spyware, Protocol Anomaly Detection, Antivirus, Network Attack Detection, Anti-phishing, Denial of Service (DoS), Adware Protection, Keylogger Protection, Anti-spam, URL Filtering, Replay Attack Prevention, Intrusion Prevention, Web Content Filtering, Malformed Packet Protections, Trojan Horse, Distributed Denial of Service (DDoS), Malware Protection

Encryption Standard: AES, 3DES (168-bit), DES

Authentication: MD5, SHA-1, X.509 Certificates, RADIUS, Web-based, XAUTH, LDAP, RSA SecurID

VPN Support: Manual key IKE PKI Remote access VPN Redundant VPN gateways

Features: PAT

Media & Performance
Firewall Throughput: 160 Mbps

Management & Protocols
Management: WebUI (HTTP and HTTPS) Command Line Interface (console) Command Line Interface (telnet) Command Line Interface (SSH) NetScreen-Security Manager Syslog NetIQ WebTrends: External SNMP

Software
Software: Software available: TFTP WebUI NSM SCP USB The Contractor shall decide what optional software is needed and furnish the device with all required software

Power Description
Input Voltage: 110 V AC, 220 V AC
Input Voltage Range: 100V AC to 240V AC
Power Source: Power Supply

Physical Characteristics
Form Factor: Rack-mountable
Dimensions: 1.61 " Height x 8.74 " Width x 5.63 " Depth
Weight: 2.1 lb

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Miscellaneous
Additional Information: Users supported: Unrestricted Firewall performance (Large packets): 160 Mbps Firewall performance(2) (IMIX): 90 Mbps Firewall Packets per second (64 byte): 30,000 Built-in (internal) database user limit: Up to 100

Warranty
Standard Warranty: 1 Year

Payment Schedule: The payment schedule for this pay item is listed below:

- Initial documentation submittal (15%)
- System acceptance test plan submittal and approval by the Department. (15%)
- System acceptance test initiation. The acceptance test is comprised of two parts: a system configuration test to verify that system is configured correctly and that it works with the existing and proposed equipment, and a 60-day operational test to demonstrate that the system is functional and meets the requirements. The 60-day operational test will be stopped in the event of serious issues including, but not limited to, system instability, system crashes, excessive system reboots, system lockups, and system non-performance. The 60-day operational test will not be restarted until the Contractor has corrected the issues to the satisfaction of the Department. (30%)
- Successful completion of system acceptance test and completion of all outstanding issues. (30%)
- System documentation delivery. (5%)
- System training completion. (5%)

Basis of Payment: This work will be paid for at the contract unit price per lump sum for ATMS SOFTWARE (CAD MODULE - PEORIA) which price shall be payment in full for all labor, materials, and equipment required to furnish and install the ATMS software module software and hardware described above, that meets all of the requirements described above with deployment, integration, and testing as specified in this document, complete.

COMPUTER WORKSTATION

The Contractor shall furnish, install, and configure computer workstations at the locations shown in the plans.

The computer workstation shall be sized accordingly to operate with the proposed ATMS software. The requirements for the workstation are dependent upon the hardware requirements for the ATMS software that is furnished by the Contractor. It is the Contractor's responsibility to determine if the following minimum specifications are adequate for use with the ATMS system software and to upgrade the specifications as needed to comply with the proposed equipment. The cost of upgrading the computer workstations for use with the proposed equipment and software shall be included in the bid price for this pay item.

Each workstation shall perform with a maximum CPU utilization of 20% under normal load and 40% under maximum load.

Each workstation shall receive and display real time data within 1 second.

The workstation shall be a HP xw4600 Workstation or approved equal that meets or exceeds the following minimum specifications:

- Operating System: Windows XP Professional (with latest service pack)
- Hard disk: 250 GB Serial ATA, 3 Gb/s, (7200 rpm) or better.
- Motherboard: 1066 MHz FSB clock speed with minimum of 4 dedicated PCI –E slots. All slots shall support bus mastering.
  - A single Intel Core 2 Duo E8600 processor (3.33 GHz CPU with 6 MB L2 cache and 1333 MHz FSB shall be provided.
  - Serial ATA II/300 controller (four channel)
  - The following ports shall be provided:
    One 9-pin serial connector; 16550-compatible
    25-pin parallel connector (bi-directional)
    PS/2 keyboard connector

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PS/2 mouse connector
RJ-45 10/100/1000 NIC connector
Six USB 2.0 ports
1/8-inch Audio line-in miniature audio jack
1/8-inch Audio line-out miniature audio jack
1.8-inch Audio microphone-in miniature audio jack
1/8-inch Audio headphone-out miniature audio jack

- One PCI Express x16 Gr4aphics Slot
- Three 32-bit PCI slots, one PCI Express x 1, one PCI Express x16
- IEEE 1394 (Firewire) Controller Card with two Ports
- Drive bays: two externally accessible 5.25" peripheral bays, two internal 3.5" hard drive bays (2 x 1")

• Memory:	Minimum of 4 GB (2x2GB DIMM) of 800 MHz dual channel ECC DDR2 SDRAM memory (expandable to 8 GB min). At least one memory bank shall remain open for future expansion. A total of two slots shall be provided.
• Optical Drive:	16X double-layer multi-format DVD+/R+/RW/CD-R/RW (Super-multi Drive), SATA, with software
• Video Card:	PCIe 512MB SDRAM RAM Video card with dual DVI & TV out (Dual Head Monitor Support)
• Pointing Device:	A 3-button, optical wheel mouse shall be supplied.
• Network Interface:	The workstation shall be supplied with an Integrated Network Interface Card (NIC) supporting 10/100/1000 MB/s and using 32-bit PCI bus-mastering technology. The card shall have a UTP (RJ-45) connector. The card shall be compliant with PCI local bus specification 2.0 and IEEE 802.3 for Ethernet. The card shall also support Netflex-3 technology.
• Warranty	Three-year on-site parts and labor including 24/7 telephone technical support
• Recovery Media	Driver, Application Software, and Operating System Installation and/or recovery media (CD or DVD) shall be included
• Software	One licensed copy of Microsoft Office 2007 Professional shall be included.

Basis of Payment: This work will be paid for at the contract unit price per each for COMPUTER WORKSTATION which price shall be payment in full for all labor, materials, and equipment required to provide the computer workstation and accessories, install it at the locations specified on the plan sheets, load all required software on it, and configure it for use with the ATMS software.

LCD MONITOR

The Contractor shall furnish, install, and configure LCD Monitors at the locations shown on the proposed ATMS Network Schematic.

For all locations except the East Peoria Public Safety Node (EPPS):

A 20" (diagonal viewable area) flat screen, analog, TFT Active Matrix Color LCD monitor shall be supplied. The monitor shall support resolution of 1600 x 1200 DPI

The monitor shall be a HP LP2065 or approved equal that meets or exceeds the following minimum specifications:

Panel

Type: 20-inch Active Matrix TFT (thin film transistor)
Viewable Image Area (diagonal): 20.1 in (51 cm)

Screen Opening (WxH): 16.2 x 12.17 in (40.8 x 30.6 cm)
Panel Type: IPS
Aspect Ratio: 4:3
Viewing Angle (typical): 178° horizontal/178° vertical (10:1 minimum contrast ratio)
Brightness (typical): 300 nits (cd/m2)
Contrast Ratio (typical): 800:1
Response Time (typical): 8 ms2
Pixel Pitch: 0.255 mm
Color Gamut: 72%
Backlight Lamp Life (to half brightness): 45K hours

On Screen Display (OSD) Controls

Buttons or Switches: OSD menu select, auto adjust/OSD up, OSD down, Input select, power

User Controls: Brightness, contrast, positioning, color temperature, individual color control, serial number display, full screen resolutions, clock, clock phase, input selection, image control (including scaling), and factory reset

Signal Interface/ Performance

Horizontal Frequency: 30 to 94 kHz (VGA input); 30 to 92 KHz (DVI input for modes with pixel clock less than 162 MHz)
Vertical Frequency: 48 to 85 Hz (VGA input); 48 to 85 Hz (DVI input for modes with pixel clock less than 162 MHz)
Native Resolution: 1600 x 1200 @ 60 Hz (recommended)

Preset VESA Graphic Modes (non-interlaced): 1600 x 1200 @ 60 Hz, 75 Hz (analog input), 1280 x 1024 @ 60 Hz, 75 Hz, and 85 Hz, 1280 x 960 @ 60 Hz, 1152 x 900 @ 66 Hz, 1024 x 768 @ 60 Hz, 75 Hz, and 85 Hz, 800 x 600 @ 60 Hz, 85 Hz, 640 x 480 @ 60 Hz, 75 Hz, and 85 Hz
Text Mode: 720 x 400 @ 70 Hz
Maximum Pixel Clock Speed: 202 MHz (analog input); 162 MHz (DVI input)
User Programmable Modes: Yes, 10
Anti-Glare: Yes
Anti-Static: Yes
Default Color Temperature: 6500 K

Video/Other Inputs

Plug and Play: Yes
Input Signal Two DVI-I connectors: (dual VGA analog or dual digital input possible)
Input Impedance: 75 ohms ± 10%
Sync Input: Separate sync (HSYNC/VSYNC); composite sync, Sync on Green
Video Cable: Two VGA to DVI-I; two DVI-D to DVI-I
Video Cable: Length 6.5 ft (1.98 m)

Power

Input Power: Auto-Ranging, 90 ~ 265 VAC; internal power supply, 50 Hz/60 Hz
Frequency: 47.5 to 63 Hz
Typical Power Consumption: 55 watts (without USB ports); 70 watts (USB ports fully loaded)
Maximum: < 75 watts
Power Saving: < 2 watts
Power Cable Length: 5.9 ft (1.8 m)

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Mechanical Dimensions (H x W x D)

Unpacked w/ stand: 16.7 to 21.8 x 17.4 x 8.67 in (42.5 to 55.5 x 44.3 x 22.0 cm)
Unpacked w/o stand (head only): 13.58 x 17.4 x 3.42 in (34.5 x 44.3 x 8.7 cm)
Tilt Range: -5° to + 25° vertical tilt
Swivel Range: -45° to + 45°
Height Adjustable: Yes, range 5.1 in (13.0 cm)
Pivot Rotation: Yes
Base: Detachable, ships detached

Environmental

Temperature: Operating 41° to 95° F (5° to 35° C)
Temperature Non-operating: 6° to 140° F (-10° to 60° C)

Humidity Operating: 20% to 80% non-condensing
Humidity Non-operating: 20% to 80%
Altitude Operating: +12,000 ft (3657.6 m)
Altitude Non-operating: +40,000 ft (12,192 m)

Environmental Data

Eco-Label Certifications and Declarations: This product has received or is in the process of being certified to the following approvals and may be labeled with one or more of these marks: ENERGY STAR®, IT ECO declaration, TCO 03, EPEAT™ Silver

For the East Peoria Public Safety Node (EPPS):

A 17" (diagonal viewable area) flat screen, analog, TFT Active Matrix Color LCD monitor shall be supplied.

