# Video Surveillance Bid

## Published: November 8, 2021

## Due: November 22, 2021

Proposals should be completed according to the instructions and returned to our office by the specified time and date. Return only the pages you have filled out and please include any conditions (example: minimum order, payment terms etc.). Please take note of the due date of November 22, 2021 @ 5pm EST (Local Time). TERMS OF AGREEMENT Shall commence on **January 1, 2022 through August 30, 2022**, unless terminated or canceled. This contract may be extended by mutual written agreement.

QUOTATIONS- Shall be properly executed on time by November 22, 2021, at 5pm EST (Local Time) and will be received by ADAM COLLIER in accordance with the conditions as set forth and the specifications as established. If any item is unclear, contact HAMILTON LOCAL SCHOOLS for clarification. Quotations including the required signature forms and pricing must be submitted via mail to:

HLSD Treasurer Adam Collier
Video Surveillance Bid
775 Rathmell Road
Columbus, Ohio 43207

PART 1 - GENERAL

1.1 SUMMARY

A. These specifications outline the acceptable characteristics for materials and equipment and define, in general terms, the configuration of the security system technologies to be installed and made fully operational by the selected Security System Contractor (Contractor) of the Video Management System (VMS) for Hamilton Local School (Owner).

B. Contractor shall have total “turn-key” responsibility (except where noted) for ensuring the system is installed complete and functional, consistent with the manufacturer's specifications and that all applicable fire, electrical, and building codes and standards are met. Where required by the various codes, the vendor is responsible to obtain the necessary approval(s) of the Authority Having Jurisdiction (AHJ).
   1. Owner shall provide all network cabling under separate contract in coordination with the selected Contractor for the new Video Management System.
   2. System shall reside on its own separate and dedicated security video network, however, at the direction of the Owner, bridged to the school’s network for local viewing on dedicated workstations.

C. Section includes a video surveillance system consisting of cameras, network video servers, software, monitors, PoE network switches, workstations, camera mounts, surge protection which are all provided, installed and programmed by the selected Contractor.

D. Any aspect of these specifications, or future addendum, which appears to the Contractor to fall outside applicable codes or standards, shall immediately be brought to the attention of the Owner.

E. Contractor shall remove and turn over to the Owner, all existing legacy camera devices that will no longer be used. Old coaxial cable shall be abandoned in place.

F. All work shall be closely coordinated with the school system EdTech Coordinator to include mobilization, scheduling milestones, installation schedules, project close-out, system testing and commissioning and turn over.

## 1.2 GENERAL REQUIREMENTS

A. The specified product shall be an open video platform designed for use in any video application.

B. The specified VMS software shall be a one-time license cost per channel and include, free of charge, any and all software updates, API or SDKs necessary to integrate 3rd party devices and systems.

C. Lifetime software upgrades shall be provided by the Manufacturer without cost and without the need for an annual maintenance agreement or ongoing licensing costs.

D. The specified Video Management solution's architecture should include Server/Storage, Mobile, and Cloud applications. Desktop software shall also be provided to the Owner to be loaded on identified existing workstations.

E. Contractor shall reference floor plans and site plans depicting camera locations, type, model number and anticipated field of view for each camera.

## 1.3 QUALITY ASSURANCE

A. Manufacturer Qualifications: Minimum 5-year experience manufacturing similar products.

B. System Integrator shall provide the following as part of the System Solution:
   1. Complete product and technical data specification sheets that include all material and equipment and shall be available freely online.
   2. A bill of material of all equipment with part numbers, manufacturer, firmware, and assigned IP addresses.
   3. Locations and details for all components to be installed under this scope of work.
   4. Placement Diagram showing the proposed location of all system hardware devices.
   5. System Calculation of all network bandwidth and storage requirements for System Servers to ensure proper planning of computing and networking infrastructure.

C. Installer Qualifications: Minimum 2-year experience installing similar products. Installers shall be trained and authorized by the Manufacturer to install, integrate, test, and commission the system.
   1. Installer working on this project must possess a valid certificate from the equipment manufacturer verifying completion of Installation and Service Training.

