REQUEST FOR PROPOSAL
RFP#10-1014
Audio/Visual System for Justice Center Public Safety Facility
Catawba County, Newton, North Carolina

Catawba County, North Carolina (Owner) is seeking proposals from qualified AV contractors to furnish and install all AV equipment required to support a turnkey system for the Justice Center Public Safety Facility. The AV Contractor is responsible for supervision and technical labor, material, equipment, and all appurtenances necessary to provide a complete and operational audiovisual system including but not limited to the following systems; video display and routing systems, IP television distribution, audio systems and equipment, collaboration software and remote control system, to meet the requirements of the Owner.

Bid documents can be found at www.catawbacountync.gov/purchase/. Drawings will be forwarded via Drop Box upon request.

In recognition of the complex and innovative nature of information technology goods and services and of the desirability of a single point of responsibility for contracts that include combinations of purchase of goods, design, installation, training, operation, maintenance, and related services, a political subdivision of the State may contract for information technology, as defined in G.S. 147-33.81(2), using the procedure set forth in this section, in addition to or instead of any other procedure available under North Carolina.

Proposal deadline will be at 2:00 p.m., July 14, 2016. No late bids will be accepted for any circumstance. Bid Submissions must be in sealed envelopes clearly identifying the title. An electronic version of the bid is also required (submit one hard copy and one on CD or flash drive).

Catawba County reserves the right to accept or reject any or all bids and proposals and further specifically reserves the right to make the awards in the best interest of the County.

A 100% performance and payment bond will be required by the successful AV contractor.

The Owner will hold a Mandatory Pre-Proposal Conference at the Justice Center construction Meeting Room, 100B South West Blvd, Newton NC in the 10:00am, Day, June 15, 2016. All attending should enter from Highway 321 Business, come to the entrance past the Sheriff Department, once you go through security, turn to the right (will see a vending area), there will be a wooden wall with a white door. The pre-proposal conference is mandatory for all AV contractors wishing to submit bids. All in attendance will be allowed to walk through the construction site; wear closed toe shoes and bring a hard hat (a limited number of hard hats can be provided).

Questions and clarifications to the RFP will be addressed at the Pre-Proposal meeting. Questions prior to the Pre-Proposal meeting may be submitted via email to Debbie
Anderson at danderson@catawbacountync.gov by 5:00 p.m., July 5, 2016. All questions and responses will be posted in an addendum on the Owner’s website.

Debbie Anderson, CLGPO
Purchasing Manager
REQUEST FOR PROPOSAL

RFP #10-1014
Audio/Visual Systems for Justice Center/Public Safety Expansion

Bids Due: 2:00 p.m., July 14, 2016
Catawba County, North Carolina (Owner) is seeking proposals from qualified AV contractors to furnish and install all AV equipment required to support a turnkey system for the Justice Center Public Safety Facility. The AV Contractor is responsible for supervision and technical labor, material, equipment, and all appurtenances necessary to provide a complete and operational audiovisual system including but not limited to the following systems; video display and routing systems, IP television distribution, audio systems and equipment, collaboration software and remote control system, to meet the requirements of the Owner.

Proposal deadline will be at 2:00 p.m., July 14, 2016. No late bids will be accepted for any circumstance. Bid Submissions must be in sealed envelopes clearly identifying the title. An electronic version of the bid is also required (submit one hard copy and one on CD or flash drive).

Late proposals will not be considered. All proposals must be signed by an authorized representative of your organization. Faxed or emailed proposals will not be considered.

Mail proposals to: Catawba County Purchasing Office Attention: Debbie Anderson PO Box 389 (mailing address) 100A South West Blvd (physical address) Newton, NC 28658 Ref: RFP 10-1014

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A 100% performance and payment bond will be required by the successful AV contractor.

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Questions and clarifications to the RFP will be addressed at the Pre-Proposal meeting. Questions prior to the Pre-Proposal meeting may be submitted via email to Debbie Anderson at danderson@catawbacountync.gov by 5:00 p.m., July 5, 2016. All questions and responses will be posted in an addendum on the Owner’s website.
SECTION I – BACKGROUND AND GENERAL INFORMATION

A. PROJECT OVERVIEW

The Catawba County Justice Center is currently being expanded with the addition of a new South, North, and Center sections to the facility called the Justice Center/Public Safety Expansion (JCPS). The scheduled construction completion date is April 2017.

Work covered by this RFP shall consist of furnishing and installing of all AV equipment required to support a turnkey system. The AV contractor is responsible for supervision and technical labor, material, equipment, and all appurtenances necessary to provide a complete and operational audiovisual system including but not limited to the following systems; video display and routing systems, IP television distribution, audio systems and equipment, remote control system, to meet the requirements of the Owner. The work shall include but not be limited to the following:

- Add as necessary or unavailable installation of all conduits; pull cords, cable tray, and other raceway and infrastructure as required accommodating the audiovisual system cabling. (Coordinate with General Contractor prior to installation.)
- Furnish and install all cabling and terminations required for the audiovisual systems.
- Provide all software, configuration, programming, start-up and commissioning of the audiovisual systems.
- Furnish and install all audiovisual devices, i.e., video displays, projectors, screens, video switching, processing and routing equipment, video codecs and cameras, interfaces, loudspeakers, microphones, DSP’s and amplification equipment, integrated control system and touch screen controllers, power supplies, surge protection, etc.
- As this is a new facility the AV contractor and contractor shall be responsible for proper coordination of raceways, power, equipment, etc. that will require a complete and operational system.
- All network switches, routers, wireless network links, and related network equipment shall be provided and installed by the Owner. The AV contractor and Contractor shall coordinate all audiovisual network requirements with Catawba County.
- The Owner has standardized on Crestron Systems for their integrated control system and touch screen control panels.
- The Owner’s audiovisual systems are administered by Catawba County Information Technology Department. Therefore it is a requirement of this project that the Audiovisual Integrator shall closely coordinate activities with the IT Department and its Operations Staff that will maintain these systems.
AV contractor will be held accountable to provide all materials shown on the drawing package received with this RFP as well as any addenda provided during the bid process. All of the necessary information to complete the bid is reflected in the total bid package (RFP, Specifications, and Drawings). Drawings will be forwarded to all participating AV contractors via a DropBox file. E-mail danderson@catawbacountync.gov to receive the Drop Box file.

AV contractors are responsible to consolidate all requirements and provide a complete turnkey package for evaluation.

SECTION II – SCOPE OF WORK

A. Justice Center

The expansion of the Catawba County Justice Center will include the build out of five (5) additional courtrooms, Judges Chambers and meeting rooms. Each of these new areas will provide state of the art audiovisual system supporting courtroom operations. To assist with the ease of use, each courtroom has been comparably configured to provide the necessary elements supporting courtroom activities.

The AV Vendor will procure, install and support an audio system in each courtroom allowing judges to control volumes in the courtroom, Juvenile interview room, and Family rooms associated with each courtroom. The AV Vendor will provide and configure microphones will be provided as shown ensuring muting and volumes capabilities are integrated into the overall AV system. Audio systems for the room will consist of ceiling and in-wall loudspeakers, amplifiers, DSP, and microphone mixers for sound and voice reinforcement. Microphones for voice reinforcement shall be table/lectern mounted as well as wireless handheld and lavaliere types. An assisted listening system shall also be provided with IR transmitters and receivers for audience ADA participation. Inputs/Outputs: • PC audio for line level audio inputs in floor boxes • Wired and wireless microphones for voice reinforcement. • Assisted Listening System • IPTV decoder • TV Tuner

The AV Vendor will procure, install, and maintain video systems as depicted in the design documents. Podiums will be provided by the County to support installation of DVD/Blue Ray players, Elmo document camera, and document annotators as specified in the design documents. Video controls will be provided at the judge’s bench, allowing the judge to
preview and control the display of information at locations throughout the courtroom to include the large display behind the witness, witness stand display and clerk of court display. Controls for each position will be provided through a small form factor PC and 24” monitor as well as iPAD Apps.

B. Lobbies and Meeting Rooms

Digital signage will be provided in each central lobby to facilitate dissemination of information related to facilities and courtroom operations. Digital signage applications provided by the AV Vendor all allow for the import of Microsoft documents (e.g. Word, PowerPoint, Excel, etc) providing for easy import of court docket information. Large meeting rooms will be configure as designed allowing each room to be used as necessary to expand courtroom operations allowing video and audio feeds to be view and controlled by the respective courtroom’s judge.

C. Intercom Systems

The Catawba County Justice Center and Public Safety will be outfitted with an IP based intercom system. The AV Vendor will procure and install IP based speakers as shown throughout the facility allowing the County IT personnel to connect, configure, and create zones for intercom usage. The AV Vendor WILL NOT be required to configure or integrate these speakers.

D. Emergency Operations Center (EOC)

The Emergency Operations Center (EOC) will be the County’s central command and control facility responsible for carrying out the principles of emergency preparedness and emergency management, and disaster management functions at a strategic level in case of any emergency situations, and ensuring the continuity of operation of response by the various County Departments such as law enforcement, fire, rescue, emergency medical services and public utilities and any other local, state or federal government agency. When activated, the EOC may operate around the clock 24 hours a day 7 days per week for a given period of time. The EOC consists of many different types of rooms to support its operations, most requiring multiple A/V systems. Rooms requiring A/V systems for this System include:

EOC Operations Room

- Video Display Systems. The primary video display will be an arrangement of 55” ultra-thin bezel LED-LCD displays in a two (2) high by three (3) wide matrix along the west
wall. In the EOC, a 55” wall mounted large format LCD display shall also be provided. All video is anticipated to be capable of copyright protection compliance (HDCP) for high definition use of copyright protected content. The entire system shall have video capability up to either WUXGA or 1080p/60 (depending on the exact aspect ratio of the output source). It is anticipated to use HDMI as the standard with other inputs (RGBHV/HD15, HDMI, Ethernet) with converters or dongles needed for a complete system.

- EOC Operations – Multiple 65” wall mounted large format LCD displays shall be provided around this room. 65” LCD’s shall be mounted on each wall as shown in the drawing package capable of displaying content from multiple input sources. A lectern shall be provided by the Owner nearby for room presentations. Located at the lectern will be PC video/audio inputs, annotation device, document camera, microphone, and a control touch screen.

- Audio Systems  Audio systems for the room will consist of ceiling and in-wall loudspeakers, amplifiers, DSP, and microphone mixers for sound and voice reinforcement. Microphones for voice reinforcement shall be table/lectern mounted as well as wireless handheld and lavalier types. An assisted listening system shall also be provided with IR transmitters and receivers for audience ADA participation.

  Inputs/Outputs:  • PC audio for line level audio inputs in floor boxes  • Wired and wireless microphones for voice reinforcement.  • Assisted Listening System  • IPTV decoder  • TV Tuner

- Breakout Rooms (3)- Each room will have a minimum of one (1) 65” large format LCD display capable of displaying content from multiple input sources

- The Press Room shall host meetings with staff along with media and public officials to discuss and review various events. Several A/V multimedia systems will be required for this room for presentations and media function. Video from each event or meeting shall have the capability to be sent to other conference rooms within the EOC. A lectern will be provided for the Press Room presenter to address the audience and have the ability to control all the audiovisual devices. Located at the lectern will be PC video/audio inputs, annotation device, document camera, microphone, and a control touch screen.

- Video Display Systems. The primary video display will be a projector based system consisting of one (1) ceiling recessed motorized projection screen, tab-tensioned with a
16:10 aspect ratio, located along the east wall. High resolution projector mounted in ceiling shall also be provided to project all video graphics. Additional supplemental 65” wall mounted large format LCD display shall be provided along the wall to serve as a video monitor. In-wall high resolution production quality cameras shall be place around the room to capture and record meetings. All video is anticipated to be capable of copyright protection compliance (HDCP) for high definition use of copyright protected content. The entire system shall have video capability up to either WUXGA or 1080p/60 (depending on the exact aspect ratio of the output source). It is anticipated to use HDMI as the standard with other inputs (RGBHV/HD15, DVI, Ethernet) with converters needed for a complete system. Inputs/outputs: • Video inputs for PC’s in combination power/AV floor boxes or wall boxes. • Video inputs shall be provided at the lectern. • • IPTV encoders/decoder • TV Tuners.

- Audio Systems Audio systems for the Press Room will consist of ceiling and in-wall loudspeakers, amplifiers, DSP, and microphone mixers for sound and voice reinforcement. Microphones for voice reinforcement shall be table/lectern mounted as well as wireless handheld and lavaliere types. An assisted listening system shall also be provided with IR transmitters and receivers for audience ADA participation. Inputs/Outputs: • PC audio for line level audio inputs in floor boxes • Wired and wireless microphones for voice reinforcement. • Assisted Listening System • IPTV decoder • TV Tuner

- Control Systems  - Owner provided iPAD hand held devices running Crestron control software is preferred control system manufacturer. Wired touch panels shall be provided in the locations shown on the drawings to control all video, audio, and lighting. Preference will be given to hardwired controls with IR control used only if there is no other option. The control system shall have capability of full video viewing of preview and program. Sequencing power strips within the A/V racks will provide proper start-up sequence for equipment.

- EOC Coordinator, Director, Fire Marshall, and Deputy, EMS Manager and EMS Training Officer Video Display Systems.

- The primary video display will be an arrangement of 55” ultra-thin bezel LED-LCD displays wall mounted large format LCD displays shall also be provided. All video is anticipated to be capable of copyright protection compliance (HDCP) for high definition use of copyright protected content. The entire system shall have video
capability up to either WUXGA or 1080p/60 (depending on the exact aspect ratio of the output source). It is anticipated to use HDMI as the standard with other inputs (RGBHV/HD15, HDMI, Ethernet) with converters or dongles needed for a complete system capable of displaying content from multiple input sources. Audio Systems. Audio systems will consist of in-wall loudspeakers and amplifiers for program audio. Inputs/Outputs: • PC audio for line level audio inputs in wall boxes • IPTV decoder • TV Tuner

- Control Systems Crestron is preferred control system manufacturer. Wired touch panels shall be provided in the locations shown on the drawings to control all video, audio, and lighting. Preference will be given to hardwired controls with IR control used only if there is no other option. The control system shall have capability of full video viewing of preview and program. Sequencing power strips within the A/V racks will provide proper start-up sequence for equipment.

- Audio Systems Audio systems for the EOC rooms will vary. Most rooms will consist of ceiling and in-wall loudspeakers and amplifiers for sound reinforcement. The Press Room and EOC Operations will require wireless microphones, gooseneck microphone at the lectern and DSP's and microphone mixers. Inputs/Outputs: • PC audio for line level audio inputs in floor boxes. • Wired and wireless microphones for voice. • IPTV decoders • TV Tuners • Zoned loudspeaker cluster as required.

E. Emergency Call Center

- The ECC will host control room dispatch operators taking calls from members of the public in need of assistance through the 911 emergency number. This can be police, fire and ambulance or similar, or all of the above in the same building depending on the situation. The ECC operates 24 hours a day, 7 days a week. The ECC must have the capability to view building surveillance video, weather data and IPTV. Two supervisor positions are planned for the new ECC Operations Floor. Below is a summary of the major A/V system need for this space.

- Video Display Systems. This room shall include multiple 65” LCD displays as shown on the drawings located around the perimeter of the room. All video is anticipated to be capable of copyright protection compliance (HDCP) for high definition use of copyright protected content. The entire system shall have video capability up to either WUXGA or 1080p/60 (depending on the exact aspect ratio of the output source). It is anticipated to use HDMI as the standard with other inputs
(RGBHV/HD15, DVI, Ethernet) with converters needed for a complete system.

- ECC Operations – Multiple 65” wall mounted large format LCD displays shall be provided around this room. 65” LCD’s shall be mounted on the wall as shown in the drawing package capable of displaying content from multiple input sources.

- Control Systems Crestron is preferred control system manufacturer. Wired touch panels shall be provided in the locations shown on the drawings to control all video, audio, and lighting. Preference will be given to hardwired controls with IR control used only if there is no other option. The control system shall have capability of full video viewing of preview and program. Sequencing power strips within the A/V racks will provide proper start-up sequence for equipment.

Second Floor Meeting Room (Commissioner Board Room) - Video Display Systems.

- This room shall include one (1) 90” LCD display at the front of the room for video playback. All video is anticipated to be capable of copyright protection compliance (HDCP) for high definition use of copyright protected content. The entire system shall have video capability up to either WUXGA or 1080p/60(depending on the exact aspect ratio of the output source). It is anticipated to use HDMI as the standard with other inputs (RGBHV/HD15, DVI, Ethernet) with converters needed for a complete system.

- Inputs/outputs:

  - Video inputs for PC’s in combination power/AV floor boxes and or wall boxes.

  - Video Teleconferencing Codec and camera

  - IPTV decoder

  - TV Tuner

Audio Systems Audio systems for this room will consist of ceiling and in-wall loudspeakers and amplifiers for sound and voice reinforcement. Microphones, amplifier, DSP and microphone mixers shall be provided. Inputs/Outputs: • PC audio for line level audio inputs in floor boxes. • Wired microphones for voice • IPTV decoder • TV Tuner • Zoned loudspeaker cluster as required
Control Systems  Crestron is preferred control system manufacturer. Wired touch panels shall be provided in the locations shown on the drawings to control all video, audio, and lighting. Preference will be given to hardwired controls with IR control used only if there is no other option. The control system shall have capability of full video viewing of preview and program. Sequencing power strips within the A/V racks will provide proper start-up sequence for equipment. 1st Floor Expandable Meeting Room(s) the envisioned audio-visual system shall be based upon the Barco/CMS control and switching system. This system makes use of software with highly reliable Hewlett Packard servers to route any video input to any video output or multiple video outputs. Additionally, this system provides a single point of control or multiple control points, which can provide different layers of access to the video/audio streams.

System specific equipment and the corresponding equipment specification and minimum requirements are listed below. Under no circumstance shall any equipment listed be replaced or substituted with a different brand/model without the prior written consent of the Owner Project Manager or designated individual.

Visualization and Data Collaboration (VDC) System Solution

The following Visualization and Data Collaboration environment features have been determined to be necessary for the functionality, reliability and security required for the Owner and shall be furnished and installed as specified herein:

A. The Visualization & Data Collaboration solution shall have the ability to push and pull sources via mobile devices such as Android and Apple platform devices and place them on displays linked into the visualization solution.

B. The VDC System shall have the capability to create desktop displays of content showing no less than nine different sources of content and then share that content with other desktop displays within the organization. Each desktop display shall be able to select to share or not share any of the sources on their desktop.

C. The VDC system shall be comprised of true COTS* hardware components integrated using proven software based platform.
   i. COTS* is defined as a major brand component commercially available from a manufacturer, other than the system supplier. (*Commercially Available Off the Shelf)

D. The software, video processors, and control system shall:
   i. Be windows based
   ii. Shall have integrated device control i.e. Turn on/off devices, switch inputs, turn on/off lights, change channels, manage VTC suites. Hardware based touch screen controllers that cannot be freely changed, managed, configured,
and expanded upon directly by the end user without the need for a dealer is not acceptable.

iii. Shall not have any reoccurring license fees

E. The various systems that comprise the Visualization & Data Collaboration Environment include: multiple locations communicating with all operator consoles and enabled external workstations are to provide a complete and integrated collaborative interface and shall include all other media, user interfaces, and equipment as specified herein.

The VDC solution shall be a proven network centric software based system, field installed using COTS* commercial off the shelf hardware. The integrator shall have more than 5 such installations currently operating of which should be in federal, defense, homeland security and or infrastructure monitoring applications (on a Federal, State and or local level.) All equipment and labor shall be furnished and installed by the same AV contractor to ensure compatibility and quality assurance of the overall system.

F. All hardware components shall be manufacturer branded commercial-off-the-shelf (COTS*) products. Servers shall be latest generation, major brand, standard, commercially available models with manufacturer-direct support available. Acceptable brands would be HP, Dell, IBM, Super Micro, and Chassis Plans. Servers shall support an open architecture of messaging and alerting, such as SNMP or NNP to monitor and alert network administrators of the health and status of failed components such as network interfaces, hard drives and power supplies.

G. All servers, video processors, shall be loaded with and operate from Windows server 2003 or 2008, 2010 operating system that have been configured using the latest most current disk utility release.

H. The system shall currently possess the ability to self monitor and provide external alerts via Email and other forms of messaging.

I. Users shall have the ability to view and control all permitted applications from any true network connected location.

J. Permissions shall be User Defined by login with customizable functions, GUI and permissions by user or user group to allow separate view and control parameters to be set. The user interface shall be user definable per user or user group without the need for compiling of source code.

K. The system shall have Zone Control to limit the operator’s control to a specific area of the wall display.

L. The system shall have Access Control so that an individual’s or Group’s access and control can be defined by user login.

M. The system shall have the capability to size, display and control any number of sources, any common operating systems, with full keyboard and mouse control, without resolution limit, up to the full combined screen resolution.
N. The system shall allow for the saving of wall states/views and their instant recall, manually or externally triggered. These presets or layouts shall be able to be recalled by any user based on their login permission. Multiple View screens shall be available simultaneously and available with a single mouse click.

O. The system shall be completely user programmable, so that no third party programming resources are required. Any programming or configuration changes shall be immediate without the need for compiling of source code. This shall include the ability to create, modify and/or redesign custom GUIs, including labels and functionality.

P. Source Labeling shall be included, i.e. a custom label functionality for sources that provides easy identification.

Q. The system shall have the ability to Crop and Zoom source images. These image manipulation features shall be available for any source.

R. Network Isolation Compatibility – System architecture shall allow for safe viewing and control of sources from multiple secure networks.

S. Unlimited Access Points – It shall be possible to add any number of access points to the systems, running on any types of Windows compatible devices including operator's desktop, touch screen, tablet PC, micro PCs, or large scale LCD panels or display walls (e.g. where the panel or wall is touch-screen capable allowing direct user interaction.)

T. Access points shall include a simple, fully user configurable, entirely scalable toolbar allowing access to all system functionality and including a scalable virtual keyboard, to allow direct mouse or touch screen operation on any size and any resolution display or display matrix, driven by any computer running under Windows.

U. Content windows shall have optional integrated toolbars to allow direct content control and other functionality including crop and zoom, scaling and blending.

V. A fully integrated web browser shall allow direct web page access, display, fully integrated store and recall, plus the import of favorites from Internet Explorer and Firefox. Said integrated browser shall be capable of displaying web pages free of standard browser toolbars and other visual overhead.

W. Source computers, defined as computers that are to be displayed on any given display area shall not be limited by resolution. The solution shall be able to transport and display as a continuous window on the display area multi-screen desktops without the need for external scalers or processors.

