Town of Vienna
PD Community Rooms 103A/103B
Final AV Design
July 1, 2021

This document is a Statement of Work (SOW)

Human Circuit is an applications engineering firm specializing in the design, integration and support of digital video acquisition, distribution and visualization systems. As part of our discovery process, we will provide Rough Orders of Magnitude (ROMs) which are working documents that help us articulate system requirements and refine budgets. Ultimately, these ROMs lead to a final Statement of Work (SOW). All Purchase Orders must reference a final SOW and quote. Human Circuit will not accept a Purchase Order which references a ROM or portions of a SOW.

Human Circuit will invoice based on the following payment terms:

- 50% deposit at contract/purchase order
- 25% NET20 at equipment acquisition
- 15% NET20 upon commencement of on-site work and equipment delivery
- 10% NET20 at project completion
- A Service Charge of 1.5% will be added to unpaid balances monthly on any overdue account.

COST

The cost of $562,240.92 for this SOW includes equipment, engineering, integration, materials, taxes, and shipping.

Town of Vienna Police Department
Community Training Room 103A/103B
July 14, 2021

This document provides an operational framework for the Town of Vienna Police Department's Community Training Room 103A/103B. This document summarizes Human Circuit's understanding of the room's operational requirements and recommends AV technology that satisfies those requirements.

The operation of a divisible Community Training Room can become overly complex and inefficient when the nuances of mission are in opposition with the room's function. Human Circuit is an applications engineering firm specializing in the design, integration and support of mission critical Community Training Rooms. With a "less is more" school of thought, Human Circuit's applications engineering team will provide simpler, efficient, and cost-effective systems.

Town of Vienna Police Headquarters

The new police facility will allow the Town of Vienna's Police Department to operate from one building, accounting for increased operations and upgrades in technology and security. The current 11,000-square-foot police station has been at 215 Center Street South since 1994, and the department's criminal investigations section was relocated to Town Hall in 2007. A needs assessment concluded that the police department needs 30,000 square feet of space for operations. The building will include a divisible Community Training Room that will accommodate emergency planning needs and provide community space (Community Training Room 103A/103B).

Community Training Room 103A/103B
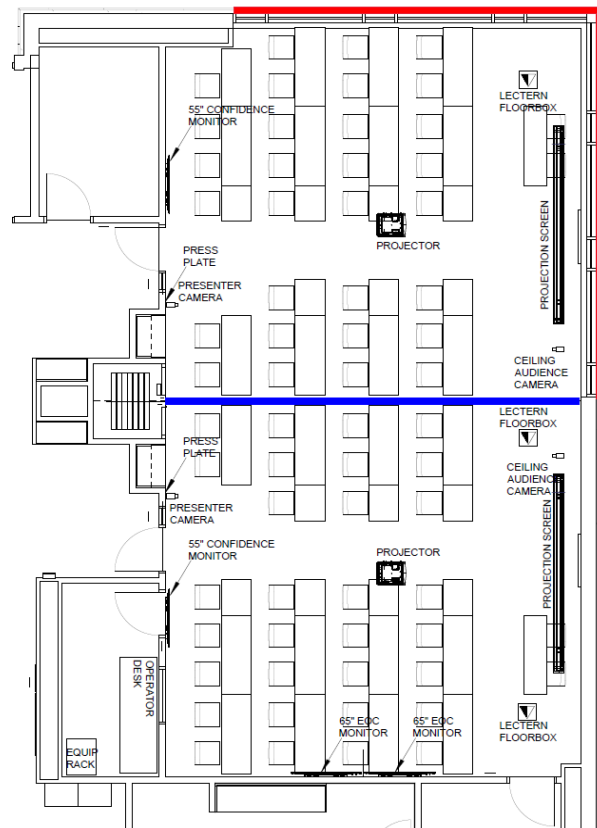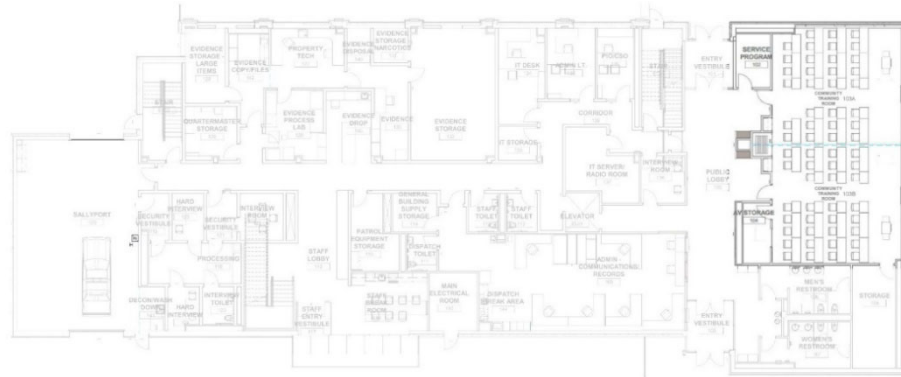
Room Capacity
- Combined configuration with tables: 70 positions (total)
- Combined configuration without tables: 90 positions (total)
- Divided room configuration with tables: 35 positions (each)
- Divided room configuration without tables: 45 positions (each)