D. Installing contractor shall provide at least 3 examples of projects of similar size and scope to include:
   1. Project name
   2. Project locations
   3. Project description
   4. Contact name, email address and phone number

E. Complete product and technical data specification sheets that include all material and equipment shall be provided by the System Integrator and be available freely online.

F. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

G. Electronic data exchange between video surveillance system with an access-control system shall comply with SIA TVAC.

## 1.4 PROPOSAL SUBMITTALS

A. Follow all requirements noted on the Form of Proposal

B. Submit Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Manufacturer’s printed or electronic data sheets.
   2. Manufacturer’s installation and operations manuals.
   3. Manufacturer’s warranty information.

C. Include a complete Bill of Material to with individual device counts by model number, mounts, servers, storage, data switches and other required appurtenances required for an end-to-end fully functional video management system.
   1. Provide a complete breakout of all materials and labor per school facility so that the school system can determine if all or some of this project shall be implemented based on the overall costs.
      a) Administrative Building
      b) Elementary School Building
      c) Intermediate School Building
      d) Middle School Building
      e) High School Building

D. Include details of construction, interface of equipment, and relationship with adjacent construction (if applicable).
   1. Provide server and storage specifications and storage calculations with estimated video retention time per server based on the requirements as outlined within these specifications.
   2. Provide installation diagrams and pertinent information for all devices, i.e. rack space for recorders, power requirements, rough-ins, etc. Existing racks shall be used for all networking equipment and server/storage devices.
   3. Provide a spreadsheet detailing each camera, model, IP and MAC address, firmware, included mounts and other hardware as needed.

## 1.5 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For cameras, power supplies, network recorders (server/storage), to include in emergency, operation, and maintenance manuals.

B. Lists of spare parts and replacement components recommended to be stored at the site for ready access (if applicable).

C. Complete hardcopy printout and electronic copy from the system Device Manager which outlined system and camera configuration, which includes camera model number, IP address, and MAC address, image and other system settings.

D. As-built drawings on facility floor plans showing camera installed location, wiring and cable routes, termination points, and other system drawing needs to meet the owner's requirements.

## 1.6 DISCLOSURE OF NON-CONFORMING EQUIPMENT

A. Project owner desires to make an informed decision regarding the Contractor's proposed project approach, mobilization, staging and overall implementation schedule of tasks.

B. Contractor is required to disclose, separate from any cut or advertising sheets, any functional, operational, or electrical requirements of these specifications that they are not able to perform, and/or which fall outside the scope of their quotation.

C. The form of this disclosure shall be by letter clearly identifying these noncompliant items and describing how the Contractor intends to address these issues.

D. Absent such disclosure, Contractors shall be responsible for ensuring that their systems will fully operate as outlined in these specifications without additional cost to the owner or other parties.

E. Contractor may elect to provide an alternate design approach if cost savings could be realized. This approach shall be clearly outlined within their submittal and should not consider any sacrifice of system functionality or capacity.

## 1.7 ONGOING SUPPORT AND WARRANTY

A. The VMS software and labor furnished by the integrator including software, hardware and third-party products shall be fully warranted for parts, materials and labor for a minimum of 1 year from date of the final acceptance of the Video Surveillance System.

B. Manufacturer shall provide a limited 5-year warranty for the product (cameras and server/storage devices) to be free of defects in material and workmanship

C. Software licensing should be on a per device basis (e.g., 1x license for 1 IP Camera or I/O device) with no base license for additional features or capabilities.
   1. The VMS Software should be completely free for live streaming or playback of offline media files (images, videos).
   2. Lifetime software upgrades shall be provided by the Manufacturer without cost and without the need for an annual maintenance agreement.