X. Software based KVM capability – System shall provide full support for multi-screen desktop displays, allowing multiple source/OS display and control from any authorized, network connected operator workstation. No additional hardware or third-party software shall be required to accomplish this functionality, only a network connection.
Y. Quick Launch Sources – It shall be possible to instantly launch and display Word, Excel, PowerPoint, Project and AutoCAD files and JPEG, MPEG and other media files, by simply ‘dragging’ them from the Windows desktop, My computer or Windows explorer onto the Wall Management GUI i.e. access point, without the need to pre register or otherwise prepare the file or the system.

i. The Solution shall have an embedded OPC server for integration with building automation systems and industrial process controls.

ii. System shall have alert messaging that alerts operators manually or via automated triggers.

iii. The solution shall have an SDK to allow broad integration with third party applications, the SDK shall be provided to the end user and to third parties at no additional charge.

iv. The solution shall allow a broad range of device control including cameras, video source devices, TV tuners, satellite and cable boxes, sound, lighting, and other audio/video and mechanical devices and be capable of being programmed for new devices.

v. The Solution shall continuously monitor and report the status of the recommended DLP displays for health and status.

vi. The selected solution shall have a proven track record with at least 5 years in continuous operation and a minimum of 50 currently active display wall installations, using the specifically proposed technology and software.

vii. The selected systems integrator shall have demonstrated successful past performance by installing at least 5 control rooms in operation, and have demonstrated successful completion of multiple systems equal to or greater in contract value and complexity.

viii. Additional consideration shall be given to those with greater proven performance numbers in terms of systems installed, value and complexity.

ix. The solution shall have an open and integrated capability to manipulate via software Pan, Tilt, Zoom (PTZ) camera control without the need for third party standalone application. The solution shall have an open and integrated capability via software to interface with IP Digital Recorder/Servers, and Digital Video Recorders to enable very broad compatibility with IP video cameras and encoders. The IP decoding solution shall not require an analog output. The solution should be able to communicate directly to an IP camera or to the Network Digital Video Recorder via IP communications for decoding and rendering of a camera feed. Solution shall work with the County's Ocularis 5.1SP (1) system.

x. The solution shall have an open and integrated web browser with the ability to save a web page as a source. The web browser shall be directly linked to individual Windows Operating System (OS) login profile. In this fashion the web browser shall be able to display the list of favorites that is associated with the individual's favorite list, e.g. in Internet Explorer or Firefox.
SECTION III – INSTALLATION REQUIREMENTS

A. STANDARD PRODUCTS
All primary equipment, subsystems, components, wire, cable and accessory hardware shall be new and unused products of a recognized manufacturer regularly engaged in the production of such equipment and materials. AV contractor shall only supply manufacturer’s newest and latest equipment and materials. Refurbished or gray-market equipment will not be acceptable. Like systems and equipment shall be from the same AV contractor. AV contractor will provide specification sheets for all components.

Successful AV contractor will provide training for at least three (3) County staff on the use of the entire system. Training must be provided to the Owner’s satisfaction.

B. MAINTENANCE AND SUPPORT PRICING

Service Contract: Submit the costs for a one-year service contract, commencing with the completion of the one-year warranty. These contracts shall be fixed-cost, and can be accepted at the option of the Owner. Each contract shall include the following services:

Provide a total of eight (8) one-day visits per year, or a total of sixty-four (64) engineering/service labor hours to conduct preventive maintenance and the Owner directed system adjustments. Each visit will include cleaning video and audio heads, checking and replacing projection lamps and indicators, checking and repairing microphones and microphone cables, and conducting subjective and objective tests of the audio, video, and control systems of the installed audiovisual systems. The Repair and/or adjust any malfunctioning components located by the technician during this testing. Include control system programming updates and modifications as part of this service contract, providing an updated editable copy of the source code. Provide a service telephone number, staffed by a qualified technician familiar with the equipment installed by the AV contractor in the Owner Facility. Staff this number during normal business hours. Respond with an on-site technician within 24-hours of a service call (including Saturdays and Sundays) for all equipment and system failures. There shall be no cost to the Owner for maintenance performed under these service contracts beyond the fixed cost of the contracts. Include under normal service contract visits, updates to both control and video wall system programming acceptance, or within one (1) year of acceptance.

C. POWER REQUIREMENTS
System commercial power requirements for equipment must be indicated in the proposal so that adequate power is available at those locations called for by the AV contractor.
D. ENVIRONMENTAL REQUIREMENTS
For any equipment proposed for installation within Owner facilities, both intermittent and continuous operating temperature ranges, allowable humidity limits, and all other requirements for the equipment must be detailed in the proposal to ensure that these requirements are acceptable. This must include the manufacturer’s recommended continuous ambient temperature range.

E. INSTALLATION
All installation work shall be in accordance with, but not limited to, this specification and drawings. Work practices shall be performed in accordance with applicable standards, requirements, and recommendations of Federal and Local authorities having jurisdiction.

All discrepancies discovered and any discrepancies which are apparent at the date of submission of bids, shall be immediately corrected without additional charge to the Owner.

Clearly label all user controls for intended use and nominal setting. These labels shall be engraved and filled, or equal. Accessible controls that should not be changed (audio equalizer settings, etc.) shall be covered.

NOTE: "Dymo" labels are not acceptable.

All equipment to be rack mounted shall be supplied with the appropriate rack mount kits. Each podium and rack enclosure to have a single button on/off power distribution panel to include pull out lights and LED voltage indicator (Furman PL-Pro D II or equal) located in the first available rack unit. All equipment racks to include removable, locking front doors and a 30-minute uninterruptable power supply (rack mount or free-standing at bottom of rack). Each podium or equipment rack shall include a 4 inch diameter, low-noise fan. All rack and podium shall include "security type" screws to secure rack-mounted components.

Physical Installation:
Provide plate as shown. Plate to occupy first available rack unit in all AV equipment racks. If more than two (2) racks are positioned together, one (1) plate for every two racks is acceptable.
Product: Liberty Cable #23123

All equipment shall be firmly secured in place unless requirements of portability dictate otherwise. Unless granted specific permission by the Customer Project Manager or Contracting Officer, install and secure all boxes, equipment, etc., plumb and square.

Fastenings, mounting brackets and supports shall be adequate to support their loads with a safety factor of at least three (3) A safety chain or cable will be tied to all equipment
suspended from above in the installation of equipment and cable, consideration shall be given not only to operational efficiency, but also to overall aesthetic factors.

AUDIOVISUAL CABLE INSTALLATION

General: Because of the great number of possible variations in grounding systems, follow good engineering practice, as outlined above, and to deviate from these practices only when necessary to minimize crosstalk and to maximize signal-to-noise ratios in the audio, video, and control systems. Inform the Contractor and the Contracting Officer in the event there is a deviation from the standard grounding practices prior to actually performing the work. All grounding within the Emergency operations and Emergency Communications Centers must meet the standards identified by Motorola’s R56 guidelines.

All cables, regardless of length, shall be marked with wraparound cable markers at both ends. There shall be no unmarked cables at any place in the system. Marking codes used on cables shall correspond to codes shown on “as-built” drawings and/or run sheets. The labeling and numbering system will be coordinated with the Contracting Officer.

All microphones to include 30ft. cable with heavy-duty jacket and XLR connectors.

Loudspeakers operating @ 8 ohm shall be installed with 12AWG cable as a minimum size/diameter.

Wall / floor box I/O panels shall be installed with audio/video line drivers on runs exceeding 35 ft.

All cabling shall be neatly strapped, dressed, and adequately supported. Any exposed cabling shall be neatly enclosed in a protective covering.

Terminal blocks, boards, uLi-i.ps, or connectors shall be furnished for all cables, which interface, with racks, cabinets, consoles, or equipment modules. All audio signal lines shall be balanced at the wall plate.

All cables shall be grouped according to the signals being carried. In order to reduce signal contamination, form separate groups for the following cables:
  - Power cables
  - RGBHV, Video cables and Control cables
  - Data cables (when applicable)
  - Audio cables carrying low level signals
  - Audio cables carrying line and high level signals

Supply cables that meet the overall specifications, and approval by the Owner. Any cabling installed in walls or ceilings shall be plenum rated. All cables shall be cut to the length dictated by the run plus the required “slack” to permit future equipment movement and relocation. For equipment mounted in drawers or on slides, the interconnecting cables shall be provided with a service loop of appropriate length of 3-5 feet. No cable shall be installed with a bend radius less than that recommended by the cable
manufacturer. Notify the Contractor in the event a field condition interferes with the proper installation of any cables or equipment.

Grounding Procedures: In order to minimize problems resulting from improper grounding and to achieve maximum signal-to-noise ratios, the following grounding procedures shall be adhered to:

All Grounding shall follow the procedures as outlined in the Motorola R56 "Standards and Guidelines for Communications Sites", 2005 or latest revision. (Use below as required with R56)

R56 System Ground: A single "system ground" shall be established for the system. All grounding conductors shall connect to this system ground. The system ground shall be provided in the equipment rack, and shall consist of a copper bar of sufficient size to accommodate all secondary grounding conductors.

A copper conductor, having a maximum of 0.1 Ohms total resistance, shall connect the system ground bar to the nearest grounded, metallic electrical conduit of at least 2 inches in diameter. Be responsible for determining if the metallic conduit is properly electrically bonded to the building ground system, and shall show the grounding path of a document that is provided with the system documentation. Secondary system grounding conductors shall be provided from all ungrounded equipment in each area, to the primary system grounding point for the area. Each of these grounding conductors shall have a maximum of 0.1 Ohms total resistance.

Under no conditions shall the AC neutral conductor, either in the power panel or in a receptacle outlet, be used for a system ground.

Audio Cable Shields: All balanced audio cable shields shall be grounded at one point only. All audio lines shall be balanced at the source, prior to any cable pull longer than twenty feet. There are no exceptions. For ungrounded portable equipment, such as microphones, the shield shall be connected at both ends but grounded at only one end. Video Receptacles: All video receptacles shall be insulated from the mounting panel, outlet box, or wire way.

Cable shall be plenum rated and marked if any section is installed in a plenum or riser condition. It is the responsibility of the contractor to identify plenum and riser conditions for correct cable selection.

REPAIR/RESTORATION

Any damage to any installed work or product caused by the unpacking, transporting, assembly, connecting, or configuring of the product shall be repaired at no charge to the Owner.
FIELD QUALITY CONTROL
Once installed and the System Checkout is complete, the system shall be tested by the Owner.

If the A/V system fails to meet the requirements of this document or those stated by the technical documentation, then the Contracting Officer shall reject the installed system and then be given notice (either oral or in writing) to correct the failure as soon as possible. If unable to overcome repeated performance deficiencies within thirty (30) days, and if requested to do so by the Contracting Officer remove the equipment at no expense to the Owner.

No warranties shall begin until the Owner and AV Consultant has authorized acceptance in writing.

Right to Revoke Acceptance: If any equipment and/or goods which have been previously accepted, specifically or by the making of payment, are found to have defects, damage, deficiencies or fail to conform to the specification, for any cause not attributable to the Owner may revoke acceptance.

Acceptance Test: Testing will be performed with the Owner (or its designees) to determine that the A/V system equipment satisfies the manufacturers' performance specifications and that the A/V system installed satisfactorily performs the functions required by this specification. Conduct formal pre-acceptance tests prior to the Contracting Officer’s acceptance testing to ensure that the performance and functional specifications are satisfied by the installed system and the system is ready for the Contracting Officer’s acceptance. The Contracting officer will verify that the installed audiovisual system satisfies the performance and functional requirements through formal acceptance testing.

Conduct all pre-acceptance tests: The Contracting Officer/AV Consultant may witness the pre-acceptance tests. The Contracting Officer may inspect and operate system components in order to evaluate installation progress and technical compliance prior to acceptance testing. Provide equipment necessary to demonstrate correct system performance. The Owner may conduct formal acceptance tests, and provide skilled technicians and test equipment as requested to assist the tests.

Contractor System Checkout
Perform system checkout before acceptance tests are scheduled. Furnish all required test equipment and perform all work necessary to determine and/or modify performance of the system to meet the requirements of this specification.

During performance testing, all equipment shall be operated under standard conditions as recommended by the manufacturer. Test all audio and video systems for compliance with the Performance Standards using the following test procedures that follow later in this specification. Maintain documentation of all performance tests for reference by Consultant
during the System Acceptance Tests.

At the conclusion of the tests, return all equipment settings to previously calibrated positions.

Provide written records of all test results in spreadsheet form to the AV Consultant and Owner.

Check all control functions, from all controlling devices to all controlled devices, for proper operation.

Adjust, balance, and align all equipment for optimum quality and to meet the manufacturer’s published specifications. Establish and mark normal settings for all level controls, and record these settings in the "System Operation and Maintenance Manual."

Provide testing results and settings for all equipment and systems to the AV Consultant and Owner at least three (3) business days prior to System Acceptance Testing.

Provide the AV Consultant and Owner with all test results, manuals, software, as-built documentation, etc. Prior to acceptance testing in accordance with the dates and/or lead-times listed within this document.

Inform the PM and AV Consultant that the works are ready for System Acceptance Testing by the AV Consultant. The works shall be considered ready for acceptance testing when the following conditions are met:

AV Contractor has pre-tested all systems such that all sub-systems, functions, software, and equipment are de-bugged and operational

AV Contractor has supplied the AV Consultant and Owner with the written test results and documentation as listed above for all rooms and systems AV Contractor has supplied the AV Consultant and Owner with manuals, training materials, and other as-built documentation revised to reflect comments and/or revisions arising from the review cycles listed elsewhere within this document.

Should the systems not be ready for testing by the AV Consultant at the date(s) and time(s) indicated by the AV Contractor, system acceptance testing may be rescheduled at the sole discretion of the AV Consultant. The AV Contractor shall pay for the labor and expenses of the AV Consultant and other project team members assembled at the project site for the purpose of system acceptance testing for the date(s) of the original scheduled testing plus the labor and expenses of the AV Consultant and other project team members for the rescheduled testing date(s). The labor rate for the AV Consultant shall be a flat rate of $200.00/hour including travel time. Other project team member labor costs shall be at their respective published rates. The PM and/or Contracting officer shall be entitled to deduct any money owed to the Owner, PM, AV Consultant, or other project team members under this contract from any sum which may become due or is payable to the AV
Contractor under this Contract for the purposes of satisfying the charges listed above test Equipment.

H. MISCELLANEOUS EQUIPMENT
1. All cables, connectors, amplifiers, and miscellaneous products not specified in RFP but necessary for project completion must be provided by the AV contractor.

2. Successful bidder will deliver operating and maintenance manuals, and as-buils of configuration.

SECTION IV – GUIDELINES AND SCHEDULE

A. GENERAL REQUIREMENTS
1. The Owner requires a “not-to-exceed” price contract for this procurement. The AV contractor is expected to complete the statement of work for the negotiated price.

2. Unless prices and all information requested are complete, proposal may be considered non-responsive and will not be considered.

3. In case of default by the AV contractor, the Owner may procure the articles or services from other sources and may deduct from any monies due, or that may thereafter become due to the AV contractor, the difference between the price named in the contract or purchase order and the actual cost thereof to the Owner.

4. All proposals must be signed with the AV contractor’s name and by an authorized representative of the company. Obligations assumed by such signature must be fulfilled.

5. AV contractor shall furnish performance and payment bonds, in an amount at least equal to the contract price as security for the faithful performance and payment of all AV contractor’s obligations. The bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period. Bonds shall be executed by such sureties as are named in the list of “Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies” as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, and U.S. Department of Treasury. All bonds signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual’s authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed each bond.

All bonds and insurance shall be obtained from surety or insurance companies that are duly licensed or authorized to the jurisdiction in which the project is located to issue bonds or insurance policies for the limits and coverages so required.
B. INSURANCE
Successful bidder agrees to carry appropriate Worker’s Compensation Insurance, Comprehensive General Liability Insurance (bodily injury and property damage), Automobile Liability Insurance and Professional Liability Insurance. Contractor agrees to furnish information and certificates to Owner upon request.

The Contractor agrees to keep and maintain for the duration of this Agreement including but not limited to commercial general liability, automobile liability, workers’ compensation, and employer’s liability with at least the minimum limits shown below. The Contractor shall furnish the County with certificates of insurance for each type of insurance described herein, with the County listed as Certificate Holder and as an additional insured on the Contractor’s general liability and auto liability policies and provide a waiver of subrogation on the Contractor’s workers’ compensation policy. In the event of bodily injury or property damage loss caused by Contractor’s negligent acts or omissions in connection with Contractor’s services performed under this Agreement, the Contractor’s Liability insurance shall be primary with respect to any other insurance which may be available to the County, regardless of how the “Other Insurance” provisions may read. In the event of cancellation, substantial changes or nonrenewal, the Contractor and Contractor’s insurance carrier shall give the County at least thirty (30) days prior written notice. No work shall be performed until the Contractor has furnished to the County the above referenced certificates of insurance and associated endorsements, in a form suitable to the County. Upon request, the Contractor shall provide the County copies of their insurance policies.

- Commercial General Liability: $1,000,000 per occurrence / $1,000,000 aggregate
- Commercial Auto Liability: $1,000,000 combined single limit
- Workers’ Compensation and Employer’s Liability: Statutory
  - $100,000 each accident/total disease/employee disease

Certificate of Insurance lists Catawba County, PO Box 389, Newton, NC 28658, as Certificate Holder.

A. Indemnification: Contractor shall indemnify, defend, and hold harmless the County and its subsidiaries, divisions, officers, directors and employees from all liability, loss, costs, claims, damages, expenses, attorney fees, judgments and awards arising or claimed to have arisen, from any injury caused by, or allegedly caused by, either in whole or in part, any act or omission of the Contractor or any employee, agent or assign of the Contractor. This provision is not applicable to any claim arising out of or related to any active or primary negligence of or by County, its officers or employees.
Nothing herein shall be construed as a waiver on the part of the County to any defense of any claim, including, but not limited to the defense of governmental immunity.

C. PROPRIETARY INFORMATION
Trade secrets or similar proprietary data that the AV contractor does not wish disclosed other than to personnel involved in the evaluation or contract administration will be kept confidential to the extent permitted by NCAC T01:05B.1501 and G.S. 132-1.3 if identified as follows: Each page shall be identified in boldface at the top and bottom as "CONFIDENTIAL". Any section of the proposal that is to remain confidential shall also be so marked in boldface on the title page of that section. Cost information may not be deemed confidential. In spite of what is labeled as confidential, the determination as to whether or not it is shall be determined by North Carolina law.

NOTE: An electronic version of the bid must accompany the hardcopy bid submission in a sealed envelope. In the electronic version, proprietary information must be redacted in anticipation of public record requests.

D. LIMITATIONS
1. All information and materials submitted will become the property of the Owner. AV contractors should not submit proprietary or confidential business information unless the AV contractor believes such information is critical to its presentation. Such information should be clearly identified as such. The Owner will protect such proprietary or confidential information only to the extent which the law allows.

2. This RFP does not commit the Owner to award a contract(s) or pay any costs incurred in the preparation of a proposal in response to this request.

3. The County reserves the sole right to accept or reject any or all proposals received as a result of this RFP, or to cancel this RFP in part or in its entirety.

4. Each proposal shall include a statement indicating whether or not the firm or any individuals working on the contract has a possible conflict of interest and, if so, the nature of that conflict (e.g., employed by the Owner). The Owner’s determination regarding any questions of conflict of interest shall be final.

5. Information must be furnished complete, in compliance with the terms, conditions, provisions and specifications of the request for proposal. The information requested and the manners of submission are essential to permit prompt evaluation of all proposals on a fair and uniform basis. The response must follow the RFP Response Format provided in Section V.
6. Proposals and modifications or corrections received after the closing time specified will not be considered.

7. Contractor and all Sub-Contractors are responsible for any and all licenses required for this contract.

E. GOVERNING LAW
All proposals, agreements, and the provision of services resulting from this request for proposal shall be governed by and construed in accordance with the General Statutes of the State of North Carolina. No agreement arising as a result of this request for proposal shall contain any term or condition to the contrary. Your submission of a proposal in response to this request for proposal constitutes consent to this jurisdictional requirement.

F. PROPOSAL POSTPONEMENT AND ADDENDUM
The Owner reserves the right to revise or amend the specifications or any other part of the proposal up to the time set for opening. Such revisions and amendments, if any, shall be announced by addendum to this solicitation, and all registered bidders will be notified. Any such addendums shall be published by the Owner and posted on the Owner’s website. If revisions and amendments require changes in quantities or prices proposed, or both, the date set for opening of proposals may be postponed by such number of days as in the opinion of the Owner shall enable AV contractor’s to revise their proposals. In any case, the proposal opening shall be at least five working days after the last addendum; and the addendum shall include an announcement of the new date, if applicable, for the opening of proposals.

G. PROJECT SCHEDULE
The County anticipates the following schedule for the project:

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>RFP Posted on Web Site</td>
<td>June 6, 2016</td>
</tr>
<tr>
<td>Mandatory Pre-Bid Meeting</td>
<td>June 15, 2016</td>
</tr>
<tr>
<td>Deadline for Questions</td>
<td>July 7, 2016</td>
</tr>
<tr>
<td>Proposal Submission Deadline</td>
<td>July 14, 2016</td>
</tr>
</tbody>
</table>

The selected AV Contractor shall be required to begin work within six weeks of award.

SECTION IV – EVALUATION / SELECTION PROCESS

A. CRITERIA FOR AWARD
Selection of the successful AV contractor is based on a determination of price and performance, where quality is considered an integral performance factor. The criteria for award will be based on
multiple factors, including: total cost of ownership, meaning the cost of acquiring, operating, maintaining, and supporting a product or service over its projected lifetime; the evaluated technical merit of the AV contractor’s proposal; the AV contractor’s past performance; and the evaluated probability of performing the requirements stated in the solicitation on time, with high quality, and in a manner that accomplishes the stated business objectives and maintains industry standards compliance.

Cost is important, but will not be the sole determining factor. Selection of the successful AV contractor will be based on the total points awarded according to the criteria listed below.

1. **Project Understanding** – Degree that firm demonstrates an understanding of the project objectives and proposes to accomplish those objectives and is able to meet these objectives, project timetable and best meets specifications. **25 points**

2. **Service** – Customer service during installation and after the sale is extremely important. Firm’s availability to provide onsite service within 24 hours. **25 points**

3. **Quality of Equipment** – All primary equipment, subsystems, components, wire, cable and accessory hardware shall be standard products of a recognized manufacturer regularly engaged in the production of such equipment and materials. AV contractor shall only supply manufacturer’s newest and latest equipment and materials. **20 points**

4. **Project Experience** – Demonstrated experience designing, configuring, installing and supporting video recording, presentation, and broadcasting systems in a municipal government environment. **15 points**

5. **Cost** – Reasonableness of proposed equipment and implementation cost. The Owner will evaluate the total cost of the equipment and software as a total purchase price. **10 points**

6. **References** – Examples of and references of similar projects designing, integrating, implementing, and supporting video recording, presentation, and broadcast equipment. **5 points**

The Owner will review each proposal to ensure that the proposal is complete and organized according to the format requirements specified in Sections V and VI. Similar format submissions helps ensure objective analysis of each proposal. Failure to satisfy the proposal format requirement may render a proposal to be unacceptable.