The monitor shall be a HP 1745 or approved equal that meets or exceeds the following minimum specifications:

Panel

Type: Active matrix, thin film transistor (TFT)
Viewable Image Area (diagonal): 17 in (43.2 cm)
Panel Type: TN
Aspect Ratio: 5:4
Viewing Angle (typical)*: Up to 160° horizontal/160° vertical (10:1 minimum contrast ratio)
Brightness (typical)*: 300 nits (cd/m2)
Contrast Ratio (typical)*: 800:1
Response Rate (typical)*: 5 ms (rise + fall)
Pixel Pitch: 0.264 mm
Backlight Lamp Life (to half brightness): 40K hours

Video/Other Inputs

Plug and Play: Yes (supports VESA DDC2B and DDC/CI; PC2001 compliant)
Input Signal: Two connectors: one 15-pin mini D-sub analog VGA and one DVI-D
Input Impedance: 75 ohms ± 2%
Sync Input: Separate sync (HSYNC/VSYNC)
Video Cable: One VGA to VGA cable and one DVI-D to DVI-D cable
Video Cable Length: 70.9 in/1.8 m; detached

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Signal Interface/ Performance

Horizontal Frequency: 30 to 83 kHz
Vertical Frequency: 56 to 76 Hz
Native Resolution: 1280 x 1024 @ 60 Hz (analog), 1280 x 1024 @ 60 Hz (digital)
Max Resolution (Analog): 1280 x 1024 @ 75 Hz, Max Resolution (Digital): 1280 x 1024 @ 75 Hz
Preset VESA Graphic Modes (non-interlaced): 640 x 480 @ 60 Hz, 72 Hz, 75 Hz, 720 x 400 @ 70 Hz, 800 x 600 @ 60 Hz, 72 Hz, 75 Hz, 1024 x 768 @ 60 Hz, 70 Hz, 75 Hz, 1280 x 1024 @ 60 Hz, 75 Hz
Fail Safe Mode: Yes (limits out of range signal messages)
Maximum Pixel Clock Speed: 140 MHz
User Programmable Modes: Yes, 15

Anti-Glare: Yes
Anti-Static: Yes
Default Color Temperature: 6500° Kelvin

On Screen Display (OSD) Controls

Buttons and Switches: 4-button OSD (auto-adjust, menu, minus, plus); power on/off; second-level OSD buttons include dual-input switch
User Controls: Size and positioning, contrast, brightness, clock, clock phase, selectable color temperature, serial number, mode displayed, sleep timer, input selection, factory reset, individual color contrast, full-screen resolution

Electrical

Power: Power Supply Auto-ranging, 90 to 265 VAC; internal power supply
Input Power: 100 ~ 240 VAC
Nominal Current: 1.5 A maximum
Frequency: 50 ~ 60 Hz
Typ. Power Consumption: < 40 watts
Max. Power Consumption: < 60 watts
Power Saving Mode: < 2 watts
Off Mode: < 2 watts

Environmental

Environmental Temperature: Operating 41° to 95° F (5° to 35° C)
Temperature – Non-operating: 4° to 140° F (–20° to 60° C)
Humidity: Operating 20% to 80%, non-condensing
Humidity: Non-operating 5% to 90%
Altitude: Operating 0 to 12,000 ft (0 to 3,658 m)
Altitude: Non-operating 0 to 40,000 ft (0 to 12,192 m)

Environmental Data

Eco-Label Certifications and Declarations: This product has received or is in the process of being certified to the following approvals and may be labeled with one or more of these marks: ENERGY STAR®, IT ECO declaration, TCO 03, EPEAT™ Silver

Basis of Payment: This work will be paid for at the contract unit price per each for LCD MONITOR which price shall be payment in full for all labor, materials, and equipment required to provide the LCD Monitor and accessories, install it at the locations specified on the plan sheets, and configure it for use with the ATMS software.

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LAPTOP COMPUTER

The Contractor shall furnish, install, and configure laptop computers at the locations shown on the proposed ATMS Network Schematic.

The laptop computer shall be sized accordingly to operate with the proposed ATMS software. The requirements for the laptop computer are dependent upon the hardware requirements for the ATMS software that is furnished by the Contractor. It is the Contractor's responsibility to determine if the following minimum specifications are adequate for use with the ATMS system software and to upgrade the specifications as needed to comply with the proposed equipment. The cost of upgrading the laptop computer for use with the proposed equipment and software shall be included in the bid price for this pay item.

The laptop computer shall be a HP Compaq EliteBook8530w or approved equal that meets or exceeds the following minimum specifications:

- Operating System: Windows XP Professional Edition (with latest service pack)
- Hard disk: 120 GB Serial ATA (7200 rpm) or better.
- Processor: A single Intel Core 2 Duo T9800 Processor (2.93 GHz, 1066 FSB, 6 MB L2 Cache) shall be provided.
- Ports: The following ports and devices shall be provided:
  - One 9-pin serial connectors; 16550-compatible (or USB Adapter)
    PS/2 mini-DIN keyboard connector
    PS/2 mini-DIN mouse connector
    RJ45 10/100/1000 NIC connector
    Four USB 2.0 ports
  - 1/8-inch Audio line-in miniature audio jack
    1/8-inch Audio line-out miniature audio jack
    1/8-inch Audio microphone-in miniature audio jack
    1/8-inch Audio headphone-out miniature audio jack
  - IEEE 1394 Firewire
  - 56K Internal Modem
  - PCMCIA slots
  - IR Port
- Memory: Minimum of 4.0 GB (2 DIMM) of 800 MHz ECC DDR2 SDRAM memory (expandable to 4.0 GB min)
- Optical Drive: 8x Double-Layer Multi-Format DVD±/±RW SuperMulti Lightscribe drive with software
- Video: NVIDIA Quadro FX 570M Graphics Controller with 256MB dedicated GDDR III memory, 512 MB Turbo cache
- Pointing Device: Touchpad and one USB 3-button, optical wheel mouse shall be supplied.
- Keyboard: A full function enhanced keyboard with a minimum of 82 keys shall be supplied.
- Display: WUXGA WVA 15.4" TFT (1900 x 1200 resolution)
- Network Interface: The laptop shall be supplied with an Integrated Network Interface Card (NIC) supporting 10/100/1000 MB/s (RJ-45) and an integrated Intel 802.11a/b/g wireless networking card.
- Battery Capacity: 73 WHr Lithium-Ion Battery
- Carry Case: A Deluxe Padded Leather Carrying Case shall be provided.

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- Recovery Media — Driver, Application Software, and Operating System Installation and/or recovery media (CD or DVD) shall be included
- Software — One licensed copy of Microsoft Office 2007 Professional shall be included.
- Warranty: — Three-year (parts, labor, and material) including 24/7 telephone technical support.

Basis of Payment: This work will be paid for at the contract unit price per each for LAPTOP COMPUTER which price shall be payment in full for all labor, materials, and equipment required to provide the laptop computer and accessories, install it at the locations specified on the plan sheets, load all required software on it, and configure it for use with the ATMS software.

APPLICATION SERVER

The Contractor shall furnish install, and configure an application server at the location shown on the proposed ATMS Network Schematic.

The application server shall be sized accordingly to operate with the proposed ATMS software. The requirements for the application server are dependent upon the ATMS software that is furnished by the Contractor. It is the Contractor's responsibility to determine if the following minimum specifications are adequate for use with the ATMS system software and to upgrade the specifications as needed to comply with the proposed equipment. The cost of upgrading the application server for use with the proposed equipment and software shall be included in the bid price for this pay item.

The server shall perform with a maximum CPU utilization of 25% under normal load and 50% under maximum load.

The server shall be a HP ProLiant DL580 G5 rack mounted server or approved equal that meets or exceeds the following minimum specifications:

- Operating System: — Windows Server 2003 Standard Edition w/SA and latest approved service pack or Linux or Unix operating system platform as required for proposed ATMS software, Client/Device Access Licenses As Required Plus 25 Spare
- Operating System Support — Three years of 24/7 Operating System Support
- Hard disk: — Minimum of 5 - 146 GB SAS 15,000 RPM Hot Swappable or better. Configured for RAID level 5 (Striping with Hot Spare)
- Power Supply: — Hot-Swappable
- Motherboard: — 800 MHz bus clock speed with minimum of 4 dedicated PCI slots. All slots shall support bus mastering.
  - Two Quad-core Intel Xeon E7440 Processors (90W), 2.4 GHZ CPU with 16MB Level 3 cache 1066 MHz FSB shall be provided.
  - The following Ports shall be provided:
    One 9-pin serial connector; 16550-compatible
    25-pin parallel connector (bi-directional)

6-pin mini-DIN keyboard connector
6-pin mini-DIN mouse connector
RJ45 NIC connector
Four USB 2.0 ports

- Four 32-bit PCI slots
- 6 Hot Swappable Hard Drive Bays: Two externally accessible 5.25" peripheral bays,
- Floppy Disk Drive
- Redundant Power Supply
- Rack Mounted – 19" standard rack.

- Memory: Minimum of 8GB (4 x 2 GB) PC2-5300 667MHz DDR2 ECC SDRAM DIMM Memory.

- Optical Drive:: 16X DVD+/- RW with software

- Network Interface: The server shall be supplied with an Integrated Network Interface Card (NIC) supporting 10/100/1000 MB/s and using 32-bit PCI bus-mastering technology and a dual PCI-X GbE Ethernet Adapter. The card shall have a UTP (RJ-45) connector. The card shall be compliant with PCI local bus specification 2.0 and IEEE 802.3 for Ethernet. The card shall also support Netflex-3 technology.

- Software: HP Lights-Out 100i (LO100i) Advanced Pack No Media 1-Server License or equivalent management software
  MS SQL Server Per Processor License w/SA (Qty. 2) (If required for ATMS software)

- Mounting: Rack mounted server, 2U, equipped with sliding mounting rails and all required brackets and hardware

- Warranty: Three-year on-site parts and labor including 24/7 telephone technical support for the hardware and operating system.

The Contractor shall furnish and install one rack-mounted 17" WXGA+ monitor and keyboard with touchpad for each server. The cost for this item shall be included in the bid price for the server.

The rack-mounted monitor and keyboard touchpad shall be a HP TFT7600 or approved equal that meets or exceeds the following minimum specifications:

Technical Information
Number of Computers: 1

Display & Graphics
Display Screen: 17" WXGA+ Active Matrix TFT Color LCD
Display Resolution: 640 x 480 @ 75Hz, 1280 x 1024 @ 75Hz, 1440 x 900 @ 75Hz

Input Devices
Keyboard: (Full-size)
Pointing Device: Touch Pad

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Interfaces/Ports
Computer Ports: 1 x 6-pin mini-DIN (PS/2) Mouse, 1 x 15-pin HD-15 Monitor, 1 x Type A USB, 1 x 6-pin mini-DIN (PS/2) Keyboard
Other Ports: 1 x 9-pin D-Sub (DB-9) Flash-upgrade, 1 x USB Type A KVM

Physical Characteristics
Form Factor: 1U 19" Rack-mountable
Dimensions: 1.68" Height x 16.97" Width x 16.66" Depth
Weight: 10 lb

Warranty
Standard Warranty 3 Year(s) Limited

Basis of Payment: This work will be paid for at the contract unit price per each for APPLICATION SERVER which price shall be payment in full for all labor, materials, and equipment required to provide the application server and accessories, install it at the location specified on the plan sheets, load all required software on it, and configure it for use with the ATMS software.

WEB SERVER

The Contractor shall furnish, install, and configure a web server at the location shown on the proposed ATMS Network Schematic.

The web server shall be sized accordingly to operate with the proposed ATMS software. The requirements for the server are dependent upon the ATMS software that is furnished by the Contractor. It is the Contractor's responsibility to determine if the following minimum specifications are adequate for use with the proposed ATMS system software and to upgrade the specifications as needed to comply with the proposed equipment. The cost of upgrading the web server for use with the proposed equipment and software shall be included in the bid price for this pay item.

The server shall perform with a maximum CPU utilization of 25% under normal load and 50% under maximum load.

The server shall meet or exceed the following minimum specifications:

Hardware Specifications: Same as ATMS File Server Specifications:

Software Specifications: Windows Server 2003 Standard Edition w/SA and latest approved service pack, Client/Device Access Licenses as Required plus 25 Spare.

Basis of Payment: This work will be paid for at the contract unit price per each for WEB SERVER which price shall be payment in full for all labor, materials, and equipment required to provide the application server and accessories, install it at the location specified on the plan sheets, load all required software on it, and configure it for use as a web server.

TAPE BACKUP UNIT

The Contractor shall furnish, install, and configure and install a tape backup unit at the locations shown on the proposed ATMS Network Schematic.