## 1.8 DEFINITIONS

A. AGC Auto Gain Control

B. AES Advanced Encryption Standard

C. API Application Programming Interface

| | | |
|---|---|---|
| D. | ARP | Address Resolution Protocol |
| E. | AWB | Auto White Balance |
| F. | BLC | Back light compensation |
| G. | CBR | Constant Bit Rate |
| H. | CVBS | Composite Video Blanking and Sync |
| I. | DHCP | Dynamic Host Configuration Protocol |
| J. | DNR | Digital Noise Reduction |
| K. | DNS | Domain Name Server |
| L. | DDNS | Dynamic Domain Name Server |
| M. | DSCP | Differentiated Services Code Point |
| N. | fps | frames per second |
| O. | FTP | File Transfer Protocol |
| P. | GOV | Group of Video |
| Q. | GUI | Graphical User Interface |
| R. | HD | High Definition |
| S. | HTTP | Hypertext Transfer Protocol |
| T. | HTTPS | Secure HTTP |
| U. | ICMP | Internet Control Message Protocol |
| V. | IGMP | Internet Group Management Protocol |
| W. | IP | Internet Protocol |
| X. | IR | Infrared |
| Y. | JPEG | Joint Photographic Experts Group |
| Z. | LAN | Local Area Network |
| AA. | LED | Light Emitting Diode |
| BB. | LDC | Lens Distortion Correction |
| CC. | LLDP | Link Layer Discovery Protocol |

| | | |
|---|---|---|
| DD. | LPR | License Plate Recognition |
| EE. | MJPEG | Motion JPEG |
| FF. | MP | Megapixel |
| GG. | MPEG | Moving Pictures Experts Group |
| HH. | NAS | Network Attached Storage |
| II. | NTP | Network Time Protocol |
| JJ. | NVR | Network Video Recorder |
| KK. | PIM-SM | Protocol Independent Multicast-Sparse Mode |
| LL. | PoE | Power over Ethernet |
| MM. | PPPoE | Point to Point Protocol over Ethernet |
| NN. | QoS | Quality of Service |
| OO. | RTP | Real-Time Transport Protocol |
| PP. | RTCP | Real-Time Control Protocol |
| QQ. | RTSP | Real-Time Streaming Protocol |
| RR. | SDK | Software Development Kit |
| SS. | SFP | Small Form Factor Pluggable |
| TT. | SMTP | Simple Mail Transfer Protocol |
| UU. | SNMP | Simple Network Management Protocol |
| VV. | SSDR | Super Smart Dynamic Range |
| WW. | SSNR | Super Smart Noise Reduction |
| XX. | SSL | Secure Sockets Layer |
| YY. | TCP | Transmission Control Protocol |
| ZZ. | UDP | User Datagram Protocol |
| AAA. | UPnP | Universal Plug and Play |
| BBB. | VBR | Variable Bit Rate |
| CCC. | VMS | Video Management System |

DDD. WDR Wide Dynamic Range

## 1.9 REFERENCE STANDARDS

A. Abbreviations

1. Network - IEEE
   a) 802.3 Ethernet Standards
   b) 802.1x Port-based Network Access Control
   c) IPv4 IP addressing version 4
   d) IPv6 IP addressing version 6
   e) QoS Quality of Service
2. Video
   a) ISO / IEC 23008-2:2013, MPEG-H Part2 (ITU H.265, HEVC)
   b) ISO / IEC 14496–10, MPEG-4 Part 10 (ITU H.264)
   c) ISO / IEC 10918 – JPEG
   d) ONVIF – Profiles S, G, T
3. EMC & Safety
   a) FCC 47 CFR Part 15 Subpart B
   b) ANSI C63.4-2014 Class A
   c) IC Regulation ICES-003:2016
   d) ANSI C63.4-2014 Class A
   e) CE EMC-Directive 2014/30/EU
   f) EN 55032:2015 Class A
   g) EN 50130-4:2011+A1:2014
   h) VCCI-CISPR 32: Class A
   i) AS/NZS CISPR32:2015 Class A
   j) UL listed
   k) CE EN 50581:2012 (hazardous substances)
4. Safety
   a) UL listed
   b) CE EN 50581:2012 (hazardous substances)
5. Ingress Protection and Vandal Resistance
   a) ANSI / IEC60529 – Degrees of Protection Provided by Enclosures – IP52
   b) IEC EN 62262 - Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts: IK10
   c) IEC 60068-2-75: IK10

B. Definitions

1. GOV (Group of Video object planes) - A set of video frames for H.264 and H.265 compression, indicating a collection of frames from the initial I-Frame (key frame) to the next I-Frame. GOV consists of 2 kinds of frames: I-Frame and P-Frame.