**B. WARRANTY**

The Owner will evaluate the terms and conditions of the proposed warranty to ensure that it does not place any undue risk on the Owner (i.e. scheduling, performance, cost) and does not cause the Owner to incur costs in other areas.
C. ORAL PRESENTATIONS, SYSTEM DEMONSTRATIONS, SITE VISIT
AV contractors should be prepared to discuss and substantiate any of the areas of the information submitted as well as its qualifications to furnish the specified products and services. Notwithstanding the possibility of a request for an oral presentation, AV contractors shall not rely on the possibility of such a request and shall submit a complete and comprehensive written response to this solicitation. The Owner shall not be charged any fees associated with AV contractor’s cost to give requested presentations, demonstrations, or conducting site visits.

D. SPECIAL CONDITIONS
Excluding proprietary information, the proposal for the equipment and software contract of the AV contractor awarded the contract is deemed public record and shall be available to the public upon request after award.

SECTION V – RFP RESPONSE FORMAT
Please use the following format to structure your RFP response. Your response should include each section detailed below in the order presented. The detail represents the items that are to be covered in each section of your response. Failure to address all items will impact the evaluation and may classify the response as non-responsive and preclude it from further consideration. Refer to Section II – Scope of Work for additional information.

RFP RESPONSE FORMAT
A. Title Page
B. Letter of Transmittal
C. Table of Contents
D. Executive Summary
E. Company Background and Experience
F. Project Understanding and Pricing
G. Project Schedule
H. Training
I. Cost Proposal
J. Maintenance, Updates, and Support
K. Customer References
L. Appendices

A. TITLE PAGE
The title page should include, at minimum, the following:
Name of Project – RFP # County

Submitted by (Company Name)
Date of Submittal
B. LETTER OF TRANSMITTAL
The transmittal letter will:

- Indicate the intention of the AV contractor to adhere to the provisions described in the RFP without modification
- Identify the submitting organization
- Identify the person, by name and title, authorized to contractually obligate the organization
- Identify the contact person responsible for this response, specifying name, title, mailing address, telephone and email address
- Provide the original signature of the person authorized to contractually obligate the organization.

C. TABLE OF CONTENTS
The table of contents should outline Sections A thru K, as described previously in this section.

D. EXECUTIVE SUMMARY
The AV contractor will provide an Executive Summary that presents in brief, concise terms a summary level description of the contents of the proposal response. In addition, the AV contractor must clearly and specifically detail all exceptions to the exact requirements imposed by this RFP.

E. COMPANY BACKGROUND AND EXPERIENCE
This section of the proposal should establish the ability of the AV contractor to satisfactorily perform the required work by reasons of experience in performing work of a similar nature, demonstrated competence in the services to be performed, strength and stability of the firm, staffing capability, and the record of meeting expectations on similar projects. The Owner, at its option, may require an AV contractor to provide additional support and/or clarify requested information.

F. PROJECT UNDERSTANDING AND PRICING
This part of the Proposal will contain a description of how the AV contractor intends to organize its approach to the project. The AV contractor shall relate how it perceives its role in carrying out the responsibilities required by this implementation. The AV contractor shall also provide examples of challenges encountered on similar engagements and discuss their approach in handling some of the specific challenges and opportunities it foresees for this project. Provide examples/references for past performance on similar projects including integrating audio/video recording, presentation, scheduling, and broadcasting equipment as outlined in this document. State your understanding of what the project entails and provide an itemized listing with pricing for all equipment and installation.

G. PROJECT SCHEDULE
The selected AV contractor shall be willing to begin the project within 15 days after award. AV contractor should provide a detailed implementation schedule assuming a project start date. The Work Plan and Schedule shall include a schedule for the performance of the tasks
identified in Section II, Scope of Work, of this RFP. Provide your schedule for performing the work, including major milestones and deliverables.

**H. TRAINING**  
Successful AV contractor will provide training for at least two (2) Owner staff on the use of the entire system. Training must be provided to the Owner’s satisfaction.

**I. MAINTENANCE, UPDATES AND SUPPORT**  
At a minimum, the proposal must include information and pricing associated with all aspects of ongoing support and maintenance activities. This proposed support must include hardware support/maintenance fees, product fixes, and enhancements. The AV contractor must indicate the annual costs for support and maintenance for three, four, and five-year periods in the pricing response. Also include in this section the training and qualifications of technicians who might provide service to the Owner.

**J. CUSTOMER REFERENCES**  
AV contractor should provide at least four (4) client references, preferably from other local governments that most closely reflect the project scope of the Owner, as described in this RFP. These references should be sites at which the proposed system has been installed within the past 3 years.

**K. APPENDICES**  
Under this section, AV contractors shall provide all legal documents and compliance reports, including but not limited to the following:  
- Standard Support/Maintenance Agreement (including the escalation policy);  
- Service Level Agreement

Additionally, AV contractors shall carefully examine the RFP for required documentation not specifically covered in Sections A thru K, and shall place such documentation in an appendix. Information considered by the AV contractor to be pertinent to this project, but not specifically requested in this RFP, may also be placed in an appendix. Examples of documents to be included in this section include:  
- Sample from Training Manual;  
- Sample Project Schedule;  
- Electrical requirements of the proposed system;  
- Recommended operating temperature ranges, allowable humidity limits and all other requirements for proposed equipment.

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**SECTION VI – INFORMATION TECHNOLOGY**

§ 143-129.8. PURCHASE OF INFORMATION TECHNOLOGY GOODS AND SERVICES  
(a) In recognition of the complex and innovative nature of information technology goods and services and of the desirability of a single point of responsibility for contracts
that include combinations of purchase of goods, design, installation, training, operation, maintenance, and related services, a political subdivision of the State may contract for information technology, as defined in G.S. 147-33.81(2), using the procedure set forth in this section, in addition to or instead of any other procedure available under North Carolina law.

(b) Contracts for information technology may be entered into under a request for proposals procedure that satisfies the following minimum requirements:

1. Notice of the request for proposals shall be given in accordance with G.S. 143-129(b).

2. Contracts shall be awarded to the person or entity that submits the best overall proposal as determined by the awarding authority. Factors to be considered in awarding contracts shall be identified in the request for proposals.

(c) The awarding authority may use procurement methods set forth in G.S. 143-135.9 in developing and evaluating requests for proposals under this section. The awarding authority may negotiate with any proposer in order to obtain a final contract that best meets the needs of the awarding authority. Negotiations allowed under this section shall not alter the contract beyond the scope of the original request for proposals in a manner that: (i) deprives the proposers or potential proposers of a fair opportunity to compete for the contract; and (ii) would have resulted in the award of the contract to a different person or entity if the alterations had been included in the request for proposals.

(d) Proposals submitted under this section shall not be subject to public inspection until a contract is awarded.

EXECUTION OF PROPOSAL

By submitting this proposal, the potential contractor certifies the following:

1. This proposal is signed by an authorized representative of the firm.

2. The cost and availability of all equipment, materials, and supplies associated with performing the services described herein have been determined and are included in the proposed cost.

3. All labor costs, direct and indirect, have been determined and are included in the proposed cost.

4. The potential contractor has read and understands the conditions set forth in this RFP, and agrees to them with no exceptions.

Therefore in compliance with this Request for Proposals, and subject to all conditions herein, the undersigned offers and agrees, if this proposal is accepted within 90 days from the date of the opening, to furnish the subject services.
AV CONTRACTOR: ____________________________________________________________

ADDRESS: ___________________________________________________________________

COUNTY, STATE, ZIP: _________________________________________________________

TELEPHONE NUMBER: _________________________________________________________

EMAIL ADDRESS: ___________________________________________________________________

FEDERAL EMPLOYER IDENTIFICATION NUMBER: ______________________________

SIGNATURE: ________________________ TITLE: _______________________________

TYPED NAME: ________________________ DATE: _______________________

THIS PAGE MUST BE SIGNED AND INCLUDED IN YOUR PROPOSAL. UNSIGNED PROPOSALS WILL NOT BE CONSIDERED.
NON-COLLUSION AFFIDAVIT OF PRIME BIDDER

STATE OF ________________
COUNTY OF ________________

______________________________, of __________________________, being
(Name) (Bidder)
duly sworn, deposes and says that:

1. He is ___________________________ ___________________________
   (owner, partner, officer, representative, agent)
   of ____________________________, the Bidder that has submitted the
   attached Bid Proposal;

2. He is fully informed respecting the preparation and contents of the attached Bid
   Proposal and of all pertinent circumstances respecting such Bid Proposal;

3. Such Bid Proposal is genuine and is not a collusive or sham Bid Proposal;

4. Neither the said Bidder nor any of its officers, partners, owners, agents,
   representatives, employees, or parties in interest, including this affiant, has in
   any way colluded, conspired, connived or agreed, directly or indirectly with any
   other Bidder, firm or person to submit a collusive or sham Bid Proposal in
   connection with the Contract for which the attached Bid Proposal has been
   submitted or to refrain from bidding in connection with such Contract, or has in
   any manner, directly or indirectly sought by agreement or collusion or
   communication or conference with any other Bidder, firm or person to fix the
   price or prices in the attached Bid Proposal or of any other Bidder, or to fix the
   overhead, profit or cost element of the Bid price or the Bid price of any other
   Bidder, or to secure through any collusion, conspiracy, connivance or unlawful
   agreement any advantage against the County, or any person interested in the
   proposed Contract; and

5. The price or prices quoted in the attached Bid Proposal are fair and proper and
   are not tainted by any collusion, conspiracy, connivance or unlawful agreement
   on the part of the Bidder or any of its agents, representatives, owner, employees,
   or parties of interest including this affiant.

______________________________
Signed
______________________________
Title

SWORN TO AND SUBSCRIBED before me this ____ day of ________________, 20___.

______________________________
Notary Public
My Commission Expires: ____________________
COUNTY E-VERIFY AFFIDAVIT

STATE OF ______________________
COUNTY OF ______________________

I, ____________________________________________(the individual attesting below), being duly authorized by and on behalf of ________________________________ (the entity doing business with the County hereinafter "Employer") after first being duly sworn hereby swears or affirms as follows:

1. Employer understands that E-Verify is the federal E-Verify program operated by the United States Department of Homeland Security and other federal agencies, or any successor or equivalent program used to verify the work authorization of newly hired employees pursuant to federal law in accordance with NCGS §64-25(5).

2. Employer understands that Employer as defined herein, must use E-Verify. Each Employer, after hiring an employee to work in the United States, shall verify the work authorization of the employee through E-Verify in accordance with NCGS§64-26(a).

3. Employer is a person, business entity, or other organization that transacts business in North Carolina and that employs 25 or more employees in this State. (mark Yes or No)
   a. YES _____, or
   b. NO ______

4. Employer’s subcontractors comply with E-Verify, and if Employer is contracted with the County, Employer will ensure compliance with E-Verify by any subcontractors subsequently hired by Employer.

This ____ day of ________________, 20_____.

____________________________________
Signature of Affiant

Title: _______________________________________________
State of ________________

County of ________________

Signed and sworn to (or affirmed) before me, this the ______
day of ________________, 20____.

______________________________________________________
Notary Public
Print Name: ____________________________________________

My Commission Expires:__________________________________
SECTION VIII – REQUIRED DOCUMENTATION

The following are to accompany bid responses:

1. VENDOR APPLICATION
Bidders are asked to submit a vendor application and return it with bid response. Bidders may download the form from the County’s website at the following link: http://catawba-county-nc.gov/bids. Select Services, Purchasing, Vendor Form.

2. NORTH CAROLINA CERTIFICATE OF AUTHORITY
All out of state vendors are required to have a NC Certificate of Authority. If you already have a certificate please submit with your bid. If you do not have one you must apply once you are awarded the bid. You may register with the State of NC at: http://www.secretary.state.nc.us/corporations/forms.aspx?pitemid=5465493&type=businesscorporation and submit a copy to Purchasing immediately after it is received.

4. E-VERIFY EMPLOYER COMPLIANCE
Per NC HB 786 Session Law 2013-418, employers and their subcontractors with 25 or more employees as defined, must comply with E-Verify requirements to contract with governmental units. E-Verify is a Federal program and can be accessed via this link: http://www.uscis.gov/e-verify/employers

5. IRAN DIVESTMENT ACT CERTIFICATION.
Contractor certifies that, as of the date listed below, it is not on the Final Divestment List or the Iran Parent and Subsidiary Guidance List as created by the State Treasurer pursuant to NCGS 147-86.58. In compliance with the requirements of the Iran Divestment Act (Article 6E of Chapter 147 of the North Carolina General Statutes), Contractor shall not utilize, in the performance of the contract, any subcontractor that is identified on the Final Divestment List or the Iran Parent and Subsidiary Guidance List.

DOCUMENTS TO BE COMPLETED AFTER AWARD

- Certificate of Insurance: County named as additional insured. Insurance requirements listed in SECTION II, O. Indemnification.
- NC Certificate of Authority (for out of state vendors)
- Performance and Payment Bonds
SECTION 27 41 00 - AUDIO-VISUAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

Section Includes: Complete and operational audio-visual (A/V) and remote control systems, including:

- Video projection
- Remote controls
- Program and Speech Audio reinforcement
- AV Recording
- Baseband/Broadband distribution systems
- Video Routing/Switching systems
- Video Display Systems

Related Sections

- Division 26 - Electrical sections for conduits, wire pathways, connections boxes, pull boxes, junction boxes, and outlet boxes permanently installed in walls, floors, and ceilings.

- Division 26 - Electrical sections for room lighting fixtures, power receptacle outlets, interconnecting wiring for these circuits, and electrical breaker panels powering the audio-visual equipment.

- Division 11 - Projection Screens (as required)

- Division 27 - Telecommunications Cable Systems, cable trays and pathways for communications, grounding and bonding for communications systems.

Bid Proposals: Each piece of equipment shall be individually priced and submitted with Bid Proposals. Provide itemized bid response to include the equipment description, manufacturer, model number, unit price, and total quantity. All equipment prices shall reflect any required modifications and accessories. Non-equipment charges shall be outlined separately as a single line item (for each equipment line item that they pertain to). Identify equipment bid responses according to the numbering system used in the supplied equipment lists.

Alternate Proposals: The Equipment Lists attached at the end of this section identify specified equipment by make and model. Alternate equipment choices should be requested prior to the proposal submission, as well as any equipment of similar function that can be bought with discounts. Each item on the alternate equipment list must be accompanied by catalog cuts and technical specifications. If the alternate equipment list does not include this information, the Owner will not consider these items.
Alternate proposed equipment shall meet or exceed all specifications for each piece of equipment that is listed in this section to be considered for replacement.

Non-Equipment Charges:

These non-equipment costs shall include, but not be limited to:

Engineering: Including all required design or as-built drawings, run sheets, instruction manuals, console layouts, step-by-step user guide, etc.

Pre-Installation: Including all fabrication, modification, assembly, rack wiring, programming, etc., performed on the Installer’s premises.

Installation: Including all on-site installation and wiring, shop drawing, coordination and supervision, testing, checkout, Owner training, etc., performed on the Owner’s premises.

General: Including all expenses for shipping, insurance, and guarantees or bonding.

The A/V system total cost shall be entered at the end of the last equipment list line items.

Specifications contained herein, in some cases, may refer to brand names. Brand names are used only to set forth the quality and the general style, type and character of the specification. The quality of the Bid Proposal shall meet or exceed that of the referred to brand name.

1.2 SUBMITTALS

Owner and AV Consultant shall approval all submittals prior to any equipment purchase. Submit the following in accordance with Section 01 33 00 Submittal Procedures (or alternate section):

SD-03 Product Data
Manufacturer’s literature and catalog cut sheets indicating manufactured equipment and accessories including materials, fabrication, test results, operational and environmental ratings and other pertinent technical information.

SD-02 Shop Drawings
Prior to fabrication submit custom designs pertaining to the system. These designs shall include but not be limited to, the following:
- All panels, plates, and designation strips, including details relating to terminology, engraving, finish and color.
- All equipment racks, cabinets, consoles, tables, carts, support bases, and shelves used for any equipment mounting or storage.
- Schematic drawings (A/V and Control Signal flow).
- Any/all equipment modifications with equipment modification drawings.
- Front mechanical drawings of each equipment rack, cabinet or cart.
- Equipment location drawings, as well as location of all A/V plates, Jacks, floor or wall boxes and specialized jack mounting hardware on AE Floor plans (AutoCAD and PDF format).
- System functional block drawings or diagrams, including those for audio and video subsystems.
- Cable labeling plan with source/destination data.

SD-10 Operation and Maintenance Data
At the completion of the installation, but prior to the Final Acceptance Test, the Contractor shall supply for review and approval at least two (2) copies each of the following:
- Equipment manufacturer’s operations and service manuals for each make/model of equipment.
- System Operations and Maintenance manuals for A/V subsystems that shall describe all procedures necessary to activate and configure each subsystem.

SD-11 Closeout Submittals
At the completion of the installation, but before Final Acceptance, provide for review and approval two (2) copies of the following:
- Schematic wiring diagrams with cable markings (as-built)
- Internal wiring diagrams of the equipment racks, cabinets, carts or consoles.
- Custom equipment modifications (if any)
- Final Acceptance test results and nominal settings for all adjustable controls.
- Provide editable electronic copies of all software associated with the audio-visual system (DVD copies).

Submittal materials shall be submitted as indicated in sections above. One copy of each submittal cover sheet shall be returned within a reasonable time from receipt there of bearing one of the following codes:

“Approved” – Approved for manufacture or procurement by the Contractor.

“Approved as Noted” – Approved for manufacture or procurement incorporating the noted comments that are returned with the submittal cover sheet. No manufacturing/procurement
shall be permitted until such time as the noted comments are performed and approved by the Customer.

“Rejected” – The submittal is rejected in accordance with the comments provided with the returned cover sheet. The entire submittal must be corrected and re-submitted as a revision for Customer approval.

Absolutely NO ordering or manufacturing of equipment/materials shall take place prior to approval of submittals.

1.3 DEFINITIONS

The term “Provided By Others (PBO)” shall refer to material and work that is not in the contract and for which the Contractor is not responsible except as otherwise detailed in the specifications plans or contract documents.

The term “Owner Furnished Equipment (OFE)” shall refer to material or equipment that shall be provided by the “Owner” of the facility. The Contractor shall be responsible for installation and integration of this equipment as detailed herein.

The term “Customer” or “Owner” shall refer to the owner of the facility for which the work and materials are being provided.

The term “shall” is mandatory; the term “will” is informative; the term “should” is advisory; and the term “provide” means to furnish and install.

The term “Installer or A/V Contractor” refers to the successful A/V vendor/installer.

The term “A/V Consultant” refers to the agency or firm that is contracted with the Owner to provide engineering design and contract inspection services for all audio or video equipment and materials to be utilized or specified in these contract documents.

The term “Bidder” refers to a qualified AV Contractor intending to tender a bid on the systems described herein.

The term “Construction Manager” or “GC” refers to the representative responsible for the general building construction and on-site coordination and management of all subcontractors.

1.4 SYSTEM DESCRIPTION

A. Design Standards
The customer’s goal is to have available the most commonly used A/V equipment as a cohesive system. Therefore, part of the development efforts for successfully implementing the A/V systems should include:

Installing the system in a manner that will comply with B1CSI, ICIA and routing all audio, video and control cabling elements of the final design in a subtle, unobtrusivemanner to maintain the architectural and visual integrity of the building.

Except where plenum cable is used above finished ceilings, it is required that cabling for microphone and line: inputs, wideband RGBHV video, and other A/V-related cabling be routed inside the comprehensive system of conduit indicated on Drawings and installed by the “GC”. Floor and wall boxes shall serve as the primary interface points to the A/V system.

Provide and install cover plates, connectors, and associated cabling to link all floor and wall boxes to all affiliated local and remote A/V components. The “GC” shall install necessary conduit, power and workboxes. No wiremold or surface-mounted raceway shall be permitted.

Provide and install security covers on any electronics with front panel controls that should not need to be adjusted after initial set-up. All components permanently mounted to rack rail systems shall be installed with industry accepted security screws. Each instructor’s station shall include a 4-inch low-noise fan unit.

Provide 8 ½ x 11 Instruction card, approved by the owner, and laminated with step-by-step instructions outlining system operations for each room that has AV systems. Provide editable file of card to the Owner.

No more than forty lamp hours shall be expired for projection system set-up.

Steel cable security systems and padlocks to secure to the structure shall be provided for all surface loudspeakers, document cameras, video camera, flat panel displays, and LCD projectors. All padlocks provided for security shall be keyed to a single master key.

Provide editable versions of all master source code for any digital signal processing, remote control or microprocessor-based systems included on this project. Provide CD-ROM copy, as well as, loading software onto Owner furnished personal computer(s).

Provide any necessary signal repeaters/amplifiers for any control signals running a distance greater than 50 feet or in excess of the signals standard specification for distance.

Provide low voltage transformers within 40 feet of associated video camera location that shall receive AC power from above finished ceiling or frame an associated equipment rack.
Performance Standards: Unless restricted by the published specifications of a particular piece of equipment, or unless otherwise required, the following minimum performance standards shall be met by each system:
<table>
<thead>
<tr>
<th>Description</th>
<th>Performance Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Audio</strong></td>
<td></td>
</tr>
<tr>
<td>Signal to Noise (S/N)</td>
<td>75 dB minimum</td>
</tr>
<tr>
<td>Total Harmonic Distortion</td>
<td>0.0 percent maximum from 30 Hz to 15,000 Hz</td>
</tr>
<tr>
<td>Frequency Response</td>
<td>Flat within +1.0 dB, 30 Hz to 15,000 Hz</td>
</tr>
<tr>
<td><strong>Video (Signal)</strong></td>
<td></td>
</tr>
<tr>
<td>S/N (peak to RMS) unweighted DC to 4.2MHz</td>
<td>45 dB minimum</td>
</tr>
<tr>
<td>Crosstalk, unweighted DC to 4.2MHz</td>
<td>45 dB minimum</td>
</tr>
<tr>
<td>Frequency Response (composite)</td>
<td>Within +0.5 dB to 10MHz</td>
</tr>
<tr>
<td>Frequency Response (component)</td>
<td>Within +0.5 dB to 100MHz</td>
</tr>
<tr>
<td>Line and Field Tilt</td>
<td>2 percent Maximum</td>
</tr>
<tr>
<td>Differential Gain</td>
<td>3 percent Maximum</td>
</tr>
<tr>
<td>Differential Phase</td>
<td>2 degrees Maximum</td>
</tr>
</tbody>
</table>

Performance Test Signal Paths: The signal paths for the above Performance Standards shall be as follows:

Audio: From any and all source inputs (for microphones, audiotape units, video tape units, DVD Players, etc.) through all audio distribution amplifiers (ADA), mixers, switches, codec, etc., to all signal destinations.