   Total positions include four at the lectern locations.
   Red *indicates floor to ceiling windows.*
   Blue *indicates room division.*

Community Center 103A/103B Use Cases

- Classrooms
- Public Events with presentation and sound reinforcement
- Emergency Operations (EOC)
- Town Hall Overflow
- Press Conferences
- Council Meetings and Work Sessions

Classroom
- Presentation from a lectern using the all-in-one (AiO) PC
- Room control using the AiO or an iPad
- Annotation over content using software installed on the AiO
- One projection system in each room
- Room AV Recording
- Zoned in-room audio reinforcement to prevent feedback
- Lectern microphones, handheld/lavalier(lapel) wireless mics, and ceiling mounted beam forming mic arrays
- Wireless presentation to projection system
- Remote participation via soft-codec video conferencing
- Assistive listening
- One 55" confidence monitor in each room
- One 75" roll around display in each room

Public Events
- Same operation as described in training
- Background music with audio streaming such as Pandora or Spotify using the lectern AiO

Emergency Operation Center (EOC)
- Presentation from a lectern using the AiO PC
- Sources can be presented on any combination of displays
- Sources
  - Vienna street and police mobile cameras
  - Fairfax County Website EOC
  - Fairfax County Map GIS
  - Metro/WMATA Website
  - VDOT Website
  - Cable channels – four simultaneous feeds
  - Web channels (YouTube)
  - Wireless presentation device for local laptops to display on projection system
  - Soft-codec video conferencing

Town Hall Overflow

- Remote AV from the Community Training Room to the Town Hall enables the audience to formally address the Council from a lectern
- Ceiling mounted microphones enable the audience to ask questions without a lectern for Q&A
- A wireless handheld microphone is available
- A program feed (combined audio and video) is sent from Town Hall to the Community Training Room. Video is displayed on the screens with audio
- Cameras are controlled remotely from Town Hall


Press Conferences

- Lectern microphones, handheld, and lavalier (lapel) mics are available
- Two wall mounted press plates provide the press with audio and video feeds from the room. Each plate has four audio and four video connections
- The four cameras are controlled from Town Hall

Council Meetings and Work Sessions

- Laptop presentation from staff tables
- Room control using the AiO or an iPad
- Annotation over content using software installed on the AiO
- Room AV Recording
- Zoned audio reinforcement structured to prevent feedback
- Lectern microphones, handheld/lavalier(lapel) wireless mics, and ceiling mounted beam forming mic arrays
- Wireless gooseneck microphones for council and staff
- Wireless presentation to room displays
- Remote participation via soft-codec video conferencing
- Assistive listening
- Wireless countdown timer and controller
- Two 55" wall mounted articulating display for council viewing
- Two 75" roll around displays for audience viewing
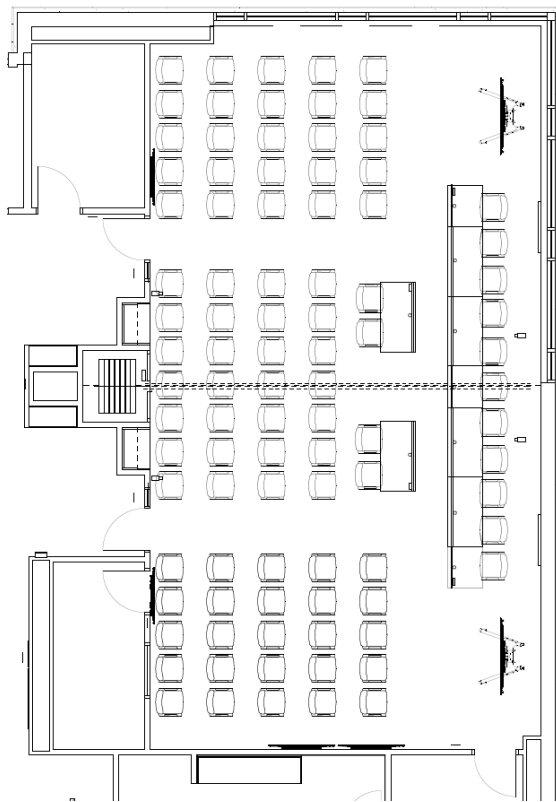
Technical