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The tape backup unit shall be a HP StorageWorks 1U SAS Rack-Mounted (AE459A) or approved equal that meets or exceeds the following minimum specifications:

Number of Tape Drives Included:	Two
Tape Drive Type:	LTO-2-L (400 GB)
19" Rack Mounting:	1U
Maximum Storage Capacity:	With two LTO2-L drives: 400GB (Native)
Maximum Storage Capacity Compressed (with Two Drives)	3.2 TB
Transfer Rate and Backup Rate:	With two LTO-2-L drives: 172.8GB/hr (Native)
Drive Interfaces (one per drive):	SAS 3GB/Sec
Media Included :	LTO-2, Formatted Tape Media Cartridge, 5-Pack
Backup Software:	Symantec Veritas Backup Exec for Servers, Version 9.2 for Netware Servers or Version 12 for Windows Servers + One year Maintenance
Rack Rails:	Sliding Mounting Rails Included with Unit
Hardware Support/Warranty:	3 Year, Next Business Day Onsite (M-F 8AM-6PM)
Power Requirements:	100-127 VAC
Operating Temperature:	50 to 104 degrees F 10 to 40 degrees C
Operating Humidity:	Operating Humidity: 20% to 80%

Basis of Payment: This work will be paid for at the contract unit price per each for TAPE BACKUP UNIT which price shall be payment in full for all labor, materials, and equipment required to provide the tape backup unit and accessories, install it at the location specified on the plan sheets, and configure it for use with the proposed hardware.

NETWORK SECURITY APPLIANCE

The Contractor shall furnish, install, and configure a network security appliance at the location shown on the proposed ATMS Network Schematic.

The network security appliance shall be configured to provide security between the ITS network and the internet. The firewall shall be a Juniper SSG 140 or approved equal.

The firewall shall be a rack mounted security appliance that meets or exceeds the following minimum specifications:

Maximum Performance and Capacity:

> Firewall throughput (large packets): 350+ Mbps; Firewall throughput (IMIX)(2): 300 Mbps; Firewall packets per second (64 byte): 100,000 PPS; Advanced Encryption

Standard: (AES)256+SHA-1 VPN throughput 100 Mbps, 3DES encryption +SHA-1 VPN throughput 100 Mbps; Maximum concurrent sessions: 32,000; New sessions/second: 8,000; Maximum security policies: 500;
Maximum users supported: Unrestricted; 512 MB DRAM

Network Connectivity:

Fixed I/O: 8x10/100, 2x10/100/1000; Physical Interface Module (PIM) slots: 4; Modular WAN/LAN interface options: (PIMs/uPIMs) 2xT1, 2xE1, 2xSerial, 1xISDN BRI S/T, SFP, 10/100/1000 (Firewall must be equipped with all required network connectivity modules)

Firewall:

Network attack detection; DoS and DDoS protection; TCP reassembly for fragmented packet protection; Brute force attack mitigation; SYN cookie protection; Zone-based IP spoofing; Malformed packet protection

Unified Threat Management:

IPS (Deep Inspection firewall); Protocol anomaly detection; Stateful protocol signatures; IPS/DI attack pattern obfuscation; Antivirus Signature database: 200,000+; Protocols scanned: POP3, HTTP, SMTP, IMAP, FTP, IM; Integrated Anti-spyware; Integrated Anti-adware; Anti-keylogger; Instant message AV; Anti-spam; Integrated URL filtering; External URL filtering

Voice over IP (VoIP) Security:

H.323. Application-level gateway (ALG); SIP ALG; MGCP ALG; SCCP ALG; Network Address Translation (NAT) for VoIP protocols

IPSec VPN:

Concurrent VPN tunnels: 125; Tunnel interfaces: 50; DES encryption (56-bit); 3DES encryption (168-bit) and AES (256-bit); MD-5 and SHA-1 authentication; Manual key; Internet Key Exchange (IKE); public key infrastructure (PKI) (X.509); Perfect forward secrecy (DH Groups) 1,2,5; Prevent replay attack; Remote access VPN; Layer 2 Tunneling Protocol (L2TP) within IPSec; IPSec Network Address Translation (NAT) traversal; Auto-Connect VPN; Redundant VPN gateways

User Authentication and Access Control:

Built-in (internal) database (250 user limit); Third-party user authentication: RADIUS, RSA SecureID, LDAP; RADIUS Accounting (start/stop); XAUTH VPN authentication; Web-based authentication; 802.1X authentication; Unified Access Control (UAC) enforcement point

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PKI Support:

PKI certificate requests (PKCS 7 and PKCS 10); Automated certificate enrollment (SCEP); Online Certificate Status Protocol (OCSP); Certificate Authorities supported: Verisign, Entrust, Microsoft, RSA Keon, iPlanet (Netscape) Baltimore, DOD PKI, Self signed certificates

Virtualization:

Maximum number of security zones: 40; Maximum number of virtual routers: 3 Bridge groups; Maximum number of VLANs 100

Routing:

BGP instances: 2; BGP peers: 4; BGP routes: 2,048; OSPF instances: 2; OSPF routes: 2,048; RIPv1/v2 instances: 2; RIP v2 routes: 2,048; Static routes: 2,048; Source-based routing; Policy-based routing; Equal-cost multipath (ECMP); Multicast; Reverse Forwarding Path (RFP); Internet Group Management Protocol (IGMP) (v1, v2); IGMP Proxy; Protocol Independent Multicast (PIM) single mode; PIM source-specific multicast; Multicast inside IPSec tunnel

Encapsulations:

Point-to-Point Protocol (PPP); Multilink Point-to-Point Protocol (MLPPP); MLPPP max physical interfaces: 8; Frame relay; Multilink Frame Relay (MLFR) (FRF 15, FRF 16); MLFR max physical interfaces: 8; HDLC

Mode of Operation:

Layer 2 (transparent) mode; Layer 3 (route and/or NAT) mode

Address Translation:

Network Address Translation (NAT); Port Address Translation (PAT); Policy-based NAT/PAT; Mapped IP (MIP) 1,000; Virtual IP (VIP) 16; MIP/VIP Grouping

IP Address Assignment:

Static; Dynamic Host Configuration Protocol (DHCP); Point-to-Point Protocol over Ethernet (PPPoE) client ; Internal DHCP server; DHCP relay

Traffic Management Quality of Service (QoS):

Guaranteed bandwidth (per policy); Maximum bandwidth (per policy); Ingress traffic policing; Priority-bandwidth utilization; Differentiated Services marking (per policy)

High Availability (HA):

Active/active*; Active/passive; Configuration synchronization; Session synchronization for firewall and VPN; Session failover for routing change; Device failure detection; Link failure detection; Authentication for new HA members; Encryption of HA traffic

System Management:

WebUI (HTTP and HTTPS); Command line interface (console); Command line interface (telnet); Command line interface (SSH - v1.5 and v2.0 compatible); NetScreen-Security Manager; All management via VPN tunnel on any interface

Administration:

Local administrator database size: 20; External administrator database support: RADIUS, RSA SecureID, LDAP; Restricted administrative networks: 6; Root Admin, Admin, and Read Only user levels; Software upgrades TFTP, WebUI, NSM, SCP, USB, Configuration roll-back

Logging/Monitoring:

System log (multiple servers – up to 4 servers); Email (2 addresses); NetIQ WebTrends; SNMP (v2); SNMP full custom MIB; Traceroute; VPN tunnel monitor

External Flash:

Additional log storage (USB); Event logs and alarms; System configuration script; ScreenOS Software

Additional Services Required:

Three year antivirus, web filtering, anti-spam, and IPS subscription; 2 Port T1 PIM with integrated CSU/DSU, all other items required for firewall installation and configuration

Basis of Payment: This work will be paid for at the contract unit price per each for NETWORK SECURITY APPLIANCE which price shall be payment in full for all labor, materials, and equipment required to provide the network security appliance and accessories, install it at the location specified on the plan sheets, and configure it for use with the proposed hardware and software.

FIBER OPTIC DROP AND REPEAT SWITCH

The Contractor shall furnish and deliver fiber optic Ethernet drop and repeat switches (material only) to the Department.

The Contractor shall supply a total of two single mode fiber and two multimode fiber switches.

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The switches shall meet or exceeds the following minimum specifications:

Approved Models: IFS Model D7420WDM (multimode fiber) and IFS Model D7420WDM (single mode fiber) or approved equal.

LAN:

- 10/100 Mbps
- Auto-Negotiating, 10/100 Selectable
- Auto Network Detection MDI/MDI-X
- Relay Output for Network Communication Failure Notification
- Power, Transmit and Receive Data Status LED Indicators
- Hot-Swappable Modules

Fiber Optic:

- Optical Fiber: 62.5/125 micron multimode, 9/125 micron single mode fiber
- Optical Wavelength: 1310nm/1550nm
- ST Optical Connectors
- Data transmission over one multi-mode fiber utilizing wave division multiplexing
- Optical Power Budget: 10 dB
- Maximum Distance: 6.2 miles (10Km)

Electrical:

- 120 VAC (internal or external power supply) and self-setting over-current protection shall be included
- Stand alone enclosure for rack mounted modules.

Environmental:

- Operating Temperature: -40 to 70 degrees C
- Relative Humidity: 0-95% non-condensing

Testing and Compliance:

- Tested and Certified by an Independent Testing Laboratory for Full Compliance with the Environmental Requirements (Ambient Operating Temperature, Mechanical Shock, Vibration, Humidity with Condensation, High-Line/Low-Line Voltage Conditions and Transient Voltage Protection) of NEMA TS-1/TS-2 and the Caltrans Specification for Traffic Signal Control Equipment.

- IEEE 802.3 Compliant

Basis of Payment: This work will be paid for at the contract unit price per each for FIBER OPTIC ETHERNET DROP AND REPEAT SWITCH (MATERIAL ONLY) which price shall be payment in full for all labor, materials, and equipment required to provide the fiber optic Ethernet switch and deliver it to the IDOT ITS Equipment Room.

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ETHERNET SWITCH

The Contractor shall furnish, install, and configure Ethernet switches at the following locations:

- IDOT ITS Equipment Room
- City of Peoria Department of Public Works (Dries Lane)

The Contractor shall remove the existing Extreme Networks Summit 200 Ethernet switches return them to the Department. The Contractor shall configure the proposed switches for use in the ITS Network.

The Ethernet switch shall be an Extreme Networks Summit X450-24t equipped with dual 40km LX Mini GBICS, SFP SMF 1000BaseLX LC Connectors, and Extreme Advanced Edge software that meets the following specifications:

General Specifications

Switching Throughput:
- Bandwidth, Gbps: non-blocking
- 160 Gbps

Forwarding Rate:
- 65 Mpps million packets/second
- Max Packet Size: 9216 byte

Ports:
- 24 RJ-45 10/100/1000BASE-T with auto-speed and auto polarity
- 4 SFP (mini-GBIC, shared PHY with 4 10/100/1000BASE-T ports)
- 1 Serial Port (control port)
- 1 10/100BASE-T out-of-band management port

General:
- Number of QoS queues/port: 8
- Number of VLANs: 4096
- VLAN Types: Port, IEEE 802.1Q, and MAC-based Number of ACL Rules/lines: 3072 (can be applied to either ingress or egress)

Forwarding Tables:
- Layer 2/MAC addresses: 16K
- Layer 3 LPM Entries: 1K
- Layer 3 Interfaces: 512
- OSPF External Routes:>100K

Rate Limiting:
- Ingress bandwidth policing/rate limiting: packets are classified after Ingress into flows using ACLs and a rate limiter is assigned to a given flow
- Rate Limiting Granularity: 64Kbps (1Mbps on 10 gigabit port)
- Available Rate Limiters: 128 per port

Physical Specifications:

- Height: 1.73 inches/4.4 cm (Nominal)
- Width: 17.4 inches/44.1 cm (Nominal)
- Depth: 16.4 inches/41.6 cm (Nominal)
- Weight: 14lbs/6.35kg
- Operating Temperature Range - 0°C to 40°C (32°F to 104°F)
- Storage Temperature Range - Degrees/Degrees Celsius: -40°C to +70°C (-40°F to 158°F)
- Humidity Range: 10-95% (RH) non-condensing

Power:

- Min Voltage/Associated Current: 100VAC/4A
- Max Voltage/Associated Current: 240VAC/2A
- Heat Dissipation, 160Watts (546BTU/hr)