Video: From all source inputs (for cameras, computers, video tape units, DVD Players, etc.) through all distribution amplifiers (VDA), processors, switchers, routers, etc., to all signal destinations.

B. Remote Control Standards: As a minimum, the remote control system for each area shall be programmed to include the following:

- AM/ PM Clock Settings
- Automatic System Shutdown
- Owner Logo on first page
- 50 percent audio level default
- LAN IP Address
- Panel layout to include user screens, as well as, password protected technician pages
- Raise and lower projection screen when projection is powered on/off respectively.
- Activate a minimum of three (3) presets for each installed remote controllable video camera.
- Full function control of all source components, display units, processing and switching electronic devices.
- Touch panel page layouts shall be submitted for approval prior to installation and configuration.
- Per function status feedback indicating active/passive modes of operation.
1.5 QUALITY ASSURANCE

Demonstrate at least five (5) years of experience in the fabrication, programming, assembly, installation, integration and testing of audio-visual presentation and remote control systems of similar magnitude and quality as specified for this contract. The AV Contractor shall submit documentation to the effect with the bid return, including three (3) references (below).

References: Furnish no less than three (3) references for installations of similar size (dollar amount and quantity of floor space receiving integrated technology) and scope, performed throughout the Continental United States within the last three years. At a minimum, reference data shall include the reference company, institute or agency name, contact person’s name and title, telephone number, address, email address and detail project description. Additionally, the reference data shall provide the name of the person that is in charge of the day-to-day operation of the audio-visual installation, with phone number.

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.

1.6 DELIVERIES, STORAGE, AND HANDLING

The AV Contractor shall supply, transport, deliver, unload, move to the installation location, unpack, place, assemble, secure or mount, connect and install all equipment required to complete the installation of the audio-visual system. The AV Contractor shall be responsible for transportation, delivery, and on-site stage of the system’s equipment and materials. The AV Contractor shall be responsible for all transportation of personnel, tools, and all required support or test equipment to and from the site.

The Owner’s acknowledgement of delivery of goods or materials shall not constitute Acceptance (partial or otherwise) and shall not diminish the Contractor’s obligations as specified in the contract documents.

1.7 STAGING

Installation shall commence immediately upon delivery of materials to the job site, except as directed by Owner. Time required from delivery date to completion of project shall be in accordance with the approved schedules.

1.8 WARRANTY

The system warranty shall be for twenty-four (24) months from the date of system acceptance by the Owner. Provide all equipment, material, and labor required to uphold the warranty at no charge to the Owner. All manufacturers’ equipment warranties shall be activated in the owner name and shall commence on the date of system acceptance. In the case of modified equipment, the manufacturer's warranty is normally voided. In such cases, provide the Owner with a warranty equivalent to that of the original manufacturer warranty.
A twenty-four-hour emergency response time is mandatory.

1.9 OWNER’S INSTRUCTIONS
Training: Provide minimum 32 hours of training (8hrs at the discretion of the Owner) in the operation and maintenance of the system for personnel designated by the Owner. The training shall be organized as follows:
Two (2) two hour training class for system technical operation and maintenance.
This class shall cover the following topics:
Review of signal flow diagrams.
Review of all equipment functions, relevant to the function in this system.
Review of initial equipment settings.
Demonstration of all functional connections from a user perspective.
Review and demonstration of replacement procedures for consumables (e.g., lamps).
Review of manufacturers’ recommended routine maintenance procedures
Two (2) two-hour training classes for system engineering concerns.
This class shall cover the following topics:
Review of signal flow diagrams.
Review of all equipment functions, relevant to the installation.
Review of initial equipment settings.
Review of manufacturer’s recommended routine maintenance procedures.
Review and demonstration of replacement procedures for consumables (e.g., lamps).
Review and demonstration of control system software replacement/upgrade procedures.

Four (4) four-hour training classes addressing AV system operations. The classes will demonstrate and describe the following:
System set-up and operations
Control system operation
How to edit and display videotape and computer images
How to attach microphones, record A/V signals, and control the Sound system
Videoconferencing operation and capabilities (if applicable)
Audio monitoring and ADA system operations
IPTV

Engineering Training may take place at any time (chosen by the Owner) after the systems are operational, up to a year following system acceptance.

System Operation and Service Manuals shall be provided for this training.
The County IT will detail additional specifics of the training session(s).
The Owner may take advantage of the training at any time before Two (2) two-hour training classes for system engineering concerns. This class shall cover the following topics:
Review of signal flow diagrams.
Review of all equipment functions, relevant to the installation.
Review of initial equipment settings.
Review of manufacturer’s recommended routine maintenance procedures.
Review and demonstration of replacement procedures for consumables (e.g., lamps).
Review and demonstration of control system software replacement/upgrade procedures.
Four (4) four-hour training classes addressing AV system operations. The classes will demonstrate and describe the following:
- System set-up and operations
- Control system operation
- How to edit and display videotape and computer images
- How to attach microphones, record A/V signals, and control the Sound system
- Videoconferencing operation and capabilities (if applicable)
- Audio monitoring and ADA system operations
- Cable antenna television system (CATV)

Engineering Training may take place at any time (chosen by the Owner) after the systems are operational, up to a year following system acceptance.

System Operation and Service Manuals shall be provided for this training. The Contracting Officer will detail additional specifics of the training session(s). The Owner may take advantage of the training at any time before acceptance, or within one (1) year of acceptance.

1.10 MAINTENANCE
Service Contract: Submit the costs for a one-year service contract, commencing with the completion of the one-year warranty. These contracts shall be fixed-cost, and can be accepted at the option of the Owner. Each contract shall include the following services:

Provide a total of eight (8) one-day visits per year, or a total of sixty-four (64) engineering/service labor hours to conduct preventive maintenance and the owner directed system adjustments. Each visit will include cleaning video and audio heads, checking and replacing projection lamps and indicators, checking and repairing microphones and microphone cables, and conducting subjective and objective tests of the audio, video, and control systems of the installed audiovisual systems. The Repair and/or adjust any malfunctioning components located by the technician during this testing. Include control system programming updates and modifications as part of this service contract, providing an updated editable copy of the source code. Provide a service telephone number, staffed by a qualified technician familiar with the equipment installed by the vendor in the Owner Facility. Staff this number during normal business hours. Respond with an on-site technician within 24-hours of a service call (including Saturdays and Sundays) for all equipment and system failures. There shall be no cost to the Owner for maintenance performed under these service contracts beyond the fixed cost of the contracts. Include under normal service contract visits, updates to both control and video wall system programming acceptance, or within one (1) year of acceptance.

PART 2 PRODUCTS

2.1 PRODUCTS AND MANUFACTURERS
Equipment Lists: Refer to the attachments following this Section for materials and equipment
required to complete the work of this Section.

PART 3 EXECUTION

3.1 ACCEPTABLE INSTALLERS
Designate to the Owner in writing, the responsible person who shall ensure timely and consistent communication with the Owner on progress of the contract. The designated representative shall have full knowledge of all engineering and production procedures and shall report status of the installation and upcoming work plans to the Contracting Officer consultant on a weekly basis. Project manager shall have successfully managed not less than five (5) projects of similar size and scope as defined in previous sections. Bid submission shall detail the percentage of time the project manager and other key personnel will be involved with the project.

3.2 PREPARATION
Where work is to be installed in, wired to, fitted to, attached to, or in any manner integrated with the work of another Trade Contractor or General Contractor, so advise the Owner in sufficient time to permit the installation, fitting, attachment, or integration of said work in an orderly manner, and shall furnish the other firms details and instructions required to complete their work. Where the work of another contractor is to be installed in, wired to, fitted to, attached to, or in any manner integrated with your work, coordinate with the other trades in a timely manner.

3.3 INSTALLATION

General:

All installation work shall be in accordance with, but not limited to, this specification and drawings. Work practices shall be performed in accordance with applicable standards, requirements, and recommendations of Federal and Local authorities having jurisdiction.

All discrepancies discovered and any discrepancies which are apparent at the date of submission of bids, shall be immediately corrected without additional charge to the Owner.

Clearly label all user controls for intended use and nominal setting. These labels shall be engraved and filled, or equal. Accessible controls that should not be changed (audio equalizer settings, etc.) shall be covered.

NOTE: "Dymo" labels are not acceptable.

All equipment to be rack mounted shall be supplied with the appropriate rack mount kits. Each instructor's station and rack enclosure to have a single button on/off power distribution panel to include pull outlets and LED voltage indicator (Furman PL-Pro D II or equal) located in the first available rack unit. All equipment racks to include removable, locking front doors and a 30-minute uninterruptable powersupply (rack mount or free-standing at bottom of rack). Each instructor's station or equipment rack shall include a 4-inch diameter, low-noise fan. All rack and instructor stations shall include "security
"screws to secure rack-mounted components.

Physical Installation:
Provide plate as shown. Plate to occupy first available rack unit in all AV equipment racks. If more than two (2) racks are positioned together, one (1) plate for every two racks is acceptable.

Product: Liberty Cable #23123

All equipment shall be firmly secured in place unless requirements of portability dictate otherwise. Unless granted specific permission by the Customer Project Manager or Contracting Officer, install and secure all boxes, equipment, etc., plumb and square.

Fastenings, mounting brackets and supports shall be adequate to support their loads with a safety factor of at least three (3) A safety chain or cable will be tied to all equipment suspended from above in the installation of equipment and cable, considerati

3.4 AUDIOVISUAL CABLE INSTALLATION

General: Because of the great number of possible variations in grounding systems, follow good engineering practice, as outlined above, and to deviate from these practices only when necessary to minimize crosstalk and to maximize signal-to-noise ratios in the audio, video, and control systems. Inform the Contractor and County IT in the event there is a deviation from the standard grounding practices prior to actually performing the work. All grounding within the Emergency Operations and Emergency Communications Centers must meet the standards identified by Motorola's R56 guidelines.

All cables, regardless of length, shall be marked with wrap around cable markers at both ends. There shall be no unmarked cables at any place in the system. Marking codes used on cables shall correspond to codes shown on "as-built" drawings and/or run sheets. The labeling and numbering system will be coordinated with County IT.

All microphones to include 30ft. cable with heavy-duty jacket and XLR connectors.

Loudspeakers operating @ 8 ohm shall be installed with 12AWG cable as a minimum size/diameter.

Wall/floor box I/O panels shall be installed with audio/video line drivers on runs exceeding 35 ft.

All cabling shall be neatly strapped, dressed, and adequately supported. Any exposed cabling shall be neatly enclosed in a protective covering.

Terminal blocks, boards, uLi-ips, or connectors shall be furnished for all cables, which interface, with racks, cabinets, consoles, or equipment modules. All audio signal lines shall be balanced at the wallplate.

All cables shall be grouped according to the signals being carried in order to reduce signal contamination, form separate groups for the following cables:

Power cables
RGBHV, Video cables and Control cables
Data cables (when applicable)
Audio cables carrying low-level signals
Audio cables carrying line and high-level signals

Supply cables that meet the overall specifications, and approval by the Owner. Any cabling installed in walls or ceilings shall be plenum rated. All cables shall be cut to the length dictated by the run plus the required "slack" to permit future equipment movement and relocation. For equipment mounted in drawers or on slides, the interconnecting cables shall be provided with a service loop of appropriate length.

The cable manufacturer shall install no cable with a bend radius less than that recommended. Notify the Contractor in the event a field condition interferes with the proper installation of any cables or equipment.

Grounding Procedures: In order to minimize problems resulting from improper grounding and to achieve maximum signal-to-noise ratios, the following grounding procedures shall be adhered to:

All Grounding shall follow the procedures as outlined in the Motorola R56 "Standards and Guidelines for Communications Sites", 2005 or latest revision. (Use below as required with R56)

R56 System Ground: A single "system ground" shall be established for the system. All grounding conductors shall connect to this system ground. The system ground shall be provided in the equipment rack, and shall consist of a copper bar of sufficient size to accommodate all secondary ground conductors.

A copper conductor, having a maximum of 0.1 Ohms total resistance, shall connect the system ground bar to the nearest grounded, metallic electrical conduit of at least 2 inches in diameter. Be responsible for determining if the metallic conduit is properly electrically bonded to the building ground system, and shall show the grounding path of a document that is provided with the system documentation. Secondary system grounding conductors shall be provided from all ungrounded equipment in each area, to the primary system grounding point for the area. Each of these grounding conductors shall have a maximum of 0.1 Ohms total resistance.

Under no conditions shall the AC neutral conductor, either in the power panel or in a receptacle outlet, be used for a system ground.

Audio Cable Shields: All balanced audio cable shields shall be grounded at one point only. All audio lines shall be balanced at the source, prior to any cable pull longer than twenty feet. There are no exceptions. For ungrounded portable equipment, such as microphones, the shield shall be connected at both ends but grounded at only one end. Video Receptacles: All video receptacles shall be insulated from the mounting panel, outlet box, or wire-way.

Cable shall be plenum rated and marked if any section is installed in a plenum or riser condition. It is the responsibility of the contractor to identify plenum and riser conditions for correct cable selection.
3.5 REPAIR/RESTORATION

Any damage to any installed work or product caused by the unpacking, transporting, assembly, connecting, or configuring of the product shall be repaired at no charge to the Owner.

3.6 FIELD QUALITY CONTROL

Once installed and the System Checkout is complete, the system shall be tested by the Owner.

If the A/V system fails to meet the requirements of this document or those stated by the technical documentation, then County IT shall reject the installed system and then be given notice (either oral or in writing) to correct the failure as soon as possible. If unable to overcome repeated performance deficiencies within thirty (30) days, and if requested to do so by the County IT, remove the equipment at no expense to the Owner.

No warranties shall begin until the AV Consultant and the Owner has authorized acceptance in writing. Right to Revoke Acceptance: If any equipment and/or goods which have been previously accepted, specifically or by the making of payment, are found to have defects, damage, deficiencies or fail to conform to the specification, for any cause not attributable to the Owner may revoke acceptance.

Acceptance Test: Testing will be performed with the AV Consultant and County IT to determine that the A/V system equipment satisfies the manufacturers' performance specifications and that the A/V system installed satisfactorily performs the functions required by this specification. Conduct formal pre-acceptance tests prior to the AV Consultant and County IT acceptance testing to ensure that the performance and functional specifications are satisfied by the installed system and the system is ready for the AV Consultant and County IT’s acceptance. The AV Consultant and County IT will verify that the installed audiovisual system satisfies the performance and functional requirements through formal acceptance testing.

Conduct all pre-acceptance tests: The AV Consultant/Owner may witness the pre-acceptance tests. The AV Consultant and County IT may inspect and operate system components in order to evaluate installation progress and technical compliance prior to acceptance testing. Provide equipment necessary to demonstrate correct system performance. The Owner may conduct formal acceptance tests, and provide skilled technicians and test equipment as requested to assist the tests.

Contractor System Checkout

Perform system checkout before acceptance tests are scheduled. Furnish all required test equipment and perform all work necessary to determine and/or modify performance of the system to meet the requirements of this specification.

During performance testing, all equipment shall be operated under standard conditions as recommended by the manufacturer. Test all audio and video systems for compliance with the Performance Standards using the following test procedures that follow later in this specification. Maintain documentation of all performance tests for reference by Consultant during the System Acceptance Tests.
At the conclusion of the tests, return all equipment settings to previously calibrated positions.

Provide written records of all test results in spreadsheet form.

Check all control functions, from all controlling devices to all controlled devices, for proper operation. Adjust, balance, and align all equipment for optimum quality and to meet the manufacturer's published specifications. Establish and mark normal settings for all level controls, and record these settings in the "System Operation and Maintenance Manual."

Provide testing results and settings for all equipment and systems to the Owner at least three (3) business days prior to System Acceptance Testing.

Provide the Owner with all test results, manuals, software, as-built documentation, etc. prior to acceptance testing in accordance with the dates and/or lead-times listed within this document. Inform the PM and Owner that the works are ready for System Acceptance Testing by the Owner. The works shall be considered ready for acceptance testing when the following conditions are met:

AV Contractor has pre-tested all systems such that all sub-systems, functions, software, and equipment are de-bugged and operational

AV Contractor has supplied the Owner with the written test results and documentation as listed above for all rooms and systems AV Contractor has supplied the Owner with manuals, training materials, and other as-built documentation revised to reflect comments and/or revisions arising from the review cycles listed elsewhere within this document.

Should the systems not be ready for testing by the Owner at the date(s) and time(s) indicated by the AV Contractor, system acceptance testing may be rescheduled at the sole discretion of the Owner. The AV Contractor shall pay for the labor and expenses of the Owner and other project team members assembled at the project site for the purpose of system acceptance testing for the date(s) of the original scheduled testing plus the labor and expenses of the Owner and other project team members for the rescheduled testing date(s). The labor rate for the Owner shall be a flat rate of $200.00/hour including travel time. Other project team member labor costs shall be at their respective published rates. The PM and/or Consultant shall be entitled to deduct any money owed to the Owner, PM, Owner, or other project team members under this contract from any sum which may become due or is payable to the AV Contractor under this Contract for the purposes of satisfying the charges listed above test Equipment.

Assemble the following test equipment or equivalent) on site.

- Video signal generator, Leader 410C
- RGBS signal generator, Extron VTG 150
- Combined waveform monitor/vectorscope, Leader 5872A
- RGBHV cable, Extron BNC-5-6'HR
- Audio and Video cable, terminations, adapters, etc
- Signal generator, Leader LAG-120B
- AC millivoltmeter, Leader LMV-181A
- Audio test set, Audio Precision PIPLUS
Prerecorded cassette tape
Audio Test CD
35mm Calibrated Test Slide
Programmable Video & Audio Test Generator, Extron VTG-400D

Audio

Absolute Impedances:
Set any speaker level controls at zero attenuation. Measure absolute impedance value of each speaker line at 250, 500, 1000, 2000, 4000 Hz without the amplifier connected but with all speakers connected. Impedance must not be below the rated load impedance of respective amplifier and may be any value equal to or above that. Check resistance of lines to all speakers and microphone receptacles with receptacles open and short-circuited.

Hum and Noise Level
Test overall hum and noise, it should be at least 60 dB below rated power output of each amplifier with amplifier controls set for optimum signal to noise and full output and with inputs terminated with proper shielded resistor (150 and 600 ohms).

Electrical Distortion:
Load power amplifiers with resistors matching nominal impedance of output terminals used in system in place of actual loudspeaker loads. Adjust gain controls as for hum and noise level test.

Apply 250, 500, 1000, 2,000, 4,000 Hz sine-wave signal from an oscillator having less than 0.1 percent T.H.D to each microphone and line level input at level required to produce full amplifier output. Distortion must measure less than 1 percent.

Parasitic Oscillation and RF Pickup
Set up system for each specified mode of operation. Use 5 MHZ band with oscilloscope and speaker monitoring.
Check to insure that the system is free of spurious oscillation and RF pickup in the absence of any input signal and also with the system driven momentarily to full output at 160 Hz.

Buzzes, Rattles, Distortions:
Apply high quality music signal to the system. Adjust the sound system for frequent peaks at its specified maximum sound pressure level.
Apply sine-wave sweep from 50 to 5,000 Hz to 6 dB below full amplifier power.
In both cases, listen carefully for buzzes, rattles and objectionable distortion.
Correct all causes of such defects. If cause is not from system, promptly notify the Contracting Officer indicating cause and suggested corrective procedures.

Level Balance:
Adjust all items of similar equipment for identical measured voltage gain. Unless otherwise specified, render tamper proof using security covers on all controls effecting overall system level balance and signal to noise ratio, such as power amplifier input level control, and input-output level controls for equalizers etc. Some controls may require readjustment as the result of "Acceptance Testing". Equalize
all audio systems for maximum gain before feedback in all room configurations. Record all systems settings for inclusion into systems manuals

Video

Signal Paths

Utilizing a NTSC color bar generator and waveform analyzer with the video signal set at 100 percent saturation and 75 percent amplitude check the video performance specifications are met at the display devices from all source inputs to all system outputs.

Connect the combined waveform monitor/vector scope to a final output point, e.g. an input to a picture monitor or video projector. Ensure the test signal is routed to the selected output.

Level Balance:
Adjust all video projection equipment to produce the best image possible. Ensure horizontal sweep circuitry is not over driven to the point of audible sweep frequencies being emitted.

Adjust all video monitor and videocassette players, video sources to produce the best image possible. Record all systems settings for inclusion into systems manuals

RGBHV:
For all RGBHV inputs, connect the RGBHV output of the signal generator to a floor box/table/rack connector and select the SMPTE bar with "plunge pulse" signal at the following computer scan rates:

- 640 x 480 31.5kHz H, 120Hz V
- 640 x 480 37.8kHz H, 72Hz V
- 800 x 600 46.9kHz H, 75Hz V
- 800 x 600 53.7kHz H, 85Hz V
- 1024 x 768 60kHz H, 75Hz V
- 1024 x 768 68.8kHz H, 85Hz V
- 1280 x 1024 80kHz H, 75Hz V
- 1280 x 1024 91.2kHz H, 85Hz V

Check that the image is correctly displayed at all system outputs including the monitor(s) and/or by the video projector. Repeat using Crosshatch, Checkerboard, and H Pattern Signals.

Optical
All optical projection systems shall meet the following performance standards:
The total averaged light output from a projector, in lumens, shall be within plus-or-minus 15 percent of that specified by the projector manufacturer. The light fall-off from the center of the projected image to all four corners, as measured at the projected image plane, shall not exceed 35 percent for slide projector images. The light intensity shall be measured at all five positions of the projected image after the projector has been adjusted to provide the light output as specified above.
The "corner" locations shall be defined as the four points determined by intersecting lines drawn 5 percent of the distance in from the focused edges of the image. The light meter used for the above measurements shall be properly calibrated footcandle (or lux) meter and shall be cosine-corrected. Projectors, lenses, and mirrors shall be solidly mounted and braced so that there will be no observable movement in the image induced by motor vibration or other mechanical operations.

Qualification Methods: Three methods will be used to qualify the A/V system for acceptance.

Inspection - A critical observation of qualifying factors, such as quality of workmanship, equipment placement, routing of cables, adequacy of technical documentation, etc., that do not lend themselves to demonstration or measurement.

Demonstration - A process of showing by reason or evidence that a given condition clearly satisfies the requirement.

Measurement - A process of determining the actual dimension, capacity, or amount of something, by measuring using calibrated standards.

3.7 Scope of Work

This section describes the Audiovisual Systems (A/V) scope of work for the Catawba County Justice Center Public Safety (JCPS) expansion project.

This section also describes the responsibilities of the Audiovisual Integrator (AI) and Electrical Contractor (EC) in relation to products or systems, to be furnished and installed under the scope of this Division.