2. Dynamic GOV – Dynamic assignment of GOV length based on the complexity of the scene to efficiently manage bitrate of the video stream and reduce the storage required.

3. Multi-exposure wide dynamic range - Operation which automatically adjusts shutter speed to provide a wide range between dark and light areas visible at the same time, preventing backlighting issues. Long exposure is used for dark areas and a short exposure is used in light areas.

4. Dynamic fps – Dynamic assignment of fps (frames per seconds) based on the movement of object(s) in the scene to efficiently manage bitrate of the video stream and reduce the storage required.

5. Smart Codec – Smart Codec that controls quantization parameter and dynamic fps in H.265 and H.264 to efficiently manage bitrate of the video stream and reduce the storage required.

## PART 2 - PRODUCTS

### 2.1 GENERAL

A. All equipment and materials used shall be standard components that are regularly manufactured and used in the manufacturer's video management system.

B. All systems and components shall have been thoroughly tested and proven in actual use.

C. All products provided shall meet the National Defense Authorization Act (NDAA) compliancy requirements which addresses the prohibited use of certain video surveillance telecommunications services, equipment and components manufactured by specific vendors.

D. All multi-sensor camera devices shall have only one CATX network drop and one camera license on the VMS platform.

E. Surge Protection: Protect components from voltage surges originating external to equipment housing and entering through power, communication, signal, control, or sensing leads. Include surge protection for external wiring of each conductor's entry connection to components.

### 2.2 DEVICE MANAGER

A. Provide and install on the client's system, the selected solutions camera system Device Manager to manage video surveillance devices in network including IP cameras, encoders, decoders, NVRs and DVRs by enabling users to remotely configure multiple devices simultaneously.

B. The software shall support backing up and restoring configuration data from multiple cameras. Backup file name shall include model number, IP address, and MAC address, and shall be user editable. Backup and restore shall be performed in parallel or sequential mode, and at a user desired relative or absolute time. The software shall support restoring a single configuration to multiple devices.

C. The software shall support setting camera image menu adjustments including SSDR, white balance, backlight compensation, exposure, day/night, special, & OSD. Image adjustments shall be performed and displayed on a selected camera immediately, and to other selected cameras per model upon selection.

D. VMS software shall be free of charge with no annual licensing or renewals.

### 2.3 CAMERA INTELLIGENCE AND ANALYTICS

A. Cameras shall have a suite of integral intelligent operations and analytic functions at no additional cost to the end-user as outlined in products noted within this section.

## 2.4 CAMERA SOFTWARE

A. The camera shall have a built-in web server which supports browser-based configuration using Internet Explorer, Google Chrome, Mozilla Firefox, and Apple Safari from a PC or Mac.

B. The web viewer shall provide a monitoring screen which displays live camera video and simultaneously provides same-screen access to the following functions:
   1. Live view window size
   2. Resolution setting
   3. Image (snapshot) capture
   4. Manual recording to SD or NAS
   5. Audio/microphone control
   6. Access recorded data playback and camera configuration menus
   7. Digital PTZ

C. The web viewer shall provide a playback screen which provides access to the following functions:
   1. Recorded data search using date and time range
   2. Recorded data search using event type
   3. Play a recorded video by event triggering
   4. Set resolution
   5. Play audio if present
   6. Generate a backup copy of saved video data

D. The web viewer shall provide a setup screen which provides access to the following configuration settings and functions in the camera:
   1. Digital video profile to include compression type, maximum or target bit rate, frame rate, multicast parameters, crop encoding area
   2. User profile to include password, access level, authentication
   3. Date and time
   4. Network settings and IP version
      a) DDNS
      b) SSL/TLS, including certificate management
      c) 802.1x authentication
      d) Quality of Service settings
      e) SNMP to include version selection and settings
      f) Auto configuration
   5. Video setup
      a) Flip / mirror mode
      b) Video output type
      c) Privacy zone
   6. Audio setup to include source, audio codec type, gain, and bit rate
   7. Camera settings to include image preset, sensor frame capture, dynamic range, white balance, back light, exposure, day/night operation, on-screen display, IR illumination, sharpness, contrast, color level, lens distortion correction.
   8. Event detection setup to include notification parameters, recording rules, time schedule, tamper protection, motion detection, event triggers
   9. System function to include reboot, upgrade, check system and event logs, application (SDK) management
   10. View profile information