Acoustic:

- 51 dBA – Sound Pressure

Management Features:

- Serial management port on the front panel for ease of installation
- Extensive management through SNMP, RMON and CLI
- Secure remote management with strong encryption using SSH2
- Port mirroring

Software Features

QOS:

- 8 priority queues
- 802.1p priority marking
- Layer 2 classification
- Layer 3 DiffServ

Routing:

- RIP v1/v2
- OSPF v2

Multicast:

- IGMP v1/v2/v3
- IGMP snooping
- PIM-SM
- Ethernet Automatic Protection Switchingedge (EAPS-edge)
- Network Address Translation
- Multicast VLAN registration

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Security:

- Network Login
- 802.1x
- Web-based Network Login
- SSH2 server
- Layer 2/3/4 ACLs
- DoS
- RADIUS support
- TACACS+ support
- MAC Address Security (lockdown + limit)
- IP Address Security: Disable ARP learning
- Management Security: SNMPv3, SSH2-client, SCP/SFTP
- DoS Protect
- IP Address Security: DHCP Option 82

Resiliency:

- Software Redundant Port
- ESRP (in Advanced Edge license)
- VRRP (in Advanced Edge license)
- Loop detection via Lbdetect and ELRP CLIEAPS
- STP: 802.1w Rapid Spanning Tree
- STP: Compatibility mode for PVST+, EMISTP (1 domain per port)

Extensibility and Scalability:

- Static Multicast Routes
- Multicast: static IGMP membership
- LACP for edge deployment (server connectivity)
- Stacking

Software Support Agreement:

- Two year agreement

Basis of Payment: This work will be paid for at the contract unit price per each for ETHERNET SWITCH which price shall be payment in full for all labor, materials, and equipment required to provide the Ethernet switch complete with software, and accessories, install it at the locations listed above, and configure it for use with the ITS network.

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ETHERNET SWITCH (MATERIAL ONLY)

The Contractor shall furnish and deliver an Ethernet switches to the Department.

The Ethernet switch shall be an Extreme Networks Summit X450-24t equipped with dual 40km LX Mini GBICS, SFP SMF 1000BaseLX LC Connectors, and Extreme Advanced Edge software that meets the specifications listed in the pay item ETHERNET SWITCH.

Basis of Payment: This work will be paid for at the contract unit price per each for ETHERNET SWITCH (MATERIAL ONLY) which price shall be payment in furnishing the Ethernet switch complete with software, and accessories and delivering it to the Department.

CARD CAGE CHASSIS

The Contractor shall furnish a card cage chassis (material only) and deliver it to the Department.

The card cage chassis shall be a Coretec model R-12 and conform to the following minimum specifications:

Enclosure:

Dimensions: 19” W x 15” L x 6.9” H (4 RU)
Accommodates 12 modules

Power Supply:

Input Voltage Range :	85-264 VAC @ 47-63 Hz
DC Output Voltage :	12 volts
Rated Output Current:	16.7 A
Rated Output Power:	200 Watts
AC Current:	2.8A @ 115 VAC, 1.4A @ 230 VAC
Line Regulation:	0.5%
Load Regulation:	0.5%
Operating Temperature:	-20C to +70C

Basis of Payment: This work will be paid for at the contract unit price per each for CARD CAGE CHASSIS which price shall be payment in full for all labor, materials, and equipment required to provide the card cage chassis and deliver it to the Department.

DIGITAL VIDEO ENCODER

The Contractor shall furnish a video encoder and deliver it to the Department.

Video Encoder:

The video encoder shall be a Coretec Model VCX2400-E-R (or approved equal) for integration with the existing ITS system.

The video encoder shall meet or exceed the following minimum specifications:

Input Power:

110 VAC, 60 Hz

Compression:

MPEG II, variable frame rate and resolution, D1 720hx480v NTSC
Frame Rate: 30 fps

Inputs:

Video: NTSC Composite
Data/Status: RS-232/422/485
Data Rate: to 38.4 kbps

Outputs:

Video and Status: EIA-530 at DS-1 rate

Connectors:

Video: BNC
Status/Control: DB-25, RJ-45

Network Parameters:

Data Rate: 1.0 to 8.0 Mbps
Ethernet: RJ-45
Interface: 10/100 Base T
Protocols: UDP, IP, IGMP, Multicast

Environmental:

Temperature: -20°C to +70°C
Humidity: 0-95% non-condensing

Basis of Payment: This work will be paid for at the contract unit price per each for VIDEO ENCODER which price shall be payment in full for all labor, materials, and equipment required to provide the video encoder described above and deliver it to the Department.

VIDEO SERVER

The Contractor shall furnish, install, and configure a video server for use with the ATMS software and web server.

The video server shall be an Axis Video Server Rack equipped with eight Video Server Blade Modules (Model 241Q) and one spare power supply or approved equal that meets the following specifications:

Video Server Rack Specifications:

Hardware & System:	Aluminum rack, 19” / 3U Available slots: 12 (support hot swap)
Connections:	Video: Analog video input/s (BNC)1 Power: 100-240 VAC, 50/60 Hz, 1.6 A

Each slot contains the following connectors on the rear of the rack:

	Network: 10Base-T/100Base-TX Ethernet networks (RJ-45) Serial communication: RS-232 & RS-485 (terminal block) I/O: alarm inputs and outputs (terminal block)2
Operating Conditions:	Temp: 5°C - 50ºC (41°F-122ºF)3 Humidity: 20 – 80% RHG
Dimensions and Weight:	Height: 132 mm (5.2”) Width: 482 mm (19.0”) Depth: 300 mm (11.8”)

Video Server Blade Module Specifications:

Inputs:	Four video channels
Video compression:	Motion JPEG MPEG-4 Part 2 (ISO/IEC 14496-2), Profiles: ASP and SP
Resolutions:	4CIF, 2CIFExp, 2CIF, CIF, QCIF max 704x480 (NTSC) 704x576 (PAL) min 160x120 (NTSC) 176x144 (PAL)
Frame rate(NTSC/PAL):	Motion JPEG: Up to 30/25 fps at 4CIF (1 channel) 30/25 fps at CIF (4 channel) MPEG-4: Up to 30/25 fps at 2CIF (1 channel) 21/17 fps at 4CIF (1 channel) 20/17 fps at CIF (4 channel)
Video streaming:	Simultaneous Motion JPEG and MPEG-4 Controllable frame rate and bandwidth Constant and variable bit rate (MPEG-4)

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Image settings:	Compression levels: 11 (Motion JPEG) /23 (MPEG-4) Rotation: 90º, 180º, 270º Aspect ratio correction Color: color, black & white Overlay capabilities: time, date, text, image or privacy mask De-interlace filter
Security:	Multiple user access levels with password protection, IP address filtering, HTTPS encryption, IEEE 802.1X authentication.
Alarm and event management:	Events triggered by video motion detection, external inputs, audio detection, PTZ presets, product restart, video loss, or according to a schedule, Image upload over FTP, email, HTTP Notification over TCP, email, HTTP, external outputs Pre- and post alarm buffer of 9 MB per channel (approx. 4 min of CIF resolution video at 4 frames per second)
Pan/Tilt/Zoom:	Wide range of analog PTZ cameras supported 20 presets/camera, Guard tour, PTZ control queue Supports Windows compatible joysticks
Connectors:	Analog composite video, NTSC/PAL autosensing inputs: 4 BNC inputs Ethernet 10BaseT/100BaseTX, RJ-45 Terminal block: 4 alarm inputs, 4 alarm outputs, RS-485/422 half duplex port, alternative power connection D-Sub for RS-232 port
Processors and memory:	CPU: ETRAX 100LX 32bit Video processing and compression: ARTPEC-2 RAM: 64MB (241Q), 32 MB (241S) Flash: 8 MB Battery backed up by real-time clock
Power:	7-20 V DC, max 8W
Operating conditions:	5-50 ºC (41-122 ºF) Humidity 20-80% RH (non-condensing)

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Installation, management and maintenance	Web-based configuration Configuration of backup and restore Firmware upgrades over HTTP or FTP
Video access from Web browser:	Camera live view for up to 20 clients Video recording to file (ASF), Sequence tour for up to 20 PTZ presets or external Axis video sources Customizable HTML pages
System integration support:	Open API for application integration, event trigger data in video stream, embedded scripting Quality of Service (QoS) Layer 3, DiffServ Model Watchdog ensures continuous operation, event notifications can be monitored by other systems Embedded Linux operating system
Supported protocols:	IPv4/v6, HTTP, HTTPS, SSL/TLS*, TCP, QoS, SNMPv1/v2c/v3 (MIB-II), RTSP, RTP, UDP, IGMP, RTCP, SMTP, FTP, ICMP DHCP, UPnP, Bonjour, ARP, DNS, DynDNS, SOCKS, IEEE802.1X.

Basis of Payment: This work will be paid for at the contract unit price per each for VIDEO SERVER which price shall be payment in full for all labor, materials, and equipment required to provide the video server and accessories, install it in the ITS Equipment Room, and configure it for use with the proposed hardware and software.

UNINTERRUPTABLE POWER SUPPLY

The Contractor shall furnish, install, and configure uninterruptible power supplies.

The uninterruptible power supply shall be sized accordingly to operate with the proposed file and web servers. The requirements for the uninterruptable power supply are dependent upon the hardware that is furnished by the Contractor. It is the Contractor's responsibility to determine if the following minimum specifications are adequate for use with the proposed servers and to upgrade the specifications as needed to comply with the proposed equipment. The cost of upgrading the uninterruptable power supply for use with the proposed equipment shall be included in the bid price for this pay item.

The uninterruptible power supply shall be a rack mounted APC Smart-UPS 1500VA with USB & Serial Management Ports or approved equal and shall meet or exceed the following specifications:

Output:

Output Power Capacity:	980 Watts / 1440 VA
Max Configurable Power:	980 Watts / 1440 VA
Nominal Output Voltage:	120V
Efficiency at Full Load:	95%
Output Voltage Distortion:	Less than 5% at full load
Output Frequency (sync to mains):	57 - 63 Hz for 60 Hz nominal
Crest Factor:	up to 5 : 1
Waveform Type:	Sine wave
Output Connections:	(6) NEMA 5-15R

Input:

Nominal Input Voltage:	120V
Input Frequency:	50/60 Hz +/- 3 Hz (auto sensing)
Input Connections:	NEMA 5-15P
Input voltage range for main operations:	82 - 144V
Input voltage adjustable range for mains operation:	75 - 154V

Batteries and Runtime:

Battery Type:	Maintenance-free sealed Lead-Acid battery with suspended electrolyte : leakproof
Typical recharge time:	3 hour(s)
Typical Backup Time at Half Load:	26.5 minutes (490 Watts)
Typical Backup Time at Full Load:	7.4 minutes (980 Watts)

Communications and Management:

Network Management Module	UPS shall be equipped with a Network Management Module (APC9617 or equivalent) that has the following features: 10/100 BaseT connection, Authentication, Boot-P, support Browser accessible, Compatible with Smart-Slot enabled UPSs, Data logging, E-mail notification, Encryption, Enterprise management system compatible, Event logging, Fault notification, Flash upgradeable firmware, Integrates with InfraStruXure, Central IP-enabled, Local LED status, Mass Configuration, MD5 authentication, security Password, Security, Radius support, Remote administration, Run command file, Secure communications, Server shutdown of N+1 UPS, SNMP management, SSH System Event Log Integration, Telnet management
Interface Port(s):	DB-9 RS-232, USB

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Control panel:	LED status display with load and battery bar-graphs and On Line : On Battery : Replace Battery : and Overload Indicators
Audible Alarm:	Alarm when on battery : distinctive low battery alarm : configurable delays

Surge Protection and Filtering:

Surge energy rating:	459 Joules
Filtering:	Full time multi-pole noise filtering : 0.3% IEEE surge let-through : zero clamping response time : meets UL 1449

Physical:

Maximum Height:	3.50 inches (89 mm)
Maximum Width:	17.00 inches (432 mm)
Maximum depth:	18.00 inches (457 mm)
Rack Height:	2U
Net Weight:	63.00 lbs. (28.64 kg)
Mounting	Equipped with Sliding Rails

Environmental:

Operating Environment:	32 - 104 °F (0 - 40 °C)
Operating Relative Humidity:	0 - 95%
Audible noise at 1 meter from surface of unit:	46 dBA
Online Thermal Dissipation:	171.00 BTU/hr

Conformance:

Regulatory Approvals:	CSA,FCC Part 15 Class A,UL 1778

Basis of Payment: This work will be paid for at the contract unit price per each for UNINTERRUPTABLE POWER SUPPLY which price shall be payment in full for all labor, materials, and equipment required to provide uninterruptible power supply, install it at the locations shown in the plans, and configure it for use with the proposed hardware and software.