Work covered by this section shall consist of furnishing and installing all supervision and technical labor, material, equipment, and all appurtenances necessary to provide a complete and operational audiovisual system including but not limited to the following systems; video display and routing systems, video conferencing systems, IP television distribution, audio systems and equipment, remote control system, to meet the requirements of Catawba County. The work shall include but not be limited to the following:

- Installation of all conduit, pull cords, cable tray, and other raceway and infrastructure as required accommodating the audiovisual system cabling.
- Furnish and install all cabling and terminations required for the audiovisual systems.
- Provide all software, configuration, programming, start-up and commissioning of the audiovisual systems.
- Furnish and install all audiovisual devices, i.e., video displays, projectors, screens, video switching, processing and routing equipment, video codecs and cameras, interfaces, loudspeakers, microphones, DSP’s and amplification equipment, integrated control system and touch screen controllers, power supplies, surge protection, etc.
- As this is a new facility the AV Contractor and contractor shall be responsible for proper coordination of raceways, power, equipment, etc. that will require a complete and operational system.
- All network switches, routers, wireless network links, and related network equipment shall be provided and installed by Catawba County. The AI and Contractor shall coordinate all audiovisual network requirements with Catawba County.
- Catawba County has standardized on Crestron Systems for their integrated control system and touch screen control panels.
- The County’s audiovisual systems are administered by Catawba County Information Technology Department. Therefore it is a requirement of this project that the Audiovisual Integrator shall closely coordinate activities with the IT Department and its Operations Staff that will maintain these systems.

4. SUMMARY OF WORK
   A. Justice Center

The expansion of the Catawba County Justice Center will include the build out of five (5) additional courtrooms, Judges Chambers and meeting rooms. Each of these new areas will provide state of the art audiovisual system supporting courtroom operations. To assist with the ease of use, each courtroom has been comparably configured to provide the necessary elements supporting courtroom activities.

The AV Contractor will procure; install and support an audio system in each courtroom allowing judges to control volumes in the courtroom, Juvenile interview room, and Family rooms associated with each courtroom. The AV Contractor will provide and configure microphones will be provided as shown ensuring muting and volumes capabilities are integrated into the overall AV system. Audio systems for the room will consist of ceiling and in-wall loudspeakers, amplifiers, DSP, and microphone mixers for sound and voice reinforcement. Microphones for voice reinforcement shall be table/lectern mounted as well as wireless handheld and lavaliere types. An assisted listening system shall also be provided with IR transmitters and receivers for audience ADA participation. Inputs/Outputs: • PC audio for line level audio inputs in floor boxes • Wired and wireless microphones for voice reinforcement. • Assisted Listening System • IPTV decoder • TV Tuner

The AV Contractor will procure, install, and maintain video systems as depicted in the design documents. Podiums will be provided by the County to support installation of DVD/Blue Ray players, Elmo document camera, and document annotators as specified in the design documents. Video controls will be provided at the judge’s bench, allowing the judge to preview and control the display of information at locations throughout the courtroom to include the large display behind the witness, witness stand display and clerk of court display. Controls for each position will be provided through a small form factor PC and 24” monitor as well as iPAD Apps.

B. Lobbies and Meeting Rooms
Digital signage will be provided in each central lobby to facilitate dissemination of information related to facilities and courtroom operations. Digital signage applications provided by the AV Contractor all allow for the import of Microsoft documents (e.g. Word, PowerPoint, Excel, etc.) providing for easy import of court docket information. Large meeting rooms will be configure as designed allowing each room to be used as necessary to expand courtroom operations allowing video and audio feeds to be view and controlled be the respective courtroom’s judge.

C. Intercom Systems

The Catawba County Justice Center and Public Safety will be outfitted with an IP based intercom system. The AV Vendor will procure and install IP based speakers as shown throughout the facility allowing the County IT personnel to connect, configure, and create zones for intercom usage. The AV Contractor WILL NOT be required to configure or integrate these speakers.

D. Emergency Operations Center (EOC)

The Emergency Operations Center (EOC) will be the County’s central command and control facility responsible for carrying out the principles of emergency preparedness and emergency management, and disaster management functions at a strategic level in case of any emergency situations, and ensuring the continuity of operation of response by the various County Departments such as law enforcement, fire, rescue, emergency medical services and public utilities and any other local, state or federal government agency. When activated, the EOC may operate around the clock 24 hours a day 7 days per week for a given period of time. The EOC consists of many different types of rooms to support its operations, most requiring multiple A/V systems. Rooms requiring A/V systems for this System include:

EOC Operations Room

- Video Display Systems. The primary video display will be an arrangement of 55” ultra-thin bezel LED-LCD displays in a two (2) high by three (3) wide matrix along the west wall. In the EOC, a 55” wall mounted large format LCD display shall also be provided. All video is anticipated to be capable of copyright protection compliance (HDCP) for high definition use of copyright protected content. The entire system shall have video capability up to either WUXGA or 1080p/60 (depending on the exact aspect ratio of the output source). It is anticipated to use HDMI as the standard with other inputs (RGBHV/HD15, HDMI, Ethernet) with converters or dongles needed for a complete system.

- EOC Operations – Multiple 65” wall mounted large format LCD displays shall be provided around this room. 65” LCD’s shall be mounted on each wall as shown in the drawing package capable of
displaying content from multiple input sources. A lectern shall be provided by the Owner nearby for room presentations. Located at the lectern will be PC video/audio inputs, annotation device, document camera, microphone, and a control touch screen.

- Audio Systems Audio systems for the room will consist of ceiling and in-wall loudspeakers, amplifiers, DSP, and microphone mixers for sound and voice reinforcement. Microphones for voice reinforcement shall be table/lectern mounted as well as wireless handheld and lavaliere types. An assisted listening system shall also be provided with IR transmitters and receivers for audience ADA participation. Inputs/Outputs: • PC audio for line level audio inputs in floor boxes • Wired and wireless microphones for voice reinforcement. • Assisted Listening System • IPTV decoder • TV Tuner

- Breakout Rooms (3)- Each room will have a minimum of one (1) 65” large format LCD display capable of displaying content from multiple input sources

- The Press Room shall host meetings with staff along with media and public officials to discuss and review various events. Several A/V multimedia systems will be required for this room for presentations and media function. Video from each event or meeting shall have the capability to be sent to other conference rooms within the EOC. A lectern will be provided for the Press Room presenter to address the audience and have the ability to control all the audiovisual devices. Located at the lectern will be PC video/audio inputs, annotation device, document camera, microphone, and a control touch screen.

- Video Display Systems. The primary video display will be a projector based system consisting of one (1) ceiling recessed motorized projection screen, tab-tensioned with a 16:10 aspect ratio, located along the east wall. High-resolution projector mounted in ceiling shall also be provided to project all video graphics. Additional supplemental 65” wall mounted large format LCD display shall be provided along the wall to serve as a video monitor. In-wall high-resolution production quality cameras shall be place around the room to capture and record meetings as well as perform video teleconferencing operation. All video is anticipated to be capable of copyright protection compliance (HDCP) for high definition use of copyright protected content. The entire system shall have video capability up to either WUXGA or 1080p/60 (depending on the exact aspect ratio of the output source). It is anticipated to use HDMI as the standard with other inputs (RGBHV/HD15, DVI, Ethernet) with converters needed for a complete system. Inputs/outputs: • Video inputs for PC’s in combination power/AV floor boxes or wall boxes. • Video inputs shall be provided at the lectern.
- **IPTV encoders/decoder** • **TV Tuners** • **Video Conferencing System** including multiple video cameras (along the east and west walls) including, codec, processing and recording equipment, and digital IP encoder.

- **Audio Systems** Audio systems for the Press Room will consist of ceiling and in-wall loudspeakers, amplifiers, DSP, and microphone mixers for sound and voice reinforcement. Microphones for voice reinforcement shall be table/lectern mounted as well as wireless handheld and lavaliere types. An assisted listening system shall also be provided with IR transmitters and receivers for audience ADA participation. Inputs/Outputs: • PC audio for line level audio inputs in floor boxes • Wired and wireless microphones for voice reinforcement. • Assisted Listening System • IPTV decoder • TV Tuner

- **Control Systems** Owner provided iPAD hand held devices running Crestron control software is preferred control system manufacturer. Wired touch panels shall be provided in the locations shown on the drawings to control all video, audio, and lighting. Preference will be given to hardwired controls with IR control used only if there is no other option. The control system shall have capability of full video viewing of preview and program. Sequencing power strips within the A/V racks will provide proper start-up sequence for equipment.

- **EOC Coordinator, Director, Fire Marshall, and Deputy, EMS Manager and EMS Training Officer Video Display Systems.**

  - The primary video display will be an arrangement of 55” ultra-thin bezel LED-LCD displays wall mounted large format LCD displays shall also be provided. All video is anticipated to be capable of copyright protection compliance (HDCP) for high definition use of copyright protected content. The entire system shall have video capability up to either WUXGA or 1080p/60 (depending on the exact aspect ratio of the output source). It is anticipated to use HDMI as the standard with other inputs (RGBHV/HD15, HDMI, Ethernet) with converters or dongles needed for a complete system capable of displaying content from multiple input sources. Audio Systems. Audio systems will consist of in-wall loudspeakers and amplifiers for program audio. Inputs/Outputs: • PC audio for line level audio inputs in wall boxes • IPTV decoder • TV Tuner

  - **Control Systems** Crestron is preferred control system manufacturer. Wired touch panels shall be provided in the locations shown on the drawings to control all video, audio, and lighting. Preference will be given to hardwired controls with IR control used only if there is no other option. The control system shall have capability of full video viewing of preview and program.
Sequencing power strips within the A/V racks will provide proper start-up sequence for equipment.

- Audio Systems Audio systems for the EOC rooms will vary. Most rooms will consist of ceiling and in-wall loudspeakers and amplifiers for sound reinforcement. The Press Room and EOC Operations will require wireless microphones, gooseneck microphone at the lectern and DSP’s and microphone mixers. Inputs/Outputs: • PC audio for line level audio inputs in floor boxes. • Wired and wireless microphones for voice and video conferencing. • IPTV decoders • TV Tuners• Zoned loudspeaker cluster as required.

E. Emergency Call Center

- The ECC will host control room dispatch operators taking calls from members of the public in need of assistance through the 911 emergency number. This can be police, fire and ambulance or similar, or all of the above in the same building depending on the situation. The ECC operates 24 hours a day, 7 days a week. The ECC must have the capability to view building surveillance video, weather data and IPTV. Two supervisor positions are planned for the new ECC Operations Floor. Below is a summary of the major A/V system need for this space.

- Video Display Systems. This room shall include multiple 65” LCD displays as shown on the drawings located around the perimeter of the room. All video is anticipated to be capable of copyright protection compliance (HDCP) for high definition use of copyright protected content. The entire system shall have video capability up to either WUXGA or 1080p/60 (depending on the exact aspect ratio of the output source). It is anticipated to use HDMI as the standard with other inputs (RGBHV/HD15, DVI, Ethernet) with converters needed for a complete system.

- ECC Operations – Multiple 65” wall mounted large format LCD displays shall be provided around this room. 65” LCD’s shall be mounted on the wall as shown in the drawing package capable of displaying content from multiple input sources.

- Control Systems Crestron is preferred control system manufacturer. Wired touch panels shall be provided in the locations shown on the drawings to control all video, audio, and lighting. Preference will be given to hardwired controls with IR control used only if there is no other option. The control system shall have capability of full video viewing of preview and program. Sequencing power strips within the A/V racks will provide proper start-up sequence for equipment.
B. Second Floor Meeting Room (Commissioner Board Room) Room - Video Display Systems.

- This room shall include one (1) 90” LCD display at the front of the room for video playback. All video is anticipated to be capable of copyright protection compliance (HDCP) for high definition use of copyright protected content. The entire system shall have video capability up to either WUXGA or 1080p/60 (depending on the exact aspect ratio of the output source). It is anticipated to use HDMI as the standard with other inputs (RGBHV/HD15, DVI, Ethernet) with converters needed for a complete system.

- Inputs/outputs:

- Video inputs for PC’s in combination power/AV floorboxes and or wall boxes.

- Video Teleconferencing Codec and camera

- IPTV decoder

- TV Tuner

Audio Systems Audio systems for this room will consist of ceiling and in-wall loudspeakers and amplifiers for sound and voice reinforcement. Microphones, amplifier, DSP and microphone mixers shall be provided. Inputs/Outputs: • PC audio for linelevel audio inputs in floor boxes. • Wired microphones for voice and video conferencing. • IPTV decoder • TV Tuner • Zoned loudspeaker cluster as required

Control Systems Crestron is preferred control system manufacturer. Wired touch panels shall be provided in the locations shown on the drawings to control all video, audio, and lighting. Preference will be given to hardwired controls with IR control used only if there is no other option. The control system shall have capability of full video viewing of preview and program. Sequencing power strips within the A/V racks will provide proper start-up sequence for equipment. 1st Floor Expandable Meeting Room(s) the envisioned audio-visual system shall be based upon the Barco/CMS control and switching system. This system makes use of software with highly reliable Hewlett Packard servers to route any video input to any video output or multiple video outputs. Additionally, this system provides a single point of control or multiple control points, which can provide different layers of access to the video/audio streams.

System specific equipment and the corresponding equipment specification and minimum requirements are listed below. Under no circumstance shall any equipment listed be replaced or substituted with a different brand/model without the prior written consent of the Owner Project Manager or designated individual.

Visualization and Data Collaboration (VDC) System Solution
The following Visualization and Data Collaboration environment features have been determined to be necessary for the functionality, reliability and security required for the Owner and shall be furnished and installed as specified herein:

A. The Visualization & Data Collaboration solution shall have the ability to push and pull sources via mobile devices such as Android and Apple platform devices and place them on displays linked into the visualization solution.

B. The VDC System shall have the capability to create desktop displays of content showing no less than nine different sources of content and then share that content with other desktop displays within the organization. Each desktop display shall be able to select to share or not share any of the sources on their desktop.

C. The VDC system shall be comprised of true COTS* hardware components integrated using proven software based platform.
   i. COTS* is defined as a major brand component commercially available from a manufacturer, other than the system supplier. (*Commercially Available Off the Shelf)

D. The software, video processors, and control system shall:
   i. Be windows based
   ii. Shall have integrated device control i.e. turn on/off devices, switch inputs, turn on/off lights, change channels, manage VTC suites. Hardware based touch screen controllers that cannot be freely changed, managed, configured, expanded upon directly by the end user without the need for a dealer is not acceptable.
   iii. Shall not have any reoccurring license fees

E. The various systems that comprise the Visualization & Data Collaboration Environment include: multiple locations communicating with all operator consoles and enabled external workstations are to provide a complete and integrated collaborative interface and shall include all other media, user interfaces, and equipment as specified herein.

The VDC solution shall be a proven network centric software based system, field installed using COTS* commercial off the shelf hardware. The integrator shall have more than 5 such installations currently operating of which should be in federal, defense, homeland security and or infrastructure monitoring applications(on a Federal, State and or local level.) All equipment and labor shall be furnished and installed by the same AV contractor to ensure compatibility and quality assurance of the overall system.

F. All hardware components shall be manufacturer branded commercial-off-the-shelf (COTS*) products. Servers shall be latest generation, major brand, standard, commercially available models with manufacturer-direct support available. Acceptable brands would be HP, Dell, IBM, Super Micro, and Chassis Plans. Servers shall support an open architecture of messaging and
alerting, such as SNMP or NNP to monitor and alert network administrators of the health and status of failed components such as network interfaces, hard drives and power supplies.

G. All servers, video processors, shall be loaded with and operate from Windows server 2003 or 2008, 2010 operating system that have been configured using the latest most current disk utility release.

H. The system shall currently possess the ability to self-monitor and provide external alerts via Email and other forms of messaging.

I. Users shall have the ability to view and control all permitted applications from any true network connected location.

J. Permissions shall be User Defined by login with customizable functions, GUI and permissions by user or user group to allow separate view and control parameters to be set. The user interface shall be user definable per user or user group without the need for compiling of source code.

K. The system shall have Zone Control to limit the operator’s control to a specific area of the wall display.

L. The system shall have Access Control so that an individual’s or Group’s access and control can be defined by user login.

M. The system shall have the capability to size, display and control any number of sources, any common operating systems, with full keyboard and mouse control, without resolution limit, up to the full combined screen resolution.

N. The system shall allow for the saving of wall states/views and their instant recall, manually or externally triggered. These presets or layouts shall be able to be recalled by any user based on their login permission. Multiple View screens shall be available simultaneously and available with a single mouse click.

O. The system shall be completely user programmable, so that no third party programming resources are required. Any programming or configuration changes shall be immediate without the need for compiling of source code. This shall include the ability to create, modify and / or redesign custom GUIs, including labels and functionality.

P. Source Labeling shall be included, i.e. a custom label functionality for sources that provides easy identification.

Q. The system shall have the ability to Crop and Zoom source images. These image manipulation features shall be available for any source.

R. Network Isolation Compatibility – System architecture shall allow for safe viewing and control of sources from multiple secure networks

S. Unlimited Access Points – It shall be possible to add any number of access points to the systems, running on any types of Windows compatible devices including operator’s desktop, touch screen, tablet PC, micro PCs, or large scale LCD panels or display walls (e.g. where the panel or wall is touch-screen capable allowing direct user interaction.)

T. Access points shall include a simple, fully user configurable, entirely scalable tool bar allowing access to all system functionality and including a scalable virtual keyboard, to allow direct
mouse or touch screen operation on any size and any resolution display or display matrix, driven by any computer running under Windows.

U. Content windows shall have optional integrated toolbars to allow direct content control and other functionality including crop and zoom, scaling and blending.

V. A fully integrated web browser shall allow direct web page access, display, fully integrated store and recall, plus the import of favorites from Internet Explorer and Firefox. Said integrated browser shall be capable of displaying web pages free of standard browser toolbars and other visual overhead.

W. Source computers, defined as computers that are to be displayed on any given display area shall not be limited by resolution. The solution shall be able to transport and display as a continuous window on the display area multi-screen desktops without the need for external scalers or processors.

X. Software based KVM capability – System shall provide full support for multi-screen desktop displays, allowing multiple source /OS display and control from any authorized, network connected operator workstation. No additional hardware or third-party software shall be required to accomplish this functionality, only a network connection.

Y. Quick Launch Sources – It shall be possible to instantly launch and display Word, Excel, PowerPoint, Project and AutoCAD files and JPEG, MPEG and other media files, by simply ‘dragging’ them from the Windows desktop, My computer or Windows explorer onto the Wall Management GUI i.e. access point, without the need to pre register or otherwise prepare the file or the system.

i. The Solution shall have an embedded OPC server for integration with building automation systems and industrial process controls.

ii. System shall have alert messaging that alerts operators manually or via automated triggers.

iii. The solution shall have an SDK to allow broad integration with third party applications, the SDK shall be provided to the end user and to third parties at no additional charge.

iv. The solution shall allow a broad range of device control including cameras, video source devices, TV tuners, satellite and cable boxes, sound, lighting, and other audio/video and mechanical devices and be capable of being programmed for new devices.

v. The solution shall be capable of integrating with and controlling Tandberg and Polycom video teleconferencing systems. RP – are these standards that match up with our needs?

vi. The Solution shall continuously monitor and report the status of the recommended DLP displays for health and status.

vii. The selected solution shall have a proven track record with at least 5 years in continuous operation and a minimum of 10 currently active display wall installations, using the specifically proposed technology and software.

viii. The selected systems integrator shall have demonstrated successful past performance by installing at least 5 control rooms in operation, and have demonstrated successful completion of multiple systems equal to or greater in contract value and complexity.
ix. Additional consideration shall be given to those with greater proven performance numbers in terms of systems installed, value and complexity.

x. The solution shall have an open and integrated capability to manipulate via software Pan, Tilt, Zoom (PTZ) camera control without the need for third party standalone application. The solution shall have an open and integrated capability via software to interface with IP Digital Video Recorder/ Servers, and Digital Video Recorders to enable very broad compatibility with IP video cameras and encoders. The IP decoding solution shall not require an analog output. The solution should be able to communicate directly to an IP camera or to the Network Digital Video Recorder via IP communications for decoding and rendering of a camera feed. Solution shall work with the County’s Ocularis system.

xi. The solution shall have an open and integrated web browser with the ability to save a web page as a source. The web browser shall be directly linked to individual Windows Operating System (OS) login profile. In this fashion the web browser shall be able to display the list of favorites that is associated with the individual’s favorite list, e.g. in Internet Explorer or Firefox.

**AV Contractor Considerations**

A. The technology and software components shall currently exist in their entirety and be functional and operational as an implemented solution.

B. The selected AV Contractor shall have a **proven track record** with at least 5 display wall installations per year over the past 3 years. The AV Contractor shall have demonstrated successful completion of multiple systems equal to or greater in contract value and complexity.

   - Additional consideration will be given to those with greater proven performance numbers in terms of systems installed, value and complexity.

C. The selected AV Contractor shall be able to provide any level of service support as desired by the purchaser directly to the end user. If the VDC system/solution is provided and installed by a manufacturer the end user shall be able to contract directly with the manufacturer, where all work is performed by the manufacturer and not by subcontractors, dealers, or vendors.
System Maintenance and Software Upgrades

A. The system provider shall be the same organization that writes the code for the visualization software.

B. The system provider shall provide at least three detailed levels of elevated onsite service to the end user so that they can choose which plan best suits their needs.

C. The system provider shall provide the personnel, skills and equipment to color balance and align the display cubes onsite at least twice a calendar year during off hours.

D. The system provider shall provide an 800-phone number to call for assistance that will be answered by a person during normal business hours. The Vendor shall also provide the option for 24hr phone support.

E. The system provider shall provide an online database to log in questions or problems related to the system or to request a maintenance visit.

F. The system provider shall provide periodic software updates to the customer during the calendar year.

G. The system provider shall possess knowledge and experience in servicing and replacing all hardware components of the cubes including the prism and lenses (if DLP cubes are utilized).

H. The system provider shall be able to provide personnel for additional onsite training.

Basis of Design: Aventura Technologies DH5-VW with VW-ESS1 software/license

3.7.2 Visualization & Data Collaboration System Sub-assemblies for EOC and ECC.

The following sub-assemblies, components or modules are to be used within the overall Barco/Creston solution and shall be provided by the vendor.