Displays
- Projection
    - Each room will have a 10,500-lumen ceiling mounted UHD projector and will project onto a 159" diagonal 16:9 motorized screen. The projection screen material offers an 85 degree off axis viewing angle with ambient light rejection of 53% percent. The specified screen material provides increased contrast ratio in high ambient light environments.
- Video Monitors
    - Back wall / plan view west - Each room will have a 55" display mounted to an articulated arm on the back wall, 96" from the floor to the center of the back box.
        - Confidence monitors for speaker
        - EOC – display sources
    - Plan view south wall – Two 65" displays will be mounted on fixed mounts, at 84" from the floor to the center of the back box.
        - EOC – display sources
        - Digital signage (bulletin board for upcoming events)
    - Mobile monitors – Two 75" monitors on roll around carts will be connected to floor boxes for any use case.

Visionary Solutions Network Based Video Router
Sources:
- Two lectern inputs
- One audience/staff input
- Two wireless presentation systems
- Two set top boxes (STB)
- One custom multiviewer
- Two feeds from Town Hall

Destinations:
- Two projectors
- Four wall mounted displays
- Two mobile cart displays
- Two wireless presentation systems
- Two video recorders
- Four feeds to Town Hall

Lecterns

Three floor boxes will be located at the front of the room for lectern connection. One will be located adjacent to each screen supporting a divided room configuration. One will be in the center of the room supporting a combined room configuration.
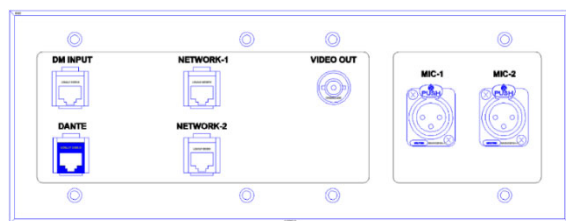
Each room will have a lectern. The lectern is height adjustable and meets ADA guidelines. An AiO computer will be mounted to each lectern. The AiO will be used for control, presentations, annotation, background music and video conferencing. Video conferencing will use a soft codec such as Zoom or WebEx. Room cameras can be sent to the AiO as a web camera along with mixed audio from the microphone system. Each lectern will have two gooseneck microphones and auxiliary connections for laptops, HDMI, and USB devices.

Wireless Presentation

Each room will be equipped with a Mersive Solstice Pod wireless presentation system. This will allow participants on Wi-Fi to display their device without a physical connection. Mersive supports a UHD output and allows multiple participants to be displayed on the same screen. Hardwired sources such as the AiO can be routed into the Mersive.

WASP Multiviewer

The WASP (Web Active Source Platform) is a purpose built multiviewer for EOC operations. The WASP allows multiple webpages and STBs to be displayed simultaneously on the same screen. Multi-image display configurations are selected as presets on the control system. The WASP supports up to nine sources displayed simultaneously as a multi-image in UHD. Examples of configurations are as follows:
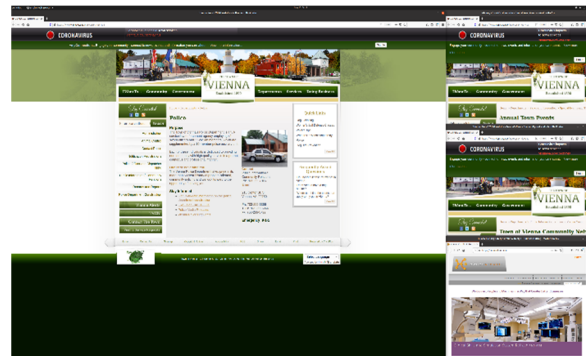

Cameras

Two pan-tilt-zoom (PTZ) cameras will be in each room and controlled using the control system GUI. One is wall mounted and faces the presenter. The other is ceiling mounted and faces the audience. The presenter camera is mounted on the wall near the entrance of each room. The audience camera is mounted on the ceiling at the front of the room near the room divider. See room layout for locations.

Recording

A Matrox Monarch LCS is used for AV recording. One will be provided per room. The Monarch has two inputs allowing simultaneous recording of both the presenter camera and presentation content. Network attached storage (NAS) provides a centralized location for AV recordings.

Press

Two press plates will be located at the rear of the combined room. Each press plate will have four video and four audio feeds.   Live video from press conferences will be distributed to the press plates from Town Hall production