KVM SWITCH

The Contractor shall furnish a KVM switch (material only) and deliver it to the Department.

The KVM switch shall be a Cables To Go 4-Port VGA, USB And PS2 KVM Switch With Cables or approved equal that meets the following specifications:

LEDs:	4 Port LEDs
Audio Ports:	None
Console Connections:	1

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Computer Connections:	4
Keyboard Port Type:	USB, PS/2
Mouse Port Type:	USB, PS/2
Monitor Port Type:	VGA (15-Pin D-Sub)
Integrated KVM Cable:	No
Power Supply Type:	Draws Power from PS/2 Port Draws Power from USB Port
Port Selection:	Push Button, Hotkeys
Monitor Resolution Support:	Up to 2048 x 1536
Shared USB Ports	3 (Switched Between Computers)

Basis of Payment: This work will be paid for at the contract unit price per each for KVM SWITCH which price shall be payment in full for all labor, materials, and equipment required to provide the KVM switch and deliver it to the Department.

REMOTE POWER MANAGEMENT UNIT

The Contractor shall furnish a remote power management unit (material only) and deliver it to the Department.

The intelligent remote power management unit shall be a Para Systems (Minuteman), model RPM1601 or approved equal that meets the following specifications:

Features:

- "Smart" telephone interface allows failsafe rebooting from any telephone (cell or land line, no modem needed)
- Network administrators can configure and control RPM units through standard Web browsers using a single network IP address
- RPM technology accommodates most network and security protocols
- "Daisy-chain" as many as 15 additional RPM client nodes to each RPM master unit
- Unit allows control of individual outlets (eight 5-15 Receptacles)
- Built-in surge, spike protection, and EMI/RFI filtering

Specifications:

Smart Telephone Call-in Function	Yes
Net Control / Support	HTTP Server & SNMP Agent TCP/IP, MIBS
Dimensions H X W X D	1.75 X 17 X 6.5 Inches
Net Weight / Ship Weight	9 lbs / 10 lbs

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Input Connection	NEMA 5-15P (IEC 320 P)
Output Receptacle Qty / Type	8 each NEMA 5-15R (IEC 320 R)
LAN Connection / Driver console Connection / Driver	RJ45 / Ethernet, DB9 / PPP + Dial-In / USB / USB Driver
2nd RPM Connection (Daisy Link Connection)	RJ11, RS232 Connect Up To 15 Additional Switches
Ring On / Reset / Off	Yes
Nominal / Input Voltage Range	115 VAC Nominal / Range 85 - 145 VAC (230 VAC Nominal / range 170 - 290 VAC)
Input Frequency	43-66 Full Range
Maximum Output	15 Amps 30 Amps
Input Protection	15 Amp Circuit Breaker
Spike / Surge Protection	IEC 801-2, 801-3,801-4,801-5
Safety / EMI Compliance	UL, CSA FCC Class B (VDE FCC CLASS B)
Testing Standards	IEEE / ANSI C62.45
Operating Temperature	0 To 40 degrees C
Storage Temperature	-15 To 50 degrees C
Relative Humidity	0-95 % Non-Condensing
Altitude	3,000 m (10,000 ft.) Without Derating

Basis of Payment: This work will be paid for at the contract unit price per each for REMOTE POWER MANAGEMENT UNIT which price shall be payment in full for all labor, materials, and equipment required to provide KVM switch and deliver it to the Department.

EQUIPMENT CABINET

The Contractor shall furnish a locking server cabinet and install it at the Dries Lane facility.

The Vender shall provide all labor, equipment, and materials required to remove the existing equipment rack located at Dries Lane and replace it with the proposed equipment rack, including relocating all equipment from the existing rack and installing it in the proposed rack. The Contractor shall coordinate with the Department prior to commencing work to minimize service disruptions.

The server cabinet shall be an APC NetShelter SX AR3100 42U rack or approved equal that meets the following specifications:

The cabinet shall be furnished with the following items:

- 19” Sliding Keyboard Tray – Qty. 2
- 19” Fixed Shelf – Qty. 2
- Roof Fan Tray (440 CFM, Audible Noise at 1 meter from surface of unit: 51.00 dBA, 120V) – Qty. 1
- 17” keyboard with built-in track-ball or touch-pad – Qty. 1

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Features:

- Adjustable front vertical mounting rail
- Adjustable mounting depth
- Cable access
- Casters
- Deep form factor (42"/1070mm)
- Door ventilation exceeds 830 in2 (5355 cm2)
- Expanded cable management (facilitates overhead cable management, facilitates overhead power distribution, facilitates rear/vertical cable management)
- Leveling feet
- Lockable doors and side panels
- Multi-contractor equipment compatibility
- Numbered u positions
- Protective grounding provisions
- Quick release doors
- Quick release side panels
- Removable doors and side panels
- Reversible doors
- Split rear doors
- Tool-less mounting
- UBC zone 4 stabilization provisions
- Ventilated doors with scalable cooling options
- Vertical mounting rails with square holes

Specifications:

Physical Specifications:

Maximum Height:	1991.00 mm
Maximum Width:	600.00 mm
Maximum Depth:	1070.00 mm
Net Depth with Stabilizing Feet:	1278.00 mm
Weight Capacity (static load):	1363.64 KG
Weight Capacity (dynamic load):	1022.73 KG
Minimum Mounting Depth:	191.00 mm
Maximum Mounting Depth:	934.00 mm
Rack Height:	42U
Color:	Black
Vertical Posts:	16 gauge
Front Door:	16 gauge
Rear Door:	18 gauge
Roof:	18 gauge
EIA Mounting Rails:	14 gauge
Side Panels:	18 gauge

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1.0 General Requirements

1.1 The unit shall be designed to provide a secure, managed environment for server and networking equipment. The unit shall be equipped with locking front and rear doors.

1.2 The unit shall conform to EIA-310 Standard for Cabinets, Racks, Panels and Associated Equipment and accommodate industry standard 19" rack mount equipment.

1.3 The unit shall be designed with four (4) vertical posts to allow rack mount equipment installation utilizing four (4) vertical mounting rails.

1.4 The unit shall be available with a vertical equipment mounting space of 42U (1U=1.75" or 44.45mm).

1.5 The unit shall be available to order with one part number configured with all enclosure components pre-assembled.

2.0 Physical Specifications

2.1 Enclosure dimensions, rack mounting compatibility and weight load ratings:

Internal Height	EIA-310	External Height	External Width	External Depth	Static Rating	Dynamic Rating
42U	19"	1991mm (78.40")	600mm (23.62")	1070mm (42.13")	1364kg (3000lbs)	1023kg (2250lbs)

2.2 The unit shall have exterior maximum height measurement of 1991mm (78.40") to allow passage through a standard 2 Meter or 7 Ft. (84") doorway without tipping.

2.3 The unit shall support a static load (weight supported by the casters and leveling feet) of at least 1,364 kg. (3,000 lbs.) total installed equipment weight.

2.4 The unit shall support a dynamic load (rolling on the casters) of at least 1,023 kg. (2,250 lbs.) total installed equipment weight.

2.5 The unit shall ship with a perforated front door, perforated split rear doors, left and right two-piece solid side panels, tool-less roof, four (4) vertical frame posts, four (4) adjustable vertical mounting rails, two (2) vertical PDU mount cable organizers, four (4) leveling feet and four (4) casters, pre-installed by the manufacturer.

2.6 The unit shall ship with baying hardware pre-installed by the manufacturer.

2.6.1 Baying brackets must provide two sets of mounting holes for standard enclosure spacing of 24" or 600 mm.

2.7 The unit shall ship with grounding hardware pre-installed by the manufacturer.

3.0 Equipment Access & Mounting

3.1 The unit shall provide 42U of equipment vertical mounting space.

3.2 The vertical mounting rails shall be easily adjustable to allow different mounting depths.

3.2.1 The vertical mounting rails shall have a second set of EIA mounting holes perpendicular to the primary mounting holes to allow devices to be mounted in the side channel.

3.2.2 Each vertical mounting rail shall be marked on both sides with lines showing the top and bottom of each U and the number U space next to the middle hole. Each U consists of three square holes and is 1.75 inches (44.45 mm) high.

3.3 The unit shall include at least 60 sets of M6 caged nuts, bolts and cup washers, and caged nut tool for the mounting of equipment inside the unit.

3.3.1 The manufacturer shall offer an optional hardware kit containing additional M6 caged nuts, screws and cup washers.

3.4 Both the front and rear doors shall be designed with quick release hinges allowing for quick and easy detachment without the use of tools.

3.4.1 The front and rear doors shall open a minimum of 130 degrees to allow easy access to the interior.

3.4.2 The front door of the unit shall be reversible so that it opens from either side.

3.4.3 Split rear doors are provided for increased service clearance.

3.4.4 The front door of the unit shall be capable of being installed on the rear of the unit, and the rear doors shall be capable of being installed on the front of the unit.

3.5 The unit shall include two-piece removable side panels that are removed without tools using easy finger latches for fast access to cabling and equipment.

3.5.1 The side panels on the unit shall double as privacy panels when the units are bayed together

4.0 Material Requirements

4.1 All weight bearing components shall be constructed from steel with a thickness no less than 0.9mm (20 gauge).

4.2 All metal parts shall be painted using a powder coat paint process.

4.3 Plastic materials shall comply with Underwriters Laboratory Specification 94 with V-1 rating (UL94 V-1) or better.

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5.0 Grounding Requirements

5.1 All enclosure panels and rack-mounted equipment shall be inherently earthed or grounded directly to the frame.

6.0 Environmental Requirements

6.1 The unit shall have a minimum of IP 20 rating for protection against touch, ingress of foreign bodies, and ingress of water.

7.0 Safety Requirements

7.1 The enclosure shall both protect the user from mechanical hazards and generally meet the requirements for a mechanical enclosure (stability, mechanical strength, aperture sizes, etc.) as defined in IEC 60950 Third Edition.

8.0 Ventilation

8.1 The unit shall provide adequate ventilation to provide airflow required by the major server manufacturers.

8.2 The unit shall provide a minimum total ventilation area for the front door, split rear doors, and roof as specified below:

Internal Height	External Width	External Depth	Perforated Front Door	Perforated Rear Doors
42U	600mm (23.62”)	1070mm (42.13”)	5930 cm2 (919 in2)	6689 cm2 (1036 in2)

8.3 The unit shall provide the means to mount an optional fan-tray in the roof of the unit and other cooling accessories for high-density.

8.4 The manufacturer shall offer an optional tool-less blanking panel kit to prevent the recirculation of hot exhaust air.

8.5 The manufacturer shall offer an optional air baffle kit to prevent the recirculation of hot exhaust air.

9.0 Cable Management

9.1 The unit shall have clearance for wiring access of at least 3” between the inside surface of the front door and front mounting face of the vertical mounting rails.

9.2 The unit shall have clearance for wiring access of at least 1.5” between the side panel and the vertical mounting rails.