3.7.2.1 HD Television Tuner
- Receives ATSC, NTSC and QAM broadcasts
- RS-232 controllable
- Outputs HD RGB, Component, HDMI, Composite NTSC
- Provide optional rack kit (2RU)
- Provide RF AB Switch for Off the Air or cable source selection

Basis of Design: Contemporary Research 232-ATSC+ with CR RF-AB switch

3.7.2.2 Serial Device Controller
- No serial cable distance limitations between a host device and any serial devices located anywhere across an Ethernet network.
- Native COM, TTY, or TCP/IP socket communication modes
- 32 serial ports in a 1U rack mount space
- Web based configuration for setup and management
- Operating temperature of -37° to 74°C for extreme conditions
- Include NS-Link ™ driver software

Basis of Design: Comtrol DeviceMaster RTS P/N 99456-5
3.7.2.3 Audio Media Digital Signal Processor/Amplifier
- 8x8 (input/output) matrix mixing built in, with 4 ea 125W (70.7V) amplifier output channels with any input to any output.
- 8 built-in microphone preamp with gain of 0, +20dB, +40dB, and +60dB with 15V phantom power.
- Gain sharing automatic microphone mixing (Automixer) with automatic feedback suppression.
- Ambient noise compensation with adjustable HP/LP filters
- Dedicated Telephone/PBX input, transformer isolated.
- Post DSP Aux line level outputs with extensive signal processing capabilities (based upon SHARC 32bit DSP) and full 96kHz sample rate with 24-bit A/D-D/A audio resolution.
- Full control using software over 10/100 Base-T Ethernet.
- Built-in pink/white noise and sine wave generator.
- Frequency response shall be ±1dB 20Hz to 20kHz with Signal-to-Noise greater than 102dB (unweighted).
- Each input/output shall have six processing blocks configurable for Dynamics (ambient noise compensation, compressor/limiter, auto-leveler, ducker, gate), Gain, Equalization (31-band graphic, parametric x 10, feedback suppressor), Crossover, Delay, Metering, and signal generator.
- The routing stage shall allow the user to assign an input to any or a combination of outputs and separately adjust how much signal level goes to each output (mixer matrix).
- Rear panel Euroblock connectors for preset recall, DC remote level control, and data in/out.
- External control via wall remotes or Ethernet wall remotes.
- Mount in standard 19-inch rack using maximum of 2 RU (3.5 inches)
- Power 120VAC, 3.72A Maximum (1/3 power sine wave) and 251 BTU/hr, Max (1/3 power sine wave).
- Weight of 21 pounds
Basis of Design: Ashley Audio PEMA 4125.70 or equivalent.

3.7.2.4 Professional Conferencing DSP system
- Next-generation Acoustical Echo Cancellation - Full bandwidth (20Hz to 22Khz) echo cancellation
- Next-generation Noise Cancellation - Adaptive modeling to room ambient noise condition
- Increased resolution on Microphone Preamp stage 0-56 dB in 7 dB increments
- Pre-AEC routing for Sound Reinforcement Application with Maximum of 4 millisecond processing delay
- Integrated Ethernet and USB connections, SNMP and HTML remote management agents, Event scheduler and Diagnostic console
- Simplified Configuration Software - Drag & drop A/V and channel objects
- Next-generation Distributed Echo Cancellation® on every mic input
- First-mic priority delivers clear audio to the far end
- ALC & AGC keep participants’ audio balanced and consistent
- Built in telephone interface and 10W power amplifier
- Enhanced expansion bus, featuring 18 mix-minus audio buses for routing between units
- Ten mic gating groups (four internal & six global) allow separation of mics into individual Mixer gating groups for greater configuration flexibility
Basis of Design: ClearOne Converge Prop 880T

3.7.2.5 AV Ethernet Switch
- Stackable Ethernet switch with 32-Gbps stack interconnect
- Up to 48 - 10/100/1000 ports with POE
- Four SFP uplink ports
- IP Base image feature set to include advanced quality of service (QoS), rate limiting, access control lists (ACLs), static routing, RIP and EIGRP stub routing capabilities.
- Layer 2 and Layer 3
- IPv6 support
- 10 Gigabit Ethernet support

Basis of Design: Cisco Catalyst 3750G-48PS-S

3.7.2.6 Optical DVI Extender
- Extend DVI signal via multimode fiber optic cable 500 meters (1,640 feet)
- Make use of LC type multimode optical fiber connectors
- 25-pin Male DVI-D connector
- R, G, B and clock transmitted separately by multimode fiber
- TX module shall utilize 850nm VCSEL Class 1 Laser product
- RX module shall use PIN Photo Diode
- Supports all DVI resolutions up to and including WUXGA (1920 x 1200) and 1080p and 2048x1080
- Self-detecting function for EDID information with any display (EDID is cached in Transmitter)
- Optional +5VDC External power supply
- Utilizes 50/125 um ON4 fiber optic cable
- Video bandwidth of 1.65Gbps (Single link)

Basis of Design: DVI Gear DVI-7311

3.7.2.7 DVI Digital Matrix Switch
- High performance digital matrix switcher with high speed routing engine that provides a non-blocking cross point matrix that shall allow any input to be routed to any number or combination of outputs.
- The digital matrix switch shall accommodate various signal formats, including single-link DVI, dual-link DVI, HDMI, Display Port, SD-SDI, HD-SDI, 3G-SDI, analog VGA, etc.
- Copper cable input with built-in equalization shall support direct connection of cables with lengths up to 60 meters (197 ft).
- Output signals shall be re-clocked to ensure precise, jitter-free signal transmission.
- Provide advanced EDID Management that provides total user control over every aspect of EDID handling with 100 memories (50 factory preset and 50 user-programmable).
- Provide full control of the matrix switch by USB connection, RS232/RS422 serial port, TCP/IP Ethernet connection, and by LAN using a built-in web interface.
- The routing matrix switcher shall be provided with a 33 input x 33-output configuration with all single-link DVI 29-pin Female DVI connectors.
- The digital matrix switcher shall have redundant hot-swappable power supplies to improve system reliability.
- The digital matrix switch shall have the ability for direct-connection to/from the switching router with copper cables, twisted pair (CAT-X) and optical cables with various connector types.
- The digital matrix switch shall support a maximum bit rate of 2.25Gbps per color.

Basis of Design: DVI Gear DVI-MXP-FR33R with MXP-DVID-IB inputs boards, MXP-DVID-OB output boards and DVI-7225_PS redundant power supplies or equivalent.

3.7.2.8 Video H.264 Encoder
- Ability to stream H.264 SD and HD video over any network to any device while maximizing bandwidth.
- Encode at multiple bit rates and resolutions simultaneously.
- Integrate into a complete enterprise IP video platform.
- 10/100/1000 Mbps Ethernet via RF-45, static or DHCP
- Protocols: Unicast / Multicast, DiffServ (QoS), UDP / IPv4 and IPv6 / RTSP / RTCP / RTP / HTTP / RTSP Interleave / IGMP / MPEG-2 Transport Stream / Automatic Unicast (RTSP ANNOUNCE) / HTTPS Management / SSH / RTMP
- 4:3 Aspect Ratio Resolutions: D1 (720x480, 720x576), SIF (NTSC), QSIF (NTSC), CIF (PAL), QCIF (PAL), 400x304, 384x288 (PAL), 640x480, 320x240, 128x96, 192x144
- 16:9 Aspect Ratio Resolutions: 656x368, 512x288 (PAL), and 256x144
- High Definition input formats: 480i, 480p, 576i, 576p, 720p, 1080i, and 1080p
- Video Frame Rates: 0.5, 1, 2, 3, 5, 6, 7.5, 10, 15, 30 fps (NTSC) 60 fps (720p and below) 0.5, 1, 2.5, 5, 12.5, 25 (PAL) 50 fps (720p and below)
- HD 16:9 Aspect Ratio Resolutions: All standard definition resolutions listed above, plus 960 x 544, 720p (1280 x 720p), 1080p (1920 x 1080)
- Rates: 32kbps - 20Mbps
- Inputs: 3G-SDI, HD-SDI, HDMI, and Component

Basis of Design: Vbrick Systems Inc 7000 series H.264 encoder standalone unit or equivalent.

3.7.2.9 LCD Console Trays (Rack Mount)
- 1 RU Slide in tray for 19-inch equipment rack
- 17 inch LCD @ 1280 x 1024 resolution @ 120Hz
- Trackball and PS2 keyboard, USB pass through
- LCD Viewing Angle: 80° Horizontal/Vertical/Left/Right
- LCD Contract Ratio: 1000:1 and LCD Brightness: 250cd/m2
- Device support: PS/2 or USB
- Video connector: VGA
- Weight 35 pounds, 1.72(H) x 17.38(W) x 21.3(D) inches
- Power consumption 20 -24 watts, AC 100 - 240V

Basis of Design: Avocent ECS17KMMP-XXX

3.7.2.10 KVM Server Switch
- Ability to manage up to 4 CPUs (PC or MAC) using a single keyboard, mouse, and monitor
- Select CPUs from included IR remote, front panel source switch, or built-in serial port.
- Compatible with most IBM keyboard, mouse and video standards
- Excellent video resolution up to 1920 x 1200(single-link) and 3840 x 2400 (dual link).
- Support USB keyboards and mice.
- RS-232 port control and IR Remote control
- Advanced EDID Management
- Video Input/output connectors: (5) DVI-I 29-pong Female (DIGITAL ONLY)
- Audio Input/output connectors: (5) 3.5mm mini-stereo jack
- USB Input (Host) ports (4) USB 2.0 Type B and USB Output (Device) Ports: (2) USB 2.0 Type A
- 1.75(H) x 17.1(W) x 4.2-(D) inches, rack mount ears included, weights 11 lbs.

Basis of Design: Geffen EXT-DVIKVM-441DL or equivalent
3.7.2.11 KVM Extender
- EXTEND DVIU and USB 2.0 up to 200 feet over two CAT-6a cables
- Support high resolutions at long distances (1920 x 1200 @ 120Hz)
- Works over CAT 5, CAT 5E and CAT 6 cable (length to 150 ft on Cat 5 or 5e)
- Single and dual access units DIGITAL Only
- HDCP Pass through if required.
- Dual video models support multi-graphic card systems
  Basis of Design: Geffen EXT-CAT5-1600HD

3.7.2.12 Ceiling Mounted Speakers (EOC only)
- Two-way full range coaxial ceiling loudspeaker, 8ohm or 70V/100V operations
- Operating range: 120Hz - 22kHz
- Frequency response: 80Hz - 20 kHz (± 5dB)
- Max input range: 150W continuous, 375W program, 35Volts RMS, 77 volts momentary peak
- Transformer taps (70V): 120W, 60W, 30W, 15W and low impedance
- Distortion (1% Full Power): 2nd Harmonic 500Hz 0.09%, 2kHz 0.09%, 8kHz 0.71%
  3rd Harmonic 500Hz 0.55%, 2kHz 0.11%, 8kHz 0.02%
- Sensitivity (1W/1m): 95 dB SPL (120Hz to 12.5 kHz 1/3 octave bands)
- Maximum Output: 117 dB SPL / 123 dB SPL (peak 8 ohm)
- Crossover Frequency: 1.3 kHz
- Nominal Coverage: 115° conical (500Hz to 6kHz)
- Drivers: LF 1 x 8 inch, HF 1 x 1.25 inch exit compression driver.
- Driver Protection: Self-resetting solid state circuit breaker
- Controls: Front-face wattage/low impedance selector switch
- Safety features: 4 x safety hang points
- Cutout diameter: 12.25 inches
- Weight: 16.4 pounds
  Basis of Design: Community Professional Distributed Design D8

3.7.2.13 Wireless Microphone System (EOC Only)
Diversity Receiver
- UHF Frequency range of 554-865MHz, with over 1400 selectable pre-programmed frequencies
- Automatic frequency selection with group scans function
- Predictive diversity
- 5 segment RF Meter and 5-segment audiometer
- Squelch adjustment
- Frequency and volume lockout
- Locking DC Connector on power supply
- XLR and 1/4 inch outputs
  Basis of Design: Shure ULXP4 Diversity Receiver

Transmitter
- 3 segment battery gauge (capacity)
- Backlit LCD shows group and channel
- Adjustable frequency settings
- Up to 1400 selectable frequencies
- Frequency and volume lockout
- 8 hour battery life
- 300 ft (92m) operating range line of sight
- -20dB pad switch on body pack transmitter
- Hand Held Microphone Transmitter utilizes Beta 87a element

Basis of Design: Shure ULX1 Body Pack Transmitter and ULX2/B87A Hand Held Mic Transmitter

Antenna Distribution System (if required)
- Allows splitting one pair of antennas between multiple receivers
- Amplifies RF Signal to compensate for insertion loss from splitting signals to multiple outputs
- Front mounted Antenna hardware
- External Power Supply and rack mounting hardware
- Frequency Coverage, UHF: 470 to 952MHz
- Distributed RF Output Level (Gain): -0.5 to 3dB, 1dB typical, from antenna input (unused ports terminated with 50 Ohms)
- Output Connector Isolation - 30dB typical
- Third Order Intercept Point - 21dB typical
- RF Input/output Antenna connector - BNC
- Overall dimensions 1.75(H) x 19 (W) x 6.75 (D) inches with a weight of 3.6 pounds

Basis of Design: Shure UA844SWB

3.7.2.14 Display Monitors (other than video wall) EOC and ECC

The Monitors, other than the video wall, in these areas shall be mounted on a rail system with wall-mounted raceway. Junction boxes shall be placed in approximate positions to feed the wall mounted raceway signal and power for the monitors.

55 inch diagonal commercial LED/LCD Display
- 1920 x 1080 resolution (16:9), 240Hz edge lit LED LCD
- 5000:1 contrast ratio with 380 nits brightness
- 178° horizontal by 178° vertical viewing angle
- External control via RS-232 or RJ-45 ports
- Inputs: VGA (D-sub), DVI-D, Display Port, composite, Component, USB, HDMI, Stereo Mini Jack
- Outputs: DVI-D (Digital Loop out), Stereo Mini Jack
- Power Consumption:160-Watts Typical/180 Watts maximum
- Operating environment: Temperature 0°-40°C, Non-condensing humidity 10-80%
- Built-in speakers (10W - 10W)
- VESA standard flat panel wall mount 400 x 400mm
- Maximum bezel width (any side) 5.2 mm, weight of 35.2 pounds

Basis of Design: Samsung UE-55A commercial display

3.7.2.15 Video Wall Display Monitors (EOC Only)
55 inch diagonal commercial LED/LCD Display
- 1920 x 1080 resolution (16:9), 120Hz direct-lit LED LCD
- 3500:1 contrast ratio with 500 nits brightness
- 178° horizontal by 178° vertical viewing angle
- External control via RS-232 or RJ-45 ports
- Inputs: VGA (D-sub), DVI-D, Display Port, composite, Component (Through VGA), HDMI x 2, RCA (L/R), stereo Mini Jack
- Outputs: DVI-D (Digital Loop out), Stereo Mini Jack
- Power Consumption: 225-Watts Typical/250 Watts maximum
- Operating environment: Temperature 0°-40°C, Non-condensing humidity 10-80%
- Built-in Lamp error detection, Anti-image retention, temperature sensor, etc.
- VESA standard flat panel wall mount 600 x 400mm
- Maximum bezel width (Left/Right or Top/Bottom) 5.2 mm, weight of 52.8 pounds
Basis of Design: Samsung UD-55A commercial display

3.7.2.16 Flat Panel Wall Mount (EOC Video Wall 2x3 configuration)
- Micro adjustable tilt mount for 37 to 63 inch Flat Panel Displays
- Depth from wall 94mm (3.7 inch) maximum, extends to 272 mm (10.7 inches)
- Ability for post-installation fine tuning of height and leveling up to 13mm (1/2 inch) up/down.
- Provides up to 14.5 inch of post-installation lateral shift (7.25 inch left/right of uprights)
- Audible click when the screen safely engages with the mount.
- Built-in cable stand with easy access under screen.
- Plumb adjusts up to 2.5°
- 21 x 34.56 x 3.7 inches (HxWxD)
- Weight capacity of 150 pounds
Basis of Design: Chief Manufacturing Fusion series LSMVU or equivalent.

3.7.2.17 Ceiling Mounted Projector
- Display technology shall be 0.67" 1-Chip DMD
- 1920 x 1200 Resolution
- Brightness - dual lamp 6500 lm, single lamp 3250 lm
- Contrast Ratio 2000:1
- Projection Lens f=24.5 - 33.1mm, F=2.0-2.4
- Picture size - 40" to 300"
- Throw ratio 1.77 - 2.27
- Video compatibility: NTSC/NTSC 4.43 / PAL / SECAM / PAL-60
- Input: PC - 5 BNC x 1, mini D-sub 15 x 1, DVI-D (with HDCP) x 1
- Video Input: BNC x 1, S-video (4pin) x 1, HDMI x 1, 3G-SDI x 1
- Communications terminals: RJ-45 LAN x 1, Serial (in) D-Sub 9pin Male x 1, Serial (out) D-sub 9pin Male x 1, Wired remote (in) x 1, Wired remote (out) x 1 ((both 3.5mm stereo mini jacks)), Remote D-sub 9pin Female x 1
- 19.3"(W) x 7.9" (H) x 16.6" (D) and weight of 35.3 pounds
Basis of Design: Mitsubishi Electric UD8400U

3.7.2.18 Ceiling mounted Projector Box and plate
- 6 gang box (minimum) w/AC Outlet box for 120VAC AV or Tech Power
- Dual RJ-45 connectors
- Video IN/Video OUT 75ohm BNCs
- VGA/HD-15 x 1
- SDI BNC connector x 1
- HDMI x 1
- RS-232 Female connector (DB-9)
- See Ceiling Plate/Box detail drawing
Basis of Design: LeGrand Wiremold EFB6S-FC or equal with appropriate Jack inserts

3.7.2.19 Projection Screen
- Motorized, Projection Screen, HDTV Format (52" x 92" - 16:9)
- Quiet motor with wireless remote control and infrared remote
- 120VAC, 120Hz, 3-wire motor mounted inside screen roller, 2.4amp draw maximum
- Motor instantly reversible, lifetime lubricated, with automatic overload cutout, capacitor and electric brake to prevent coasting.
- Preset and adjustable limit switches to automatically stop picture surface in down position.
- Screen fabric to be flame retardant and mildew resistant fiberglass with black masking borders.
- Hinges on case shall be mounted to allow matching of the doors to the ceiling.
- Case to be finished with a black primer coat, to accept final finish by others.
- Bottom of screen supported and masked by metal dowel weighted to apply proper vertical tension.
- Matt White finish, seamless with an extra drop to lower picture area by 12 inches at the top.
- Three-position control switch shall stop or reverse screen at any point
- Overall case length of 109-1/2" and weight of less than 100 pounds.
Basis of Design: Da-Lite Boardroom Electrol PN 79076

Assorted twisted-pair transmitters/receivers, baluns, interface converters, cable, connectors, receptacles, wall and floor AV, VGA/HDMI and CATV plates, terminations, wall and floor boxes and miscellaneous hardware required to install a complete and working system as specified.

3.7.3 Breakout Rooms (Training, Logistics, and Planning)

65 inch diagonal commercial LED/LCD Display
- 1920 x 1080 resolution (16:9), 120Hz LED LCD
- 4000:1 contrast ratio with 600 nits brightness
- 178° horizontal by 178° vertical viewing angle
- External control via RS-232 or RJ-45 ports
- Inputs: VGA (D-sub), DVI-D, Display Port, Component (VCBS), USB, HDMI, Stereo Mini Jack
- Outputs: DVI-D (Digital Loop out), Stereo Mini Jack
- Power Consumption: 180-Watts Typical/200 Watts maximum
- Operating environment: Temperature 0°-40°C, Non-condensing humidity 10-80%
- Built-in speakers (10W - 10W), IR Sensor, ambient light sensor
- VESA standard flat panel wall mount 400 x 400mm
- Maximum 49" (W) x 28.3" (H) x 1.2" (D), weight of 37.6 pounds
Basis of Design: SamsungDE-65A commercial display

Flat Panel Wall Mount
- Micro adjustable tilt mount for 37 to 63 inch Flat Panel Displays/TVs
- Depth from wall 50mm (1.98 inch) maximum
- Ability for post-installation fine tuning of height and leveling up to 13mm (1/2 inch) up/down.
- Provides up to 17.5 inch of post-installation lateral shift (8.75 inch left/right of uprights)
- Audible click when the screen safely engages with the mount.
- Built-in cable stand with easy access under screen.
- Tilt up to 12° (may vary with screen height)
- 16.5 x 34.44 x 1.99 inches (HxWxD)
- Weight capacity of 200 pounds

**Basis of Design:** Chief Manufacturing Fusion Series LTM

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**Flat Panel In-Wall AV Connection Enclosure**

- Deliver high-density connectivity and power in the wall for Flat Panel Displays/Televisions
- Allows Flat Panel displays/TVs or interactive smart boards to sit flush against wall
- 18 gauge white powder coated rugged steel base (in-wall)
- 2-gang enclosure
- Multiple AV Connector and device plate mounting locations within the box.
- Stud or sheetrock mounting
- Supplied with ABS (white) trim ring
- Shall accept standard RACO-565 electrical box with dual ac outlet

**Basis of Design:** Hubbell net SELECT FPTV box NSAV62M

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**Dual-Gang AV plate/box with at least one VGA and two HDMI connectors and two RJ-45 LAN connectors.** Plate connections to match VGA/HDMI plate drawings. Standard AV wall plate/box in accordance with drawings.

Cable, connectors, receptacles, plates, terminations, and miscellaneous hardware required to install a complete and working system as specified.