E. Client requirements

1. Recommend Browser: Chrome
2. Acceptable Browser: Chrome, Safari, Firefox, MS Edge (chromium based)
3. Acceptable Operating Systems: Windows, MAC, Android, iOS, Chrome
4. Verified Environment:
    a) Windows 10 : Google chrome version 80 above, Firefox version 72 above, MS Edge version 83 above
    b) Mac 10.13/14: Safari version 11.0.1 above

F. Decoding performance in web viewer depends on CPU/GPU performance of user

## 2.5 CAMERA GENERAL DESCRIPTION

A. Cameras shall be used to capture clear security video images at interior and exterior locations in some cases using integrated IR-sensitive sensors appropriately rated for the environment and vandal resistance.

B. Video Compression and Transmission – The camera shall have the following properties relating to the video signals it produces. For the purposes of this project, compression used shall be H.265 to also include Smart Codec implementation.
1. H.265, H.264 and MJPEG compression, each derived from a dedicated encoder and capable of being streamed independently and simultaneously
2. H.265 and H.264 – frame rates to maximum 30 fps (60 Hz) / 25 fps (50 Hz) at all resolution
3. MJPEG – frame rates to maximum 15 fps (60 Hz) / 12 fps (50 Hz) at all resolution

C. Interoperability – The camera shall be ONVIF Profile S / G and T compliant.

D. System cameras shall be appropriately IP (ingress protection) and IK (vandal resistance) rated for the environment.

## 2.6 VIDEO SERVERS

A. Video Management System shall consist of a standard server/storage solution for the recording and retention of security video for use in both real-time and forensically for investigative purposes.

B. Provide all channel licensing for each server recording device.

C. Configure the system and all facilities and configure any failover settings with the Owner.

D. Integrate existing VMS recorder at High School Athletics facility into the new VMS system

E. Intermediate, Middle and High School servers for shall minimally have the following characteristics:

1. RAW storage based on recording and retention requirements outlined after disk formatting & JBOD configuration,
2. 470 Mbps recording B/W,
3. 16GB RAM,
4. MiniDP output,
5. Keyboard and mouse included,
6. Rail kit included

7. RAW storage based on recording and retention requirements outlined after disk formatting & JBOD configuration,
8. Supports: 16 channels with 16 PoE/PoE+ ports (PoE Budget 200W),
9. H.264/H.265/MJPEG,
10. HDMI/VGA output,
11. Dual GbE NICs rack-mountable

F. STORAGE SIZING

1. Contractor shall appropriately size each of the servers and storage to minimally meet the following requirements:
    a. Configured JBOD,
    b. 30-days immediately accessible on-board recording to review recorded events.
    c. Storage shall be configured at minimally 40% motion, recorded at the cameras highest resolution at a minimum of 10-frames per second.
    d. Recording resolution at H.265 with smart codec compression enabled.
    e. Provide for minimally ~15% overhead storage to allow for failover configuration from other server/storage devices on the in the system.
    f. Contractor shall provide with their bid proposal, all calculations so that the owner can easily see how the storage was calculated.

G. VIDEO MANAGEMENT SYSTEM (VMS) OVERVIEW

1. VMS: For remote devices and sensors Software Components shall be of the most current commercially available version at the time of system turnover.
2. System shall be an open platform solution specifically designed for use in a security video application.
3. The System shall be comprised of four (4) applications which work together seamlessly and at no addition cost or licensing to the end-user.
    a. Cloud - a cloud application that enables simple remote connectivity, viewing, and management of an unlimited number of systems and users.
    b. Server - a media server responsible for discovering, connecting to, and managing system users, devices, and associated data.
    c. Desktop - a desktop application capable of acting as a stand-alone media player or as a client application for connecting to and managing systems.
    d. Mobile - a mobile application for iOS and Android devices that allows users to connect to, view, search, and control IP cameras over Wi-Fi or Data networks.