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9.3 Top cable management openings provided in the enclosure roof:

Internal Height	External Width	External Depth	Openings Located on Roof	Opening with Roof Removed
42U	600mm (23.62”)	1070mm (42.13”)	Two 75mm (2.96”) x 644mm (1.64”), One 240mm (9.45”) x 92mm (3.61”), and Five 71mm (6.75”) x 54mm (2.14”) Rectangular Openings	567mm (22.31”) x 892mm (35.10”)

9.3.1 The five 171mm (6.75”) x 54mm (2.14”) rectangular roof cable management openings are protected with plastic grommets and caps preinstalled by the manufacturer.

9.4 Bottom cable management opening provided in the enclosure base:

Internal Height	External Width	External Depth	Main Base Opening
42U	600mm (23.62”)	1070mm (42.13”)	567mm (22.31”) x 831mm (32.71”)

9.5 Side cable management openings provided in the vertical PDU mount cable organizers:

Internal Height	External Width	External Depth	Side Cable Management Openings
42U	600mm (23.62”)	1070mm (42.13”)	Two 61mm (2.4”) x 55mm (2.16”) and Four 61mm (2.4”) x 200mm (7.88”) Rectangular Openings on each Side

10.0 Security

10.1 The unit shall include front door lock, rear door lock and side panel lock that are keyed the same; two keys included.

10.1.1 Replacement key lock cylinders should be available to provide a minimum of 300 unique key combinations on front and rear doors.

10.2 The roof shall not be removable from the interior of the enclosure without tools.

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10.3 The manufacturer shall provide optional products and accessories that allow the enclosure environment to be monitored for temperature, humidity, and door access.

10.4 The unit shall have mounting provisions for optional door alarm switch to monitor access to the enclosure doors.

11.0 Stabilization

11.1 The unit shall ship with provisions for adding stabilization in the field.

11.2 The manufacturer shall have optional stabilizer plate kit, consisting of a plate, and mounting hardware that can be attached to the enclosure frame, and that can be bolted to the floor.

11.2.1 The unit shall have mounting provisions for the stabilizer plate on the front and rear (on the interior or exterior) of the unit.

11.3 The manufacturer shall have optional bolt down brackets, consisting of four (4) brackets and mounting hardware that attach to the enclosure frame on the front and rear (on the interior or exterior), and which must be anchored to the sub-floor for compliance with the local Uniform Building Code (UBC).

11.4 The manufacturer should supply structural calculations by a professionally registered engineering firm showing compliance with the local UBC for floor anchoring.

11.5 The unit shall have four (4) adjustable leveling feet to help provide a stable base in the event of an uneven floor surface and to prevent rolling.

12.0 Packaging

12.1 The unit shall ship on a wooden pallet. Optional packaging should be available for shipping racks with 1250 lbs and 2000 lbs of installed equipment.

12.2 The unit shall be bolted to the wooden pallet for stability during shipment.

12.3 The unit shall be protected by corrugated corners, which are stretch-wrapped to limit damage during handling.

12.4 The unit shall have a “damage report” sticker on the outside of the packaging which instructs customers to call a toll-free customer support number to resolve possible shipping damage issues.

13.0 Delivery & Installation

13.1 The unit shall be shipped fully assembled as one orderable SKU.

13.2 The manufacturer shall offer an inside-delivery shipping option which includes reasonable delivery to the inside of a customer’s building and removal and disposal of shipping material and packaging.

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13.3 The unit shall roll through a standard 2 meter or seven (7) foot office doorway.

14.0 Miscellaneous

14.1 The unit shall include free configuration software, available separately from the manufacturer, which enables customers to graphically populate the unit with network equipment, calculate BTU's and power draws, and print out a list of required accessories.

14.2 The unit shall be available pre-configured with the equipment and accessories offered from the unit's manufacturer for an additional flat charge.

15.0 Warranty

15.1 The manufacturer shall warrant the unit to be free from defects in materials and workmanship for a minimum period of five years from the date of purchase. The manufacturer's obligation under this warranty shall be to repair or replace the unit, at its own sole option. This warranty shall not apply to equipment that has been damaged by accident, negligence, or misapplication or has been altered or modified in any way.

15.2 The manufacturer shall warrant all accessories and options to be free from defects in materials and workmanship for a minimum period of two years from the date of purchase. The manufacturer's obligation under this warranty shall be to repair or replace the equipment, at its own sole option. This warranty shall not apply to equipment that has been damaged by accident, negligence, or misapplication or has been altered or modified in any way.

16.0 Accessories

16.1 *RM LCD Monitor/Keyboard Drawer*: The manufacturer shall offer a 1U high, rack-mounted LCD monitor/keyboard drawer to maximize space in a data center environment.

16.2 *Keyboard Drawers & Keyboards*: The manufacturer shall offer 17" and 19" keyboard drawers, and a 17" keyboard with built-in track-ball or touch-pad.

16.3 *Cooling*: The manufacturer shall offer roof-mounted fan trays, rack-mounted fan trays, door fan modules, and monitoring devices for maintaining a cool environment.

16.3.1 Thermal simulation capabilities should be available to support proposed configurations.

16.5 *Cable Management*: The manufacturer shall offer a variety of cable management accessories to neatly organize the routing of data and power cables within the enclosure.

16.6 *Shelving*: The manufacturer shall offer as optional accessories various fixed and sliding shelves with the ability to support up to 250 lbs of non-rack mount equipment.

16.11 *Stabilization*: The manufacturer shall offer a stabilizer plate kit to be anti-tip device and bolt-down bracket kit for floor anchoring.

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Basis of Payment: This work will be paid for at the contract unit price per each for EQUIPMENT CABINET which price shall be payment in full for all labor, materials, and equipment required to provide equipment cabinet, deliver it to the Dries Lane facility, remove the existing equipment rack and equipment, install the proposed rack and existing equipment, deliver the existing rack to the Department, and perform all other items required for installation.

UPGRADE EXISTING ANALOG VIDEO SWITCH

The existing Vicon Matrix 66 analog video switch is configured for 64 video inputs and 32 video outputs and consists of the following components:

- Vicon NOVA 1500 External Central Processing Unit – Qty. 1
- Vicon NOVA 1500 Communication Distribution Unit (CDU) – Qty. 1 (Unit consists of chassis equipped with one network interface card, one power supply, one parallel communication card for Alarm Control Ports 1 and 2, one parallel communication card for TDT Control Ports 1 and 2, one parallel communication card for Video Control Ports 1 and 2, and two serial communication cards)
- Vicon Matrix 66 Switcher Card Cage – Qty. 1 (Configured as 64 x 32 with one 32 video output BNC Monitor Panel and two 32 video input BNC panels
- Vicon V1400X-IDL Intelligent Line Control – Qty. 2
- Vicon V1410-DVC Control Keypads – Qty. 9

Due to the limited availability of parts to upgrade the existing video switch and the additional expense required for part installation and customization, the existing video switch will be removed and replaced with a newer model that has increased CPU power and higher density card cages.

All equipment shall be installed in the existing 19” equipment racks located in the ITS Equipment room at the IDOT District 4 headquarters.

The proposed video switch and related equipment shall be installed by a qualified manufacturer’s representative that has experience in the installation, maintenance, and troubleshooting of the proposed video switch.

The proposed video switch shall be compatible with the existing equipment (intelligent line control units, control keypads, etc.). In the event that the proposed video switch is not compatible with the existing equipment, the Contract shall furnish and install new equipment that is compatible with the proposed video switch. The cost of this additional equipment shall be the sole responsibility of the Contractor.

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The Contractor shall perform the following work:

- The Contractor shall remove all existing video switch system components that are not required for use with the new video switcher and deliver them to the Department.

- Furnish and install the following items:

    - Vicon Pilot Select V1566 (Part Number PS-64X64) Digital Control and Matrix Switching System (prepac system with internal CPU and titler, 64 video inputs, 64 video outputs, two switcher card cages, and programming keyboard). – Qty. 1

      The Department will provide a host computer with Windows XP Professional and LCD monitor to interface with the proposed switching system.

    - All other hardware, cables, adapters, and materials required for the installation of and integration of the proposed video switch into the existing system

Furnish the following items:

    - Vicon V1400X-IDL Intelligent Line Control (Material Only) – Qty. 1

- Integrate the proposed video switch into the existing system.

- Program, configure and test the proposed video switch.

The proposed video switch shall be a Vicon Pilot Select V1566 Digital Control and Matrix Switching System that meets or exceeds the following minimum specifications:

ELECTRICAL

Maximum Camera/Monitor Configurations	
Single-Cage:	256 cameras × 32 monitors
Two-Cages:	Camera Expansion: 512 cameras × 32 monitors Monitor Expansion: 256 cameras x 64 monitors
Four-Cages:	512 cameras × 64 monitors
CPU Speed:	20 MHz
Input Voltage:	120 to 230 VAC, 50/60 Hz Auto range
Current:	0.5 A RMS max. Fully loaded card cage with internal CPU
Power Consumption:	60 W max. Fully loaded card cage with internal CPU
Heat Equivalent:	3.1 btu/min (0.85 kg-cal/min)
Line Cord:	3-wire grounded detachable IEC-320 standard power cord
Fuse:	120 V/230 V, 1.25 A, 20 mm
Radio Frequency Emission Rating:	FCC Class A

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MECHANICAL

Construction:	Steel chassis with aluminum front panel
Finish:	zinc plated clear chromate
Front panel:	black baked enamel
Dimensions:	Height (H): 14.0 in. (356 mm), Width (W): 19.0 in. (483 mm), Depth (D): 8.5 in. (216 mm)
Weight, Card Cage:	Approximately 27 lb (12.27 kg)

VIDEO

Video Input Signal:	2.0 V p-p maximum
Input Impedance:	Looping: greater than 50 kohm
Terminating:	75 ohm
Video Frequency Flatness*:	100 kHz to 10 MHz ±0.7 dB
Bandwidth*:	Typical 1 Hz to >30 MHz @ -3dB
Crosstalk Isolation:	Minimum 50 dB at 3.58 Mhz
Input to Input Isolation	Typical 65 dB at 3.5 MHz
Gain:	Unity
Differential Gain/Phase:	Less than 0.5%/0.5°, with 10-90% picture level
Hum and Noise:	69 dB below 0.714 V p-p from 50 Hz to 5 MHz
Signal-to-Noise Ratio:	Greater than 70 dBrms typical unweighted, 15 kHz to 5 MHz
Video Switcher Frame Control Logic Input:	5 V TTL/CMOS level, twelve data bits per camera input and eight data bits per monitor output

ENVIRONMENTAL

Operating Temperature Range:	32 to 122ºF (0 to 50ºC).
Operating Humidity Range:	Up to 95% relative, non-condensing
Storage Temperature Range:	-40 to 150ºF (-40 to 65ºC)
Storage Humidity Range:	Up to 95% relative, non-condensing

*Single cross point condition between 1 camera to 1 monitor connection.

The Contractor shall schedule the video switch installation and notify the Department at least 48 hours in advance to minimize disruptions to the system and its users.

Basis of Payment: This work will be paid for at the contract unit price per lump sum for UPGRADE EXISTING ANALOG VIDEO SWITCH which price shall be payment in full for all labor, materials, and equipment required to remove the existing video switch, furnish and install the proposed video switch, integrate the proposed video switch into the existing system, configure the proposed video switch, and test the proposed video switch as described above, complete.

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VIRUS SOFTWARE

The Contractor shall provide comprehensive virus software with licenses for forty workstations, five laptops, and two servers.

The virus software shall include a three year subscription for automatic updates from the internet.

The virus software shall meet or exceed the following minimum specifications:

Active Protection

- Protects from viruses, Trojans and worms
- Blocks spyware and adware
- Scans files in real time (on access) and on demand
- Scans email messages (regardless of email client)
- Scans Internet traffic (regardless of browser)
- Protects instant messengers (ICQ, MSN)
- Provides proactive protection from unknown threats
- Scans Java and Visual Basic scripts

Preventive Protection

- Scans operating system and installed applications for vulnerabilities
- Analyzes and closes Internet Explorer vulnerabilities
- Disables links to malware sites
- Detects viruses based on the packers used to compress code
- Global threat monitoring

Advanced Protection & Recovery

- Program can be installed on infected computers
- Self-protection from being disabled or stopped
- Restores correct system settings after removing malicious software
- Contains tools for creating a rescue disk

Data & Identity Theft Protection

- Disables links to fake (phishing) websites
- Blocks all types of keyloggers

Usability

- Automatic configuration during installation
- Wizards for common tasks
- Visual reports with charts and diagrams
- Alerts provide all the information necessary for informed user decisions

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- Automatic or interactive mode
- Round-the-clock technical support
- Automatic database updates

Basis of Payment: This work will be paid for at the contract unit price per lump sum for VIRUS SOFTWARE which price shall be payment in full for all labor, materials, and equipment required to provide the virus software described above, install it on all proposed workstations, laptop computers, and servers, and configure the software to provide maximum functionality and protection, complete.