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**3.7.4 Press Room**

65 inch diagonal commercial LED/LCD Display
- 1920 x 1080 resolution (16:9), 240Hz edge lit LED LCD
- 5000:1 contrast ratio with 380 nits brightness
- 178° horizontal by 178° vertical viewing angle
- External control via RS-232 or RJ-45 ports
- Inputs: VGA (D-sub), DVI-D, DisplayPort, composite, Component, USB, HDMI, Stereo Mini Jack
- Outputs: DVI-D (Digital Loop out), Stereo Mini Jack
- Power Consumption: 160-Watts Typical/180 Watts maximum
- Operating environment: Temperature 0°-40°C, Non-condensing humidity 10-80%
- Built-in speakers (10W - 10W)
- VESA standard flat panel wall mount 400 x 400mm
- Maximum bezel width (any side) 5.2 mm, weight of 35.2 pounds

**Basis of Design:** Samsung UE-65A commercial display

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**Flat Panel Wall Mount**
- Micro adjustable tilt mount for 37 to 63 inch Flat Panel Displays/TVs
- Depth from wall 50mm (1.98 inch) maximum
- Ability for post-installation fine tuning of height and leveling up to 13mm (1/2 inch) up/down.
- Provides up to 17.5 inch of post-installation lateral shift (8.75 inch left/right of uprights)
- Audible click when the screen safely engages with the mount.
- Built-in cable stand with easy access under screen.
- Tilt up to 12° (may vary with screen height)
- 16.5 x 34.44 x 1.99 inches (HxWxD)
- Weight capacity of 200 pounds
Basis of Design: Chief Mounts Fusion Series LTM

Flat Panel In-Wall AV Connection Enclosure
- Deliver high-density connectivity and power in the wall for Flat Panel Displays/Televisions
- Allows Flat Panel displays/TVs or interactive smart boards to sit flush against wall
- 18 gauge white powder coated rugged steel base (in-wall)
- 2-gang enclosure
- Multiple AV Connector and device plate mounting locations within the box.
- Stud or sheetrock mounting
- Supplied with ABS (white) trim ring
- Shall accept standard RACO-565 electrical box with dual ac outlet
Basis of Design: Hubbell net SELECT FPTV box NSAV62M

Ceiling Mounted Speakers (EOC only)
- Two-way full range coaxial ceiling loudspeaker, 8ohm or 70V/100V operations
- Operating range: 120Hz - 22kHz
- Frequency response: 80Hz - 20 kHz (+ 5dB)
- Max input range: 150W continuous, 375W program, 35Volts RMS, 77 volts momentary peak
- Transformer taps (70V): 120W, 60W, 30W, 15W and low impedance
- Distortion (1% Full Power): 2nd Harmonic 500Hz 0.09%, 2kHz 0.09%, 8kHz 0.71%
  3rd Harmonic 500Hz 0.55%, 2kHz 0.11%, 8kHz 0.02%
- Sensitivity (1W/1m): 95 dB SPL (120Hz to 12.5 kHz 1/3 octave bands)
- Maximum Output: 117 dB SPL / 123 dB SPL (peak 8 ohm)
- Crossover Frequency: 1.3 kHz
- Nominal Coverage: 115° conical (500Hz to 6kHz)
- Drivers: LF 1 x 8 inch, HF 1 x 1.25 inch exit compression driver.
- Driver Protection: Self-resetting solid state circuit breaker
- Controls: Front-face wattage/low impedance selector switch
- Safety features: 4-x safety hangs points
- Cutout diameter: 12.25 inches
- Weight: 16.4 pounds
Basis of Design: Community Professional Distributed Design D8
Wall Mounted Volume Control
- 100 Watt power rating
- 3dB attenuation per step, 10 steps plus OFF
- 27dB total attenuation
- Insertion loss .6dB
- Plate style - Decora 1 gang
Basis of Design: Atlas Sound AT-100D

High Definition PTZ Cameras
- High Definition, 1/3 inch CCD, 1.3 Megapixel imaging device
- Resolution: HD 1080p, 1080i or 720p @ 59.94: 1080p @ 60; 1080p, 1080i or 720p @ 50 SD:
  Composite NTSC or PAL (simultaneous with HD output)
- Lens: 18x Optical zoom
- Focal Length: f=4.7 to 84.6 mm
- Horizontal viewing angle: 3.2 to 55.2 degrees (16:9)
- Video S/N ratio: > 50 dB
- Control protocol: VISCA
- Serial Communications: RS-232 (9600 or 38,400)
- Pan Range: +170 degrees to -170 degrees
- Tilt Range: +90 degrees to -30 degrees
- Pan/Tilt speed: 0.25° to 60° /second
- Preset Positions: 16 (internal), 6 recalled by IR Remote
- Power input: 12VDC
- HD Video output: D-Sub 15 pin / Component HD (Y, Pb, Pr)
- SD output: BNC Composite
- Camera Control: RJ-45 with RS-232C (VISCA)
- Operating Temperature: 0° to +40° C
- Power consumption: Max 25 Watts (without accessory card)
- Weight: 5.8 pounds
Basis of Design: Vaddio ClearView HD-18 or Panasonic HE-120 or equivalent

Ceiling Mounted Microphone
- Condenser microphone element
- Frequency response: 120Hz to 10kHz
- Polar Pattern: hypercardioid
- Fully integrated pre-amp
- Complete immunity from cell phones or GSM devices
- Six inch white gooseneck body
- Optional metal safety junction box shall be installed with the microphone
- 18 to 52v phantom powered
- 3 pin mini-XLR connector
Basis of Design: Audix M40WHC-6 or equivalent

Single gang AV Box/plate with at least one CATV Type F connector and one BNC-75 ohm connector for distribution of CATV signals.
Dual-Gang AV plate/box with at least one VGA and two HDMI connectors and two RJ-45 LAN connectors. Plate connections to match VGA/HDMI plate drawings.

Cable, connectors, receptacles, plates, terminations, and miscellaneous hardware required to install a complete and working system as specified.

3.7.5 Shared Conference Room

65 inch diagonal commercial LED/LCD Display
- 1920 x 1080 resolution (16:9), 120Hz LED LCD
- 4000:1 contrast ratio with 600 nits brightness
- 178° horizontal by 178° vertical viewing angle
- External control via RS-232 or RJ-45 ports
- Inputs: VGA (D-sub), DVI-D, Display Port, Component (VCBS), USB, HDMI, Stereo Mini Jack
- Outputs: DVI-D (Digital Loop out), Stereo Mini Jack
- Power Consumption: 180-Watts Typical/200 Watts maximum
- Operating environment: Temperature 0°-40°C, Non-condensing humidity 10-80%
- Built-in speakers (10W - 10W), IR Sensor, ambient light sensor
- VESA standard flat panel wall mount 400 x 400mm
- Maximum 49" (W) x 28.3" (H) x 1.2" (D), weight of 37.6 pounds

Basis of Design: Samsung DE-65A commercial display

Flat Panel Wall Mount
- Micro adjustable tilt mount for 37 to 63 inch Flat Panel Displays/TVs
- Depth from wall 50mm (1.98 inch) maximum
- Ability for post-installation fine tuning of height and leveling up to 13mm (1/2 inch) up/down.
- Provides up to 17.5 inch of post-installation lateral shift (8.75 inch left/right of uprights)
- Audible click when the screen safely engages with the mount.
- Built-in cable stand with easy access under screen.
- Tilt up to 12° (may vary with screen height)
- 16.5 x 34.44 x 1.99 inches (HxWxD)
- Weight capacity of 200 pounds

Basis of Design: Chief Mounts Fusion Series LTM

Flat Panel In-Wall AV Connection Enclosure
- Deliver high-density connectivity and power in the wall for Flat Panel Displays/Televisions
- Allows Flat Panel displays/TVs or interactive smart boards to sit flush against wall
- 18 gauge white powder coated rugged steel base (in-wall)
- 2-gang enclosure
- Multiple AV Connector and device plate mounting locations within the box.
- Stud or sheetrock mounting
- Supplied with ABS (white) trim ring
- Shall accept standard RACO-565 electrical box with dual ac outlet

Basis of Design: Hubbell net SELECT FPTV box NSA862M
Dual-Gang AV plate/box with at least one VGA and two HDMI connectors and two RJ-45 LAN connectors. Plate connections to match VGA/HDMI plate drawings.

Cable, connectors, receptacles, plates, terminations, and miscellaneous hardware required installing a complete and working system as specified.

3.7.6 Vending Room
55 inch diagonal commercial LED/LCD Display
- 1920 x 1080 resolution (16:9), 120Hz LED LCD
- 5000:1 contrast ratio with 600 nits brightness
- 178° horizontal by 178° vertical viewing angle
- External control via RS-232 or RJ-45 ports
- Inputs: VGA (D-sub), DVI-D, Display Port, Component (VCBS), USB, HDMI, Stereo Mini Jack
- Outputs: DVI-D (Digital Loop out), Stereo Mini Jack
- Power Consumption: 150-Watts Typical/170 Watts maximum
- Operating environment: Temperature 0°-40°C, Non-condensing humidity 10-80%
- Built-in speakers (10W - 10W), IR Sensor, and ambient light sensor
- VESA standard flat panel wall mount 400 x 400mm
- Maximum 41.6" (w) x 24.1 (h) x 1.2" (d), weight 27.5 pounds
Basis of Design: Samsung DE-55A commercial display

Flat Panel Wall Mount
- Micro adjustable tilt mount for 37 to 63 inch Flat Panel Displays/TVs
- Depth from wall 50mm (1.98 inch) maximum
- Ability for post-installation fine tuning of height and leveling up to 13mm (1/2 inch) up/down.
- Provides up to 17.5 inch of post-installation lateral shift (8.75 inch left/right of uprights)
- Audible click when the screen safely engages with the mount.
- Built-in cable stand with easy access under screen.
- Tilt up to 12° (may vary with screen height)
- 16.5 x 34.44 x 1.99 inches (HxWxD)
- Weight capacity of 200 pounds
Basis of Design: Chief Mounts Fusion Series LTM

Flat Panel In-Wall AV Connection Enclosure
- Deliver high-density connectivity and power in the wall for Flat Panel Displays/Television
- Allows Flat Panel displays/TVs or interactive smart boards to sit flush against wall
- 18 gauge white powder coated rugged steel base (in-wall)
- 2-gang enclosure
- Multiple AV Connector and device plate mounting locations within the box.
- Stud or sheetrock mounting
- Supplied with ABS (white) trim ring
- Shall accept standard RACO-565 electrical box with dual ac outlet
Basis of Design: Hubbell net SELECT FPTV box NSAV62M

Single gang AV Box/plate with at least one CATV Type F connector and one BNC-75 ohm connector for distribution of CATV signals.
3.7.7 Public Meeting Room (This room may be split for two simultaneous meetings)
65 inch diagonal commercial LED/LCD Display  
- 1920 x 1080 resolution (16:9), 120Hz LED LCD  
- 5000:1 contrast ratio with 600 nits brightness  
- 178° horizontal by 178° vertical viewing angle  
- External control via RS-232 or RJ-45 ports  
- Inputs: VGA (D-sub), DVI-D, Display Port, Component (VCBS), USB, HDMI, Stereo Mini Jack  
- Outputs: DVI-D (Digital Loop out), Stereo Mini Jack  
- Power Consumption: 150-Watts Typical/170 Watts maximum  
- Operating environment: Temperature 0°-40°C, Non-condensing humidity 10-80%  
- Built-in speakers (10W - 10W), IR Sensor, and ambient light sensor  
- VESA standard flat panel wall mount 400 x 400mm  
- Maximum 41.6” (w) x 24.1 (h) x 1.2” (d), weight 27.5 pounds  
Basis of Design: Samsung DE-65A commercial display

Flat Panel Wall Mount  
- Micro adjustable tilt mount for 37 to 63 inch Flat Panel Displays/TVs  
- Depth from wall 50mm (1.98 inch) maximum  
- Ability for post-installation fine tuning of height and leveling up to 13mm (1/2 inch) up/down.  
- Provides up to 17.5 inch of post-installation lateral shift (8.75 inch left/right of uprights)  
- Audible click when the screen safely engages with the mount.  
- Built-in cable stand with easy access under screen.  
- Tilt up to 12° (may vary with screen height)  
- 16.5 x 34.44 x 1.99 inches (HxWxD)  
- Weight capacity of 200 pounds  
Basis of Design: Chief Mounts Fusion Series LTM

Flat Panel In-Wall AV Connection Enclosure  
- Deliver high-density connectivity and power in the wall for Flat Panel Displays/Televisions  
- Allows Flat Panel displays/TVs or interactive smart boards to sit flush against wall  
- 18 gauge white powder coated rugged steel base (in-wall)  
- 2-gang enclosure  
- Multiple AV Connector and device plate mounting locations within the box.  
- Stud or sheetrock mounting  
- Supplied with ABS (white) trim ring  
- Shall accept standard RACO-565 electrical box with dual ac outlet  
Basis of Design: Hubbell net SELECT FPTV box NSAV62M  
Single gang AV Box/plate with at least one CATV Type F connector and one BNC-75 ohm connector for distribution of CATV signals.  
Dual-Gang AV plate/box with at least one VGA and two HDMI connectors and two RJ-45 LAN connectors.  
Plate connections to match VGA/HDMI plate drawings.
Cable, connectors, receptacles, plates, terminations, and miscellaneous hardware required to install a complete and working system as specified.

3.7.8 Large Courtroom (2012 and Alt 1043)
90 inch diagonal LED/LCD Flat Panel Display
- High definition 1920 x 1080 w/450 cd/m² brightness and 4000:1 contrast ratio
- Certified for 24/7 operation
- Viewing angle: 176° H x 176° V
- Active screen area: 69 3/4" x 39 1/4 inch
- Frame rate of 60 Hz
- Connectors: Analog mini-Dsub 15, DVI-D 24 pin (HDCP compatible), 3.5mm stereo jack, S-Video, Component (BNC), HDMI, RCA (L/R), RJ-45 LAN port and RS-232 D-sub 9-pin.
- Output connectors: DVI-D 24-pin and RCA (L/R)
- Built-in 7W + 7W Stereo speakers (requires PN-ZB01)
- Web browser settings (LAN) requires PN-ZB01
- Operating temperature range: 0 - 40° C with operating humidity range: 20-80% RH (no condensation)
- 73 9/16" (w) x 43 1/16" (h) x 4 13/16" (d), weight 174.2 pounds.
Basis of Design: Sharp PN-E902 or equivalent

Flat Panel Wall Mount
- Micro adjustable tilt mount for 50 to 80 inch Flat Panel Displays/TVs
- Depth from wall 50mm (1.97 inch) maximum
- Ability for post-installation fine-tuning of leveling.
- Provides for post-installation lateral alignment
- Lock-It™ security barrel included.
- Mounting pattern of 200 x 200mm up to 1100 x 700mm
- tilt up to 8°
- 28.35 x 45.21 x 1.97 inches (HxWxD) with weight of 21 pounds
- Weight capacity of 300 pounds
Basis of Design: Premier Mounts P5080T or equivalent

Flat Panel In-Wall AV Connection Enclosure
- Deliver high-density connectivity and power in the wall for Flat Panel Displays/Televisions
- Allows Flat Panel displays/TVs or interactive smart boards to sit flush against wall
- 18 gauge white powder coated rugged steel base (in-wall)
- 2-gang enclosure
- Multiple AV Connector and device plate mounting locations within the box.
- Stud or sheetrock mounting
- Supplied with ABS (white) trim ring
- Shall accept standard RACO-565 electrical box with dual ac outlet
Basis of Design: Hubbell net SELECT FPTV box NSAV62M

Ceiling Mounted Speakers
- Two-way full range coaxial ceiling loudspeaker, 8ohm or 70V/100V operations
- Operating range: 120Hz - 22kHz
- Frequency response: 80Hz - 20 kHz (± 5dB)
- Max input range: 150W continuous, 375W program, 35Volts RMS, 77 volts momentary peak
- Transformer taps (70V): 120W, 60W, 30W, 15W and low impedance
- Distortion (1% Full Power): 2nd Harmonic 500Hz 0.09%, 2kHz 0.09%, 8kHz 0.71%
  3rd Harmonic 500Hz 0.55%, 2kHz 0.11%, 8kHz 0.02%
- Sensitivity (1W/1m): 95 dB SPL (120Hz to 12.5 kHz 1/3 octave bands)
- Maximum Output: 117 dB SPL / 123 dB SPL (peak 8 ohm)
- Crossover Frequency: 1.3 kHz
- Nominal Coverage: 115° conical (500Hz to 6kHz)
- Drivers: LF 1 x 8 inch, HF 1 x 1.25 inch exit compression driver.
- Driver Protection: Self-resetting solid state circuit breaker
- Controls: Front-face wattage/low impedance selector switch
- Safety features: 4 x safety hang points
- Cutout diameter: 12.25 inches
- Weight: 16.4 pounds

Basis of Design: Community Professional Distributed Design D8

Audio Media Digital Signal Processor/Amplifier
- 8x8 (input/output) matrix mixing built in, with 4 ea 125W (70.7V) amplifier output channels with any input to any output.
- 8 built-in microphone preamp with gain of 0, +20dB, +40dB, and +60dB with 15V phantom power.
- Gain sharing automatic microphone mixing (Automixer) with automatic feedback suppression.
- Ambient noise compensation with adjustable HP/LP filters
- Dedicated Telephone/PBX input, transformer isolated.
- Post DSP Aux line level outputs with extensive signal processing capabilities (based upon SHARC 32bit DSP) and full 96kHz sample rate with 24-bit A/D-D/A audio resolution.
- Full control using software over 10/100 Base-T Ethernet.
- Built-in pink/white noise and sine wave generator.
- Frequency response shall be ±1dB 20Hz to 20kHz with Signal-to-Noise greater than 102dB (unweighted).
- Each input/output shall have six processing blocks configurable for Dynamics (ambient noise compensation, compressor/limiter, auto-leveler, ducker, gate), Gain, Equalization (31-band graphic, parametric x 10, feedback suppressor), Crossover, Delay, Metering, and signal generator.
- The routing stage shall allow the user to assign an input to any or a combination of outputs and separately adjust how much signal level goes to each output (mixer matrix).
- Rear panel Euro block connectors for preset recall, DC remote level control, and data in/out.
- External control via wall remotes or Ethernet wall remotes.
- Mount in standard 19-inch rack using maximum of 2 RU (3.5 inches)
- Power 120VAC, 3.72A Maximum (1/3 power sine wave) and 251 BTU/hr, Max (1/3 power sine wave).
- Weight of 21 pounds

Basis of Design: Ashley Audio PEMA 4125.70 or equivalent.

Automatic Microphone Mixer
- Four channel automatic mic mixer for use in sound reinforcement.
- Each input channel shall have a two-band equalizer and three logic terminals
- Fast, noise-free microphone selection, which automatically adjust to changes in background noise.
- Last Mic Lock-On circuit maintains ambient sound.
- Adjustable EQ for each channel
- Active balanced microphone-level XLR inputs and an active balanced Mic/Line level XLR output
- Unbalanced auxiliary-level phono output.
- Low impedance mic input (150ohm)
- Common mode rejection > 70dB @ 1kHz
- Polarity: All inputs to all outputs are non-inverting
- 1.75 (h) x 8.625 (w) x 10.5 (d) with a net weight of 3.86 pounds
- Fits in half rack space

Basis of Design: Shure SCM410

Desktop remote level control
- Desktop controller with XLR (Male) data connector.
- Eight channel faders and one master fader, each with a level control and an on/off button (with green LED to indicate status.
- Fader range of +10db to -75dB
- Max data cable length: 1000 ft using #24 gauge twisted pair
- Phantom powered
- 7.3"(w) x 3.4"(h) x 1.6" (d) and weight of less than 3 pounds
- can be assigned in Protea NE software as a remote level control tool for one or several inputs/outputs.

Basis of Design: Ashley Audio RD-8C

Networked Remote Control
- Programmable Ethernet based remote control unit.
- Designed to mount in standard NA electrical wall box (single gang) and use standard decora cover plate (not included).
- Connection and power using standard CAT-5 or CAT-6 Ethernet cable and POE.
- Six programmable functions buttons, which light up red, amber or green to display status with Two other buttons used to adjust function parameters such as gain or preset number.
- Two-digit LED display/read out.
- May provide control features such as preset recall/scroll, mute, zone source selection, Individual channel and matrix point level control, etc.
- All programming is done across the network using Protea NE software

Basis of Design: Ashley Audio neWR-5

Desktop Microphones
- Miniature electret condenser gooseneck microphone with a desktop base and attached 10ft cable.
- Wide dynamic range and frequency response: 50 Hz to 17kHz
- Programmable on/off switch and LED on/off indicator.
- 12-inch gooseneck
- Power requirements: 11-52VDC phantom power, 2.0ma
- Open circuit sensitivity (at 1kHz ref 1 volt per Pascal): -33.5 dBv (Cardioid)
- Maximum SPL: 123.0 dB (Cardioid)
- Signal to noise ratio: 65.0 dB (Cardioid)
- Dynamic range (1kohm load) 94.0 dB
- Common mode rejection: 45.0dB
- Mute switch attenuation: 50.0 dB
- Cardioid Cartridge: R185B
Basis of Design: Shure MX412D

Lavalier microphone w/Tie clip
- Omnidirectional, subminiature electret condenser microphone design for use in sound reinforcement.
- Supplied with a mounting block and attached tie-bar.
- Includes 6 ft cable with 4-pin TA4F connector
- Output impedance: 3000 ohms
- Sensitivity: -38 dBv/Pa
- Maximum SPL: 120 dB SPL
- Dynamic range: 102 dB
- Output noise (A weighted): 18 dB SPL
Basis of Design: Shure WL93-6

Professional Conferencing DSP system
- Next-generation Acoustical Echo Cancellation - Full bandwidth (20Hz to 22Khz) echo cancellation
- Next-generation Noise Cancellation - Adaptive modeling to room ambient noise condition
- Increased resolution on Microphone Preamp stage 0-56 dB in 7 dB increments
- Pre-AEC routing for Sound Reinforcement Application with Maximum of 4 millisecond processing delay
- Integrated Ethernet and USB connections, SNMP and HTML remote management agents, Event scheduler and Diagnostic console
- Simplified Configuration Software - Drag & drop A/V and channel objects
- Next-generation Distributed Echo Cancellation® on every mic input
- First-mic priority delivers clear audio to the far end
- ALC & AGC keep participants’ audio balanced and consistent
- Built in telephone interface and 10W power amplifier
- Enhanced expansion bus, featuring 18 mix-minus audio buses for routing between units
- Ten mic gating groups (four internal & six global) allow separation of mics into individual Mixer gating groups for greater configuration flexibility
Basis of Design: ClearOne Converge Prop 840T

Dual-Gang AV plate/box with at least one VGA and two HDMI connectors and two RJ-45 LAN connectors. Plate connections to match VGA/HDMI plate drawings.

Cable, connectors, receptacles, floorplates/boxes, terminations, and miscellaneous hardware required installing a complete and working system as specified.