H. VMS DEVELOPER & INTEGRATION TOOLS

1. The VMS shall have built-in developer tools which are accessible from any System Server's Web Admin Interface (compatible with all major browsers) and should include, at a minimum:
    a. Generic Events Generator - a tool which helps build HTTP Generic Event calls, a method of sending events from 3rd party systems to the VMS, which can be used to trigger system actions in the VMS.
    b. Server API implementation that gives developers the ability to access every system feature available.
    c. API Change Log - list of breaking changes in API from version to version Video Source Integration SDK - provides the ability to integrate virtually any live or recorded video source (IP Cameras, NVRs, DVRs, etc.) into the VMS with methods for discovering, displaying, analyzing and recording video, as well as integrating device I/O ports and related motion detection information.

d. Storage SDK - provides the ability to integrate potential storage into System. It allows developers to read from or write to any storage location: local, remote, and even cloud one. Creating a storage plugin requires implementing standard functions such as: I/O stream, if file exist, delete file, list of files in the folder, etc. Storage SDK also contains an example for using an FTP server as a storage location.

I. VMS SYSTEM ARCHITECTURE:

1. The VMS shall have an Architecture wherein:
   a. All servers in a system are equal and synchronize system databases in real-time.
   b. A user can connect to any system server to see and manage the entire system.
   c. Servers support automatic camera failover to ensure limited loss of video recording in the event of hardware or network failure at no additional cost to the end-user.

J. The VMS will not require any licenses to increase the number of supported devices, users, or servers.

K. The system shall support scaling to support the maximum recommended system sizes shown below. The system shall support exceeding these recommended maximums by consulting with engineering support.

1. The system shall support a maximum of 100 Servers in a system.
2. The system shall support a maximum of 10,000 resources in a system.
3. The system shall support a maximum of 1,000 concurrent users in a system.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

A. Examine pathway elements intended for cables. Check raceways and other elements for compliance with space allocations, installation tolerance, hazards to camera installation, and other conditions affecting installation.
   1. Any conditions that are not satisfactory must immediately brought to the attention of the Owner.

B. Examine roughing-in and rack-space for LAN, WAN, and IP network before device installation.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 VIDEO SURVEILLANCE SYSTEM INSTALLATION

A. Provide and install all equipment, software, materials, and labor to include system programming for a completely operational video management system described herein an included on the camera layout plan. These specifications and project drawings are complementary in describing the design intent of the security video management system.

B. Closely coordinate camera and server(s) installation with the Owner to include schedules, building access and all other necessary facility security requirements.

C. Verify each camera placement in advance with the Owner to assure optimum camera viewing with consideration to camera protection from vandalism.

D. Install cameras and other appurtenances level and plumb for a high quality, workman-like installation.

E. Install cameras with 84-inch- minimum clear space below cameras and their mountings. Change type of mounting to achieve required clearance.

F. Install power supplies and other auxiliary components at control stations unless otherwise indicated.

G. Aim and completely configure cameras as directed by owner.

H. In advance of system programming, meet with the Owner to review all camera programming parameters, configuration and settings to include:
   1. Program camera system head end. Provide unique on-screen camera identification for all cameras with the following nomenclature.
   2. Program all individual camera settings to assure optimum performance to include Analytics, Wide-Dynamic Range, Low Light, Vari-Focal lens and other camera settings.
   3. Configure all workstation and mobile applications for Owner.
   4. Configure system individual user rights.

## 3.3 CYBER SECURITY PROTECTION

A. All equipment requiring users to log on using a password to be configured with user/site-specific password/passwords. No system/product default passwords shall be allowed. Contractor shall implement all camera manufacturer's cyber security recommendations and configurations, following industry best practices per the camera manufacturer Cyber Hardening Guide.