Acronyms & Definitions

ATMS	Advanced Traffic Management System
ATMS Operator	An operator of the ATMS
ATMS User	A user of published ATMS resources. Typically, this would include a user browsing published CCTV camera snapshot images or published traffic data.
CAD	Computer Aided Dispatch
CATV	Cable Television
CC	Communication Center
CCTV	Closed Circuit Television
CD	Compact Disc
CPU	Central Processing Unit
DVD	Digital Versatile Disc
DLP	Digital Light Projection
DPW	Department of Public Works
DMS	Dynamic Message Sign
ECC	Emergency Communications System
EPPS	East Peoria Public Safety
FTP	File Transfer Protocol
GIS	Geographic Information Systems
GPS	Global Positioning System
GUI	Graphical User Interface: a particular type of user interface used for interacting with a computer which uses graphical images and widgets
HRI	Highway Rail Interface
ID	Identification
IP	Internet Protocol
IP Address	A unique number assigned to a communication equipment that devices use in order to identify and communication with each other on a data communications network using IP

ITS	Intelligent Transportation System
LAN	Local Area Network: a computer network covering a local area like a home, office, or group of buildings
LCD	Liquid Crystal Display
MAC	Media Access Control (see MAC Address)
MAC address	Refers to the physical hardware address assigned to communication equipment by the equipment manufacturer
NTCIP	National Transportation Communications for ITS Protocol
ODBC	Open Database Connectivity
PC	Personal Computer
PDF	Portable Data File
PTZ	Pan/Tilt/Zoom
POTS	Plain Old Telephone Service
RTMS	Remote Traffic Microwave Sensor
RW	Read-Write
SQL	Structured Query Language: a computer language used to create, modify, retrieve, and manipulate data from a relation database
System Administrator	An administrator of the ATMS (IDOT Employee)
System Map	A major visual component of the ATMS. The system map contains highways and major arterials, major landmarks and features, and icons for field equipment and other traffic related information.
UPS	Uninterruptible Power Supply: a device to provide uninterruptible backup power In the event of a loss of primary power
VIPS	Video Image Processing System
WWV	Call letters for the Colorado based NTIS (National Technical Information Service) short wave transmitter that provides a time standard following an atomic clock.
XML	Extensible Markup Language

EQUIPMENT RENTAL RATES (BDE)
Effective: August 2, 2007 Revised: January 2, 2008

Replace the second and third paragraphs of Article 105.07(b)(4)a. of the Standard Specifications with the following:

"Equipment idled which cannot be used on other work, and which is authorized to standby on the project site by the Engineer, will be paid for according to Article 109.04(b)(4)."

Revised 02/20/2009

Replace Article 109.04(b)(4) of the Standard Specifications with the following:

"(4) Equipment. Equipment used for extra work shall be authorized by the Engineer. The equipment shall be specifically described, be of suitable size and capacity for the work to be performed, and be in good operating condition. For such equipment, the Contractor will be paid as follows.

a. Contractor Owned Equipment. Contractor owned equipment will be paid for by the hour using the applicable FHWA hourly rate from the "Equipment Watch Rental Rate Blue Book" (Blue Book) in effect when the force account work begins. The FHWA hourly rate is calculated as follows.

FHWA hourly rate = (monthly rate/176) x (model year adj.) x (Illinois adj.) + EOC

Where: EOC = Estimated Operating Costs per hour (from the Blue Book)

The time allowed will be the actual time the equipment is operating on the extra work. For the time required to move the equipment to and from the site of the extra work and any authorized idle (standby) time, payment will be made at the following hourly rate: 0.5 x (FHWA hourly rate - EOC).

All time allowed shall fall within the working hours authorized for the extra work.

The rates above include the cost of fuel, oil, lubrication, supplies, small tools, necessary attachments, repairs, overhaul and maintenance of any kind, depreciation, storage, overhead, profits, insurance, and all incidentals. The rates do not include labor.

The Contractor shall submit to the Engineer sufficient information for each piece of equipment and its attachments to enable the Engineer to determine the proper equipment category. If a rate is not established in the Blue Book for a particular piece of equipment, the Engineer will establish a rate for that piece of equipment that is consistent with its cost and use in the industry.

b. Rented Equipment. Whenever it is necessary for the Contractor to rent equipment to perform extra work, the rental and transportation costs of the equipment plus five percent for overhead will be paid. In no case shall the rental rates exceed those of established distributors or equipment rental agencies.

All prices shall be agreed to in writing before the equipment is used."

PAYMENTS TO SUBCONTRACTORS (BDE)

Effective: June 1, 2000 Revised: January 1, 2006

Federal regulations found at 49 CFR §26.29 mandate the Department to establish a contract clause to require Contractors to pay subcontractors for satisfactory performance of their subcontracts and to set the time for such payments.

Revised 02/20/2009

State law also addresses the timing of payments to be made to subcontractors and material suppliers. Section 7 of the Prompt Payment Act, 30 ILCS 540/7, requires that when a Contractor receives any payment from the Department, the Contractor shall make corresponding, proportional payments to each subcontractor and material supplier performing work or supplying material within 15 calendar days after receipt of the Department payment. Section 7 of the Act further provides that interest in the amount of two percent per month, in addition to the payment due, shall be paid to any subcontractor or material supplier by the Contractor if the payment required by the Act is withheld or delayed without reasonable cause. The Act also provides that the time for payment required and the calculation of any interest due applies to transactions between subcontractors and lower-tier subcontractors and material suppliers throughout the contracting chain.

This Special Provision establishes the required federal contract clause, and adopts the 15 calendar day requirement of the State Prompt Payment Act for purposes of compliance with the federal regulation regarding payments to subcontractors. This contract is subject to the following payment obligations.

When progress payments are made to the Contractor according to Article 109.07 of the Standard Specifications, the Contractor shall make a corresponding payment to each subcontractor and material supplier in proportion to the work satisfactorily completed by each subcontractor and for the material supplied to perform any work of the contract. The proportionate amount of partial payment due to each subcontractor and material supplier throughout the contracting chain shall be determined by the quantities measured or otherwise determined as eligible for payment by the Department and included in the progress payment to the Contractor. Subcontractors and material suppliers shall be paid by the Contractor within 15 calendar days after the receipt of payment from the Department. The Contractor shall not hold retainage from the subcontractors. These obligations shall also apply to any payments made by subcontractors and material suppliers to their subcontractors and material suppliers; and to all payments made to lower tier subcontractors and material suppliers throughout the contracting chain. Any payment or portion of a payment subject to this provision may only be withheld from the subcontractor or material supplier to whom it is due for reasonable cause.

This Special Provision does not create any rights in favor of any subcontractor or material supplier against the State or authorize any cause of action against the State on account of any payment, nonpayment, delayed payment, or interest claimed by application of the State Prompt Payment Act. The Department will not approve any delay or postponement of the 15 day requirement except for reasonable cause shown after notice and hearing pursuant to Section 7(b) of the State Prompt Payment Act. State law creates other and additional remedies available to any subcontractor or material supplier, regardless of tier, who has not been paid for work properly performed or material furnished. These remedies are a lien against public funds set forth in Section 23(c) of the Mechanics Lien Act, 770 ILCS 60/23(c), and a recovery on the Contractor's payment bond according to the Public Construction Bond Act, 30 ILCS 550.

Revised 02/20/2009

SUBCONTRACTOR MOBILIZATION PAYMENTS (BDE)
Effective: April 2, 2005

To account for the preparatory work and operations necessary for the movement of subcontractor personnel, equipment, supplies, and incidentals to the project site and for all other work or operations that must be performed or costs incurred when beginning work approved for subcontracting in accordance with Article 108.01 of the Standard Specifications, the Contractor shall make a mobilization payment to each subcontractor.

This mobilization payment shall be made at least 14 days prior to the subcontractor starting work. The amount paid shall be equal to 3 percent of the amount of the subcontract reported on form BC 260A submitted for the approval of the subcontractor's work.

This provision shall be incorporated directly or by reference into each subcontract approved by the Department.

PAYROLLS AND PAYROLL RECORDS (BDE)
Effective: March 1, 2009

FEDERAL AID CONTRACTS. Revise the following section of Check Sheet #1 of the Recurring Special Provisions to read:

"STATEMENTS AND PAYROLLS

The payroll records shall include each worker's name, address, telephone number, social security number, classification, rate of pay, number of hours worked each day, starting and ending times of work each day, total hours worked each week, itemized deductions made, and actual wages paid.

The Contractor and each subcontractor shall submit payroll records to the Engineer each week from the start to the completion of their respective work, except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall include an identification number for each employee (e.g., the last four digits of the employee's social security number.). The submittals shall be on the Department's form SBE 48, or an approved facsimile. When there has been no activity during a work week, a payroll record shall still be submitted with the appropriate box ("No Work", "Suspended", or "Complete") checked on the form."

STATE CONTRACTS. Revise Section IV of Check Sheet #5 of the Recurring Special Provisions to read:

"IV. COMPLIANCE WITH THE PREVAILING WAGE ACT

1. Prevailing Wages. All wages paid by the Contractor and each subcontractor shall be in compliance with The Prevailing Wage Act (820 ILCS 130), as amended, except where a prevailing wage violates a federal law, order, or ruling, the rate conforming to the federal law, order, or ruling shall govern. The Contractor shall be responsible to notify each subcontractor of the wage rates set forth in this contract and any revisions thereto. If the Department of Labor revises the wage rates, the Contractor will not be allowed additional compensation on account of said revisions.

2. Payroll Records. The Contractor and each subcontractor shall make and keep, for a period of three years from the date of completion of this contract, records of the wages paid to his/her workers. The payroll records shall include each worker's name, address, telephone number, social security number, classification, rate of pay, number of hours worked each day, starting and ending times of work each day, total hours worked each week, itemized deductions made, and actual wages paid. Upon two business days' notice, these records shall be available, at all reasonable hours at a location within the State, for inspection by the Department or the Department of Labor.

3. Submission of Payroll Records. The Contractor and each subcontractor shall submit payroll records to the Engineer each week from the start to the completion of their respective work, except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall include an identification number for each employee (e.g., the last four digits of the employee's social security number). The submittals shall be on the Department's form SBE 48, or an approved facsimile. When there has been no activity during a work week, a payroll record shall still be submitted with the appropriate box ("No Work", "Suspended", or "Complete") checked on the form.

   Each submittal shall be accompanied by a statement signed by the Contractor or subcontractor which avers that: (i) such records are true and accurate; (ii) the hourly rate paid to each worker is not less than the general prevailing rate of hourly wages required by the Act; and (iii) the Contractor or subcontractor is aware that filing a payroll record that he/she knows to be false is a Class B misdemeanor.

4. Employee Interviews. The Contractor and each subcontractor shall permit his/her employees to be interviewed on the job, during working hours, by compliance investigators of the Department or the Department of Labor."

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PROPOSED ITS SYSTEM HARDWARE

In the event that the proposed ATMS system requires additional hardware and/or software, the Contractor shall provide the software and/or hardware to the Department as his or her expense. The Contractor shall submit catalog cut sheets for each item along with a description of the item and its required functionality within the system to the Department for review and approval prior to procurement. The Contractor shall furnish, configure, install, test, and integrate the additional components into the system to provide a fully functional and operational system.