3.7.9 Small Courtroom (2056)
80 inch diagonal commercial LED/LCD Display
- 1920 x 1080 resolution (16:9), 120Hz LED LCD
- 4000:1 contrast ratio with 600 nits brightness
- 178° horizontal by 178° vertical viewing angle
- External control via RS-232 or RJ-45 ports
- Inputs:  VGA (D-sub), DVI-D, DisplayPort, Component (VCBS), USB, HDMI, Stereo Mini Jack
- Outputs:  DVI-D (Digital Loop out), Stereo Mini Jack
- Power Consumption: 180-Watts Typical/200 Watts maximum
- Operating environment:  Temperature 0°-40°C, Non-condensing humidity 10-80%
- Built-in speakers (10W - 10W), IR Sensor, ambient light sensor
- VESA standard flat panel wall mount 400 x 400mm
- Maximum 49” (W) x 28.3” (H) x 1.2” (D), weight of 37.6 pounds

Basis of Design:  Samsung DE-802A commercial display

Flat Panel Wall Mount
- Micro adjustable tilt mount for 55 to 75 inch Flat Panel Displays/TVs
- Depth from wall 50mm (1.98 inch) maximum
- Ability for post-installation fine tuning of height and leveling up to 13mm (1/2 inch) up/down.
- Provides up to 23.5 inch of post-installation lateral shift (11.75 inch left/right of uprights)
- Audible click when the screen safely engages with the mount.
- Built-in cable stand with easy access under screen.
- Tilt up to 12° (may vary with screen height)
- 16.5 x 48.44 x 1.98 inches (HxWxD)
- Weight capacity of 250 pounds

Basis of Design:  Chief Mounts Fusion Series XTM

Flat Panel In-Wall AV Connection Enclosure
- Deliver high-density connectivity and power in the wall for Flat Panel Displays/Televisions
- Allows Flat Panel displays/TVs or interactive smart boards to sit flush against wall
- 18 gauge white powder coated rugged steel base (in-wall)
- 2-gang enclosure
- Multiple AV Connector and device plate mounting locations within the box.
- Stud or sheetrock mounting
- Supplied with ABS (white) trim ring
- Shall accept standard RACO-565 electrical box with dual ac outlet

Basis of Design:  Hubbell net SELECT FPTV box NSAV62M

Ceiling Mounted Speakers
- Two-way full range coaxial ceiling loudspeaker, 8ohm or 70V/100V operations
- Operating range: 120Hz - 22kHz
- Frequency response:  80Hz - 20 kHz (± 5dB)
- Max input range: 150W continuous, 375W program, 35Volts RMS, 77 volts momentary peak
- Transformer taps (70V): 120W, 60W, 30W, 15W and low impedance
- Distortion (1% Full Power): 2nd Harmonic 500Hz 0.09%, 2kHz 0.09%, 8kHz 0.71%
- 3rd Harmonic 500Hz 0.55%, 2kHz 0.11%, 8kHz 0.02%
- Sensitivity (1W/1m): 95 dB SPL (120Hz to 12.5 kHz 1/3 octave bands)
- Maximum Output: 117 dB SPL / 123 dB SPL (peak 8 ohm)
- Crossover Frequency: 1.3 kHz
- Nominal Coverage: 115° conical (500Hz to 6kHz)
- Drivers:  LF 1 x 8 inch, HF 1 x 1.25 inch exit compression driver.
- Driver Protection:  Self-resetting solid state circuit breaker
- Controls: Front-face wattage/low impedance selector switch
- Safety features: 4-x safety hangs points
- Cutout diameter: 12.25 inches
- Weight: 16.4 pounds

Basis of Design: Community Professional Distributed Design D8

Audio Media Digital Signal Processor/Amplifier
- 8x8 (input/output) matrix mixing built in, with 4 ea 125W (70.7V) amplifier output channels with any input to any output.
- 8 built-in microphone preamp with gain of 0, +20dB, +40dB, and +60dB with 15V phantom power.
- Gain sharing automatic microphone mixing (Automixer) with automatic feedback suppression.
- Ambient noise compensation with adjustable HP/LP filters
- Dedicated Telephone/PBX input, transformer isolated.
- Post DSP Aux line level outputs with extensive signal processing capabilities (based upon SHARC 32bit DSP) and full 96kHz sample rate with 24-bit A/D-D/A audio resolution.
- Full control using software over 10/100 Base-T Ethernet.
- Built-in pink/white noise and sine wave generator.
- Frequency response shall be ±1dB 20Hz to 20kHz with Signal-to-Noise greater than 102dB (unweighted).
- Each input/output shall have six processing blocks configurable for Dynamics (ambient noise compensation, compressor/limiter, auto-leveler, ducker, gate), Gain, Equalization (31-band graphic, parametric x 10, feedback suppressor), Crossover, Delay, Metering, and signal generator.
- The routing stage shall allow the user to assign an input to any or a combination of outputs and separately adjust how much signal level goes to each output (mixer matrix).
- Rear panel Euroblock connectors for preset recall, DC remote level control, and data in/out.
- External control via wall remotes or Ethernet wall remotes.
- Mount in standard 19-inch rack using maximum of 2 RU (3.5 inches)
- Power 120VAC, 3.72A Maximum (1/3 power sine wave) and 251 BTU/hr, Max (1/3 power sine wave).
- Weight of 21 pounds

Basis of Design: Ashley Audio PEMA 4125.70 or equivalent.

Desktop remote level control
- Desktop controller with XLR (Male) data connector.
- Eight channel faders and one master fader, each with a level control and an on/off button (with green LED to indicate status.
- Fader range of +10db to -75dB
- Max data cable length: 1000 ft using #24 gauge twisted pair
- Phantom powered
- 7.3"(w) x 3.4"(h) x 1.6" (d) and weight of less than 3 pounds
- can be assigned in Protea NE software as a remote level control tool for one or several inputs/outputs.

Basis of Design: Ashley Audio RD-8C

Networked Remote Control
- Programmable Ethernet based remote control unit.
- Designed to mount in standard NA electrical wall box (single gang) and use standard decora cover plate (not included).
- Connection and power using standard CAT-5 or CAT-6 Ethernet cable and POE.
- Six programmable function buttons, which light up red, amber or green to display status with Two other buttons used to adjust function parameters such as gain or preset number.
- Two-digit LED display/read out.
- May provide control features such as preset recall/scroll, mute, zone source selection, Individual channel and matrix point level control, etc.
- All programming is done across the network using Protea NE software

Basis of Design: Ashley Audio neWR-5

Desktop Microphones
- Miniature electret condenser gooseneck microphone with a desktop base and attached 10ft cable.
- Wide dynamic range and frequency response: 50 Hz to 17kHz
- Programmable on/off switch and LED on/off indicator.
- 12-inch gooseneck
- Power requirements: 11-52VDC phantom power, 2.0ma
- Open circuit sensitivity (at 1kHz ref 1 volt per Pascal): -33.5 dBv (Cardioid)
- Maximum SPL: 123.0 dB (Cardioid)
- Signal to noise ratio: 65.0 dB (Cardioid)
- Dynamic range (1kohm load) 94.0 dB
- Common mode rejection: 45.0dB
- Mute switch attenuation: 50.0 dB
- Cardioid Cartridge: R185B

Basis of Design: Shure MX412D

Professional Conferencing DSP system (if required)
- Next-generation Acoustical Echo Cancellation - Full bandwidth (20Hz to 22Khz) echo cancellation
- Next-generation Noise Cancellation - Adaptive modeling to room ambient noise condition
- Increased resolution on Microphone Preamp stage 0-56 dB in 7 dB increments
- Pre-AEC routing for Sound Reinforcement Application with Maximum of 4 millisecond processing delay
- Integrated Ethernet and USB connections, SNMP and HTML remote management agents, Event scheduler and Diagnostic console
- Simplified Configuration Software - Drag & drop A/V and channel objects
- Next-generation Distributed Echo Cancellation® on every mic input
- First-mic priority delivers clear audio to the far end
- ALC & AGC keep participants’ audio balanced and consistent
- Built in telephone interface and 10W power amplifier
- Enhanced expansion bus, featuring 18 mix-minus audio buses for routing between units
- Ten mic gating groups (four internal & six global) allow separation of mics into individual

Mixer gating groups for greater configuration flexibility

Basis of Design: ClearOne Converge Prop 840T
Dual-Gang AV plate/box with at least one VGA and two HDMI connectors and two RJ-45 LAN connectors. Plate connections to match VGA/HDMI plate drawings.

Cable, connectors, receptacles, floor box/plates, terminations, and miscellaneous hardware required installing a complete and working system as specified.

3.7.10 Jury Deliberation Rooms (2023, 2026, 2041 and ALT 1052)
46 inch diagonal commercial LED/LCD Display
- 1920 x 1080 resolution (16:9), 120Hz LED LCD
- 5000:1 contrast ratio with 600 nits brightness
- 178° horizontal by 178° vertical viewing angle
- External control via RS-232 or RJ-45 ports
- Inputs: VGA (D-sub), DVI-D, DisplayPort, Component (VCBS), USB, HDMI, Stereo Mini Jack
- Outputs: DVI-D (Digital Loop out), Stereo Mini Jack
- Power Consumption: 150-Watts Typical/170 Watts maximum
- Operating environment: Temperature 0°-40°C, Non-condensing humidity 10-80%
- Built-in speakers (10W - 10W), IR Sensor, and ambient light sensor
- VESA standard flat panel wall mount 400 x 400mm
- Maximum 41.6” (w) x 24.1 (h) x 1.2” (d), weight 27.5 pounds
Basis of Design: Samsung DE-46A commercial display

Flat Panel Wall Mount
- Micro adjustable tilt mount for 37 to 63 inch Flat Panel Displays/TVs
- Depth from wall 50mm (1.98 inch) maximum
- Ability for post-installation fine tuning of height and leveling up to 13mm (1/2 inch) up/down.
- Provides up to 17.5 inch of post-installation lateral shift (8.75 inch left/right of uprights)
- Audible click when the screen safely engages with the mount.
- Built-in cable stand with easy access under screen.
- Tilt up to 12° (may vary with screen height)
- 16.5 x 34.44 x 1.99 inches (HxWxD)
- Weight capacity of 200 pounds
Basis of Design: Chief Mounts Fusion Series LTM

Flat Panel In-Wall AV Connection Enclosure
- Deliver high-density connectivity and power in the wall for Flat Panel Displays/Televisions
- Allows Flat Panel displays/TVs or interactive smart boards to sit flush against wall
- 18 gauge white powder coated rugged steel base (in-wall)
- 2-gang enclosure
- Multiple AV Connector and device plate mounting locations within the box.
- Stud or sheetrock mounting
- Supplied with ABS (white) trim ring
- Shall accept standard RACO-565 electrical box with dual ac outlet
Basis of Design: Hubbell net SELECT FPTV box NSAV62M

Dual-Gang AV plate/box with at least one VGA and two HDMI connectors and two RJ-45 LAN connectors. Plate connections to match VGA/HDMI plate drawings.
Cable, connectors, receptacles, plates, terminations, and miscellaneous hardware required to install a complete and working system as specified.

3.7.11 Judge's Chambers (2032, 2034 and Alt 1054)
48 inch diagonal commercial LED/LCD Display
- 1920 x 1080 resolution (16:9), 120Hz LED LCD
- 5000:1 contrast ratio with 600 nits brightness
- 178° horizontal by 178° vertical viewing angle
- External control via RS-232 or RJ-45 ports
- Inputs: VGA (D-sub), DVI-D, DisplayPort, composite, Component, USB, HDMI, Stereo Mini Jack
- Outputs: DVI-D (Digital Loop out), Stereo Mini Jack
- Power Consumption: 120-Watts Typical/140 Watts maximum
- Operating environment: Temperature 0°-40°C, Non-condensing humidity 10-80%
- Built-in speakers (10W - 10W)
- VESA standard flat panel wall mount 200 x 200mm
- 36.3'(w) x 21.1''(h) x 1.2'' (d), weight 23.1 pounds

Basis of Design: Samsung DE-48A commercial display

Flat Panel Wall Mount
- Micro adjustable tilt mount for 37 to 63 inch Flat Panel Displays/TVs
- Depth from wall 50mm (1.98 inch) maximum
- Ability for post-installation fine tuning of height and leveling up to 13mm (1/2 inch) up/down.
- Provides up to 17.5 inch of post-installation lateral shift (8.75 inch left/right of uprights)
- Audible click when the screen safely engages with the mount.
- Built-in cable stand with easy access under screen.
- Tilt up to 12° (may vary with screen height)
- 16.5 x 34.44 x 1.99 inches (HxWxD)
- Weight capacity of 200 pounds

Basis of Design: Chief Mounts Fusion Series LTM

Flat Panel In-Wall AV Connection Enclosure
- Deliver high-density connectivity and power in the wall for Flat Panel Displays/Televisions
- Allows Flat Panel displays/TVs or interactive smart boards to sit flush against wall
- 18 gauge white powder coated rugged steel base (in-wall)
- 2-gang enclosure
- Multiple AV Connector and device plate mounting locations within the box.
- Stud or sheetrock mounting
- Supplied with ABS (white) trim ring
- Shall accept standard RACO-565 electrical box with dual ac outlet

Basis of Design: Hubbell net SELECT FPTV box NSAV62M

Dual-Gang AV plate/box with at least one VGA and two HDMI connectors and two RJ-45 LAN connectors. Plate connections to match VGA/HDMI plate drawings.
Cable, connectors, receptacles, plates, terminations, and miscellaneous hardware required to install a complete and working system as specified.

3.7.12 Child Victim Waiting
40 inch diagonal commercial LED/LCD Display with TV Tuner
- 1920 x 1080 resolution (16:9), 120Hz
- 5000:1 contrast ratio with 350 nits brightness
- 178° horizontal by 178° vertical viewing angle
- External control via RS-232 or RJ-45 ports
- Inputs: Composite, Stereo Mini Jack, TV-in, USB
- Outputs: Stereo Mini Jack
- Power Consumption: 87-Watts Typical/119 Watts maximum
- Operating environment: Temperature 32°-104°F, Non-condensing humidity 10-80%
- Built-in speakers (10W - 10W) and built-in TV Tuner
- VESA standard flat panel wall mount 7.87 x 7.87 inches
- 20.5 pounds
- Energy Star 5.0 compliant
Basis of Design: Samsung MD-48 LED/LCD commercial display

Flat Panel Wall Mount
- Micro adjustable tilt mount for 37 to 63 inch Flat Panel Displays/TVs
- Depth from wall 50mm (1.98 inch) maximum
- Ability for post-installation fine tuning of height and leveling up to 13mm (1/2 inch) up/down.
- Provides up to 17.5 inch of post-installation lateral shift (8.75 inch left/right of uprights)
- Audible click when the screen safely engages with the mount.
- Built-in cable stand with easy access under screen.
- Tilt up to 12° (may vary with screen height)
- 16.5 x 34.44 x 1.99 inches (HxWxD)
- Weight capacity of 200 pounds
Basis of Design: Chief Mounts Fusion Series LTM

Flat Panel In-Wall AV Connection Enclosure
- Deliver high-density connectivity and power in the wall for Flat Panel Displays/Televisions
- Allows Flat Panel displays/TVs or interactive smart boards to sit flush against wall
- 18 gauge white powder coated rugged steel base (in-wall)
- 2-gang enclosure
- Multiple AV Connector and device plate mounting locations within the box.
- Stud or sheetrock mounting
- Supplied with ABS (white) trim ring
- Shall accept standard RACO-565 electrical box with dual ac outlet
Basis of Design: Hubbell net SELECT FPTV box NSAV62M

Single gang AV Box/plate with at least one CATV Type F connector and one BNC-75 ohm connector for distribution of CATV signals.
Cable, connectors, receptacles, plates, terminations, and miscellaneous hardware required to install a complete and working system as specified.

3.7.13 Meeting Room (2142)
48 inch diagonal commercial LED/LCD Display
- 1920 x 1080 resolution (16:9), 120Hz LED LCD
- 5000:1 contrast ratio with 600 nits brightness
- 178° horizontal by 178° vertical viewing angle
- External control via RS-232 or RJ-45 ports
- Inputs: VGA (D-sub), DVI-D, Display Port, Component (VCBS), USB, HDMI, Stereo Mini Jack
- Outputs: DVI-D (Digital Loop out), Stereo Mini Jack
- Power Consumption: 150-Watts Typical/170 Watts maximum
- Operating environment: Temperature 0°-40°C, Non-condensing humidity 10-80%
- Built-in speakers (10W - 10W), IR Sensor, and ambient light sensor
- VESA standard flat panel wall mount 400 x 400mm
- Maximum 41.6" (w) x 24.1 (h) x 1.2" (d), weight 27.5 pounds

Basis of Design: Samsung DE-48A commercial display

Flat Panel Wall Mount
- Micro adjustable tilt mount for 37 to 63 inch Flat Panel Displays/TVs
- Depth from wall 50mm (1.98 inch) maximum
- Ability for post-installation fine tuning of height and leveling up to 13mm (1/2 inch) up/down.
- Provides up to 17.5 inch of post-installation lateral shift (8.75 inch left/right of uprights)
- Audible click when the screen safely engages with the mount.
- Built-in cable stand with easy access under screen.
- Tilt up to 12° (may vary with screen height)
- 16.5 x 34.44 x 1.99 inches (HxWxD)
- Weight capacity of 200 pounds

Basis of Design: Chief Mounts Fusion Series LTM

Flat Panel In-Wall AV Connection Enclosure
- Deliver high-density connectivity and power in the wall for Flat Panel Displays/Televisions
- Allows Flat Panel displays/TVs or interactive smart boards to sit flush against wall
- 18 gauge white powder coated rugged steel base (in-wall)
- 2-gang enclosure
- Multiple AV Connector and device plate mounting locations within the box.
- Stud or sheetrock mounting
- Supplied with ABS (white) trim ring
- Shall accept standard RACO-565 electrical box with dual ac outlet

Basis of Design: Hubbell net SELECT FPTV box NSAV62M

Dual-Gang AV plate/box with at least one VGA and two HDMI connectors and two RJ-45 LAN connectors. Plate connections to match VGA/HDMI plate drawings.

Cable, connectors, receptacles, plates, terminations, and miscellaneous hardware required to install a complete and working system as specified.
3.7.14 Lobby/Main Hallway (1st/2nd Floor toward old justice center building) Digital Signage

65 inch diagonal commercial LED/LCD Display
- 1920 x 1080 resolution (16:9), direct-lit LED LCD
- 3500:1 contrast ratio with 300 nits brightness
- 178° horizontal by 178° vertical viewing angle
- External control via RS-232
- Inputs: Component (CVBS), USB, HDMI x 3 (HDMI Supports DVI) AV2, Ant in, PC/dvi audio in, component audio in, AV Audio in
- Outputs: Digital Audio out (optical), Audio out
- Power Consumption: 53-WattsTypical/95 Watts maximum
- Operating environment: Temperature 0°-40°C, Non-condensing humidity 10-80%
- Built-in speaker, plug and play (through USB)
- Media player: USB Auto play (movie, picture, audio, no scheduling)
- VESA standard flat panel wall mount 200 x 400mm
- Maximum bezel width (L/R/T) 18.5 mm, bottom 29.7mm,, weight 30.8 pounds

Basis of Design: Samsung H65B commercial display

Flat Panel Wall Mount
- Micro adjustable tilt mount for 37 to 63 inch Flat Panel Displays/TVs
- Depth from wall 50mm (1.98 inch) maximum
- Ability for post-installation fine tuning of height and leveling up to 13mm (1/2 inch) up/down.
- Provides up to 17.5 inch of post-installation lateral shift (8.75 inch left/right of uprights)
- Audible click when the screen safely engages with the mount.
- Built-in cable stand with easy access under screen.
- Tilt up to 12° (may vary with screen height)
- 16.5 x 34.44 x 1.99 inches (HxWxD)
- Weight capacity of 200 pounds

Basis of Design: Chief Mounts Fusion Series LTM

Flat Panel In-Wall AV Connection Enclosure
- Deliver high-density connectivity and power in the wall for Flat Panel Displays/Televisions
- Allows Flat Panel displays/TVs or interactive smart boards to sit flush against wall
- 18 gauge white powder coated rugged steel base (in-wall)
- 2-gang enclosure
- Multiple AV Connector and device plate mounting locations within the box.
- Stud or sheetrock mounting
- Supplied with ABS (white) trim ring
- Shall accept standard RACO-565 electrical box with dual ac outlet

Basis of Design: Hubbell net SELECT FPTV box NSAV62M

Cable, connectors, receptacles, plates, terminations, and miscellaneous hardware required to install a complete and working system as specified.

3.7.15 ECC Training (2163)
55 inch diagonal commercial LED/LCD Display
- 1920 x 1080 resolution (16:9), 240Hz edge lit LED LCD
- 5000:1 contrast ratio with 380 nits brightness
- 178° horizontal by 178° vertical viewing angle
- External control via RS-232 or RJ-45 ports
- Inputs: VGA (D-sub), DVI-D, DisplayPort, composite, Component, USB, HDMI, Stereo Mini Jack
- Outputs: DVI-D (Digital Loop out), Stereo Mini Jack
- Power Consumption: 160-Watts Typical/180 Watts maximum
- Operating environment: Temperature 0°-40°C, Non-condensing humidity 10-80%
- Built-in speakers (10W - 10W)
- VESA standard flat panel wall mount 400 x 400mm
- Maximum bezel width (any side) 5.2 mm, weight of 35.2 pounds

Basis of Design: Samsung UE-55A commercial display

Flat Panel Wall Mount
- Micro adjustable tilt mount for 37 to 63 inch Flat Panel Displays/TVs
- Depth from wall 50mm (1.98 inch) maximum
- Ability for post-installation fine tuning of height and leveling up to 13mm (1/2 inch) up/down.
- Provides up to 17.5 inch of post-installation lateral shift (8.75 inch left/right of uprights)
- Audible click when the screen safely engages with the mount.
- Built-in cable stand with easy access under screen.
- Tilt up to 12° (may vary with screen height)
- 16.5 x 34.44 x 1.99 inches (HxWxD)
- Weight capacity of 200 pounds

Basis of Design: Chief Mounts Fusion Series LTM

Flat Panel In-Wall AV Connection Enclosure
- Deliver high-density connectivity and power in the wall for Flat Panel Displays/Televisions
- Allows Flat Panel Displays/TVs or interactive smart boards to sit flush against wall
- 18 gauge white powder coated rugged steel base (in-wall)
- 2-gang enclosure
- Multiple AV Connector and device plate mounting locations within the box.
- Stud or sheetrock mounting
- Supplied with ABS (white) trim ring
- Shall accept standard RACO-565 electrical box with dual ac outlet

Basis of Design: Hubbell net SELECT FPTV box NSAV62M

Dual-Gang AV plate/box with at least one VGA and two HDMI connectors and two RJ-45 LAN connectors. Plate connections to match VGA/HDMI plate drawings.

Single gang AV Box/plate with at least one CATV Type F connector and one BNC-75 ohm connector for distribution of CATV signals.

Cable, connectors, receptacles, plates, terminations, and miscellaneous hardware required to install a complete and working system as specified.

3.7.16 Outside entry 1201 and Main Entry 1002
Remote IP Video Intercom
- Flush wall mount w/mounting box included
- Digital PTZ color video camera
- 170° viewing area
- Weather and vandal resistant
- Normally open dry contact for door release (24V AC/DC 500ma)
- Call button that can call up to 20 different master stations
- Speaker/microphone allow for two-way conversation with master station
- Stainless steel
- 802.3af POE compliant
- Connects using CAT-6 cable, IP addressable (Static IP)

Basis of Design: AIPhone IS-IPDVF

Master Station IP Video Intercom
- IP direct audio and video
- 3.5 inch LCD Display
- Door release
- 802.3af POE compliant
- Desk stand included
- connects using CAT-6 Cable
- IP addressable (Static IP)
- operation from over 900 feet from remote (via network)
- Handset or hands-free operation

Basis of Design: AIPhone IS-IPMV

Cable, connectors, receptacles, plates, terminations, and miscellaneous hardware required to install a complete and working system as specified.

3.7.17 Various Offices, Kitchen or Break Rooms

Dual-Gang AV plate/box with at least one VGA and two HDMI connectors and two RJ-45 LAN connectors. Plate connections to match VGA/HDMI plate drawings.

Single gang AV Box/plate with at least one CATV Type F connector and one BNC-75 ohm connector for distribution of CATV signals.

Cable, connectors, receptacles, plates, terminations, and miscellaneous hardware required to install a complete and working system as specified.
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<th>Room#</th>
<th>Room Description (As shown on Drawing)</th>
<th>Quantity</th>
<th>Suggested Hardware</th>
<th>Unit Price</th>
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<th>Suggested Software/License</th>
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**AV Pricing Document**