B. Document that all cameras do not have a default password.

C. Document that all cameras have the latest firmware installed.

D. Back up all camera settings utilizing manufacturer camera Device Manager and provide file to owner.

E. Document that all servers and workstations have current version or Operating System (OS).

F. Document that latest VMS version that is installed on all servers and workstations.

G. Set user permissions and rules in VMS.

## 3.4 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections.

B. Perform tests and inspections and forward results to the engineer and/or owner.

C. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.

D. Tests and Inspections:

1. Inspection: Verify that units and controls are properly installed, connected, and labeled, and that interconnecting wires and terminals are identified.

2. Pretesting: Align and adjust system and pretest components, wiring, and functions to verify that they comply with specified requirements. Conduct tests at varying lighting levels, including day and night scenes as applicable. Prepare video-surveillance equipment for acceptance and operational testing as follows:

a) Verify proper fields of view, operation of auto-iris lenses, maximize WDR and day/night settings for the environment. Review recorded video for nighttime views and demonstrate to the Owner.
b) Set back-focus of zoom lenses. At focus set to infinity, simulate nighttime lighting conditions by using a dark glass filter of a density that produces a clear image. Additionally, set zoom to full wide angle and aim camera at an object 50 to 75 feet away. Adjust until image is in focus from full wide angle to full telephoto, with the filter in place.
c) Set and name all preset positions; consult Owner's personnel.
d) Set sensitivity of motion detection.
e) Connect and verify responses to alarms.
f) Verify operation of control-station equipment.
g) Demonstrate that all Cyber protection measures are in place.
h) Demonstrate frames per second and retention period met specifications.

E. Test Schedule: Schedule tests after pretesting has been successfully completed and system has been in normal functional operation for at least 14 days. Provide a minimum of 10 days' notice of test schedule.

1. Operational Tests: Perform operational system tests to verify that system complies with Specifications. Include all modes of system operation. Test equipment for proper operation in all functional modes.

F. Video surveillance system will be considered defective if it does not pass tests and inspections. Warranty will only begin after official system acceptance.

G. Prepare test and inspection reports.

## 3.5 ADJUSTING

A. Occupancy Adjustments: When requested within 12 months of date of Substantial Completion, provide on-site assistance in adjusting system to suit actual occupied conditions. Provide up to two visits to Project during other-than-normal occupancy hours for this purpose. Tasks shall include, but are not limited to, the following:

B. Check cable connections.

1. Check proper operation of cameras and lenses. Verify operation of auto-iris lenses and adjust back-focus as needed.
2. Adjust all preset positions; consult Owner's personnel.
3. Recommend changes to cameras, lenses, and associated equipment to improve Owner's use of video surveillance system.
4. Provide additional and/or refresher system training to the owner (max 4-hours) on system operations, functionality and administrations.
5. Provide a written report of adjustments and recommendations.

## 3.6 CLEANING

A. Clean installed items using methods and materials recommended in writing by manufacturer.

B. Clean video-surveillance-system components, including camera-housing windows, lenses, and monitor screens.

## 3.7 TRAINING

A. Contractor shall provide minimally 4-hours of system administrator to the Owner and designated personnel in the full operations and maintenance of the video management system.

B. The training shall assure the owner has a comprehensive understanding and basic level of competence of the system.

C. As a follow up, the contractor shall provide up to two (2) additional hours of training in the following weeks to assure owner competence to any questions or issues that have been experienced once turned over to the owner.

END OF SECTION 282300

# REQUEST FOR QUOTATION

**Issued:** November 8, 2021
**Due:** November 22, 2021

EFFECTIVE DATES OF RESULTANT CONTRACT: January 1, 2022 – August 30, 2022

## Submitting Company Information:

Company Name _____ Contact Person _____

Address _____ Telephone _____ Fax _____

City _____ State _____ Zip Code _____

E-Mail Address _____ Company Website _____

## Ordering Information:

Ordering information: _____

Contact Person _____

Telephone _____ Email Address _____

Ordering Conditions: _____

Minimum Order and Minimum Order for Free Freight: _____

Payment Terms/Prompt Pay Discount available: _____

Delivery: _____

Other Conditions: _____