Additionally, if the proposed ATMS system requires additional file/application servers and/or web servers in excess of the pay item quantities, the Contractor shall provide these to the Department at his or her expense. The pay items quantities will not be adjusted for additional items. These items shall be subject to the performance specifications contained within this document.

This work will not be paid for separately, but shall be included in the contract bid price for ATMS SOFTWARE (CORE MODULE).

EAST PEORIA PUBLIC SAFETY BUILDING NODE

The Contractor shall furnish the following items and deliver them to the Department.

- 32" Commercial LCD Monitor – Qty. 1

  The LCD monitor shall be a Samsung Syncmaster 320PX or approved equal that meets or exceeds the following minimum specifications:

  General

  Product Type: 32 in LCD flat panel display, Commercial Grade
  Warranty: 3 Year
  Video Interface: S-Video , Component , Composite
  PC Interface: DVI , VGA (HD-15)
  Dimensions With stand: Width 30.7 in Depth 8.8 in Height 20.8 in
  Weight: 37.5 lbs
  Enclosure Color: Black

  Display

  Diagonal Size: 32 in – Widescreen
  Resolution: 1366 x 768
  Display Format: 720p
  Image Aspect Ratio: 16:9
  Color Depth: 24-bit (16.7 million colors)
  Brightness (cd/m2): 450 cd/m2
  Widescreen Modes: Zoom, Auto Wide, Zoom 16:9, Conventional 4:3
  Viewing Angle: 178 degrees

Viewing Angle (Vertical): 178 degrees
Pixel Response Time: 8 ms
Max V-Sync Rate: 85 Hz
Max H-Sync Rate: 70 KHz
Color Temperature Control: Yes (Warm1/Warm2/Normal/Cool1/Cool2)
Picture Adjustment: Standard/Dynamic/Movie/Custom
Additional Features: Clock , On-screen menu , Video noise reduction , Picture by picture (PBP) , Multiple Display Control (MDC) , DNIe (Digital Natural Image engine)

TV Tuner

Multi-channel Preview: PBP , Picture-in-picture (PIP)

Video Features

Input Video Formats: 720p , 1080i
Supported Computer Resolutions: 640 x 350 , 720 x 400 , 832 x 624 , 1360 x 768 , 640 x 480 (VGA) , 1024 x 768 (XGA) , 800 x 600 (SVGA)

Remote Control

Remote Control: Remote control - Infrared

Audio System

Sound Output Mode: Stereo
Surround Mode: Yes
Sound Effects: SRS TruSurround XT
Audio Controls: Bass , Treble , Balance
Speakers Included: Speakers not included
External Speakers: Amplifier Power (Total) 20 Watt
Additional Features: Balance control , Bass & treble control
Speaker(s): 2 x Right/left channel speaker - External - 10 Watt

Connections

Connector Type: 2 x Serial (9 pin D-Sub) - Rear , 1 x DVI-HDCP (24 pin digital DVI) - Rear , 1 x VGA input (15 pin HD D-Sub (HD-15)) - Rear , 1 x Audio line-in (Mini-phone stereo 3.5 mm) - Rear , 2 x Audio line-in (RCA phono x 2) - Rear , 1 x Component video input (BNC x 5) - Rear , 1 x Component video output (BNC x 5) - Rear , 1 x Audio line-out (RCA phono x 2) - Rear , 1 x Composite video input (BNC) - Rear , 1 x Composite video output (BNC) - Rear , 1 x S-Video input (4 pin mini-DIN) - Rear , 1 x S-Video output (4 pin mini-DIN) - Rear , 1 x Speakers output (Click-fit x 2) - Rear

Stands & Mounts

Stand Included: Yes
Stand Design: Tabletop
Flat Panel Mount Interface: 200 x 200 mm

Compliances

Compliant Standards: DDC-2B

Miscellaneous

Cables Included: 1 x VGA cable , 1 x Speaker cable , 1 x RCA-BNC adapter

Power

Power Device: Power supply - Internal
Power: AC 120/230 V
Power Consumption Stand by / Sleep: 1 Watt
Power Consumption Operational: 160 Watt
Battery: None

Dimensions & Weight Details

Dimensions & Weight Details: Panel without stand - 30.7 in x 4.2 in x 19 in

Dimensions & Weight (Shipping)

Width (Shipping): 35.4 in
Depth (Shipping): 10.3 in
Height (Shipping): 23.6 in
Weight (Shipping): 44.1 lbs

- Video Quad Splitter (Rack Mounted) – Qty. 1

  The video quad splitter shall be a rack mounted Vicon Model V5400QS or approved equal that meets or exceeds the following minimum specifications:

  Video Signal

  Television System: NTSC/PAL standard 2:1 interlace.
  Video Inputs: 4 inputs from cameras, 1 input from VCR.
  Video Input Signal: 1 V p-p composite video, 75 ohms.
  Video Input Termination: Switch provided, 75 ohm on/off per channel. Nonlooping: 75 ohm.
  Looping: High-impedance.
  Video Outputs: 4 looping outputs from camera inputs. 1 output to monitor. 1 output to VCR.
  Video Output Signal: 1 V p-p, 75 ohm.
  Refresh Rate: 30 frames/second for each input (120 fps total).
  Resolution: Full Screen: 500 TV lines.
  Quad Screen: 325 TV lines.
  Digital Memory: NTSC: 720 x 480. PAL: 720 x 512.

Electrical

Input Voltage: 12 VDC; universal power supply provided.
Current Drain: 1.5 A
Power Consumption: 18 W, max.
Heat Equivalent: 1.0 btu/min. (0.26 kg-cal/min).
Power Supply: Input: 120/230 VAC.
Output: 12 VDC, 1 A. Standard DC jack. Plugs into a standard outlet; includes 6 ft (1.8 m) output cord with connector for V5400QS.

Alarm

Alarm Inputs: 4 hardwired alarm inputs (normally open or normally closed) for each video channel. Video loss and motion detection are programmable.
Alarm Output: 1 (normally open or normally closed) contact output; goes active in response to a hardwired input on any camera channel.
Video loss: screen goes blue, an audible alarm sounds and VD Loss appears on the screen.
Motion Detection: an indicator appears on screen

Video Features

Display Modes: Quad screen display: four quadrants separated by a selectable border with individual titles.
Full screen: video from single camera input with title.
Auto-Sequencing: video input from each camera displays for specified dwell time.
PIP: picture-in-picture adjustable position display.
VCR playback: single screen display.
2× digital zoom: allows zooming in to picture.
Sequencing Dwell: Camera displays can be programmed for a specified dwell time of 1 - 999 seconds.
Camera Titles: Each camera may have an individual title of up to 10 characters from a character set of upper case alphabet and numbers 0-9.
Output to VCR: Video output to VCR is always quad screen display.
Input from VCR: VCR may be played back through V5400QS and is full screen; 2× digital zoom available.
Looping Outputs: Each camera has a looping video output that may be connected to other equipment. Video that is looped out must be terminated with 75 ohms at the last video device in line.

Controls and Connectors

Front Panel Controls: VCR/PIP/ENTER: selects VCR/PIP for display on monitor (requires use of SHIFT); ENTER in MENU mode. MENU/ZOOM: goes to MENU setup screens or 2x2 zoom function (requires use of SHIFT). AUTO/QUAD: enables quadrant display or initiates auto-sequencing (requires use of SHIFT). CH1/ : displays camera 1 full screen; in programming, moves cursor up and selects entries. CH2/ : displays camera 2 full screen; in programming, moves cursor down and selects entries. CH3/ :

displays camera 3 full screen; in programming, moves cursor left and selects entries. CH4/ : displays camera 4 full screen; in programming, moves cursor right and selects entries. Arrow keys also position PIP display. When programmed ON, an audible click is sounded upon key press.

Controls and Connectors (rear Panel)

Connectors: Video Inputs: 4 BNCs.
Video Outputs: 4 BNCs.
Monitor Output: 1 BNC.
VCR Input: 1 BNC.
VCR Output: 1 BNC.
Alarm In and Out: 9-pin D-sub connector video input and one output.
Power Input: concentric pin-type jack.
Power: Switch.
Termination: 4-position DIP switch, 75 ohm ON/OFF (high-low).

Mechanical

Dimensions: Height (H): 2.1 in. (52 mm).
Width (W): 9.4 in. (238 mm).
Depth (D): 8.2 in. (208 mm).
Weight: V5400QS: 2.9 lb (1.3 kg).
Power Supply: 0.2 lb (0.09 kg).
Rack Mount: 0.1 lb (0.05 kg)

Mounting

Type: Rack Mounted, Includes all brackets and hardware required for rack mounting

Environmental

Operating Temperature Range: 32 to 122° F (0 to 50°C).
Operating Humidity: Up to 90% relative, noncondensing.

- CCTV Control Keypad – Qty. 2

  The control keypad shall be a Vicon Model V1410X-DVC.

- Monitor Stands – Qty. 2

  The monitor stand shall be a Spacedec Model 30-100-D28-B11 flat panel stand for two LCD monitors that meets or exceeds the following minimum specifications:

  Weight Capacity: Holds monitors 20 pounds or less each, up to 23"

  VESA: 75x75mm or 100x100mm VESA compatible

Pivot: 20° up / 10° down

Capacity: Ability to add up to two more monitors

Adjustment: Quick set-up with tool-less adjustment and installation

Base: 16" wide x 10" deep base

Construction: Cast aluminum construction

Cable Management: Velcro strap cable management system

Color: Black

Warranty: Lifetime Warranty

- Computer Cables – Qty. 2 of Each Cable Type Listed

  The cables shall be furnished by Cables to Go or another approved manufacturer that specializes in computer cable products.

  Required Cable Types: Monitor (SVGA and DVI), PS/2 Mouse, PS/2 Keyboard, USB

  Length: 30 ft. (all cables)

- Steel Workstation Stand – Qty. 1

  The workstation stand shall be a Mayline Group 24" e*LAN server station Model Number 21124 or approved equal the meets or exceeds the following minimum specifications:

  Included Components: 24"W framework; (2) 24"W x 18"D shelves, (1) 24"W x 30"D work surface and (1) 24"W x 29½"D server shelves

  Frame: 1" x 2" 14-Gauge cold-rolled steel tubing; tested to 1000 lbs. per 24" frame without failure

  Shelves: Thermally-fused melamine over .75" thick x 47 lb. density particle board core; Adjustable in 2" increments; Lower shelf accommodates servers up to 27" high

  Shelf Support: 14-Gauge steel with two .250" diameter holes on 2" centers

  Work Surfaces: Thermally-fused 1"-thick melamine with 45 lb. density particle board core

  Paint Finish: High solids polyester, baked enamel finish. Graphite is standard.

Basis of Payment: This work will be paid for at the contract unit price per each for EAST PEORIA PUBLIC SAFETY BUILDING NODE which price shall be payment in full for all labor, materials, and equipment required to provide the equipment described above and deliver it to the Department.

DIGITAL VIDEO DECODER

The Contractor shall furnish a video decoder and deliver it to the Department.

Video Encoder:

The video decoder shall be a Coretec Model VCX2400-D-R (or approved equal) for integration with the existing ITS system.

The video decoder shall meet or exceed the following minimum specifications:

Input Power:
110 VAC, 60 Hz

Compression:

MPEG II, variable frame rate and resolution, D1 720hx480v NTSC
Frame Rate: 30 fps

Inputs:
Video: NTSC Composite
Data/Status: RS-232/422/485
Data Rate: to 38.4 kbps

Outputs:
Video and Status: EIA-530 at DS-1 rate

Connectors:

Video: BNC
Status/Control: DB-25, RJ-45

Network Parameters:

Data Rate: 1.0 to 8.0 Mbps
Ethernet: RJ-45
Interface: 10/100 Base T
Protocols: UDP, IP, IGMP, Multicast

Environmental:

Temperature: -20°C to +70°C
Humidity: 0-95% non-condensing

Basis of Payment: This work will be paid for at the contract unit price per each for DIGITAL VIDEO DECODER which price shall be payment in full for all labor, materials, and equipment required to provide the video decoder described above and deliver it to the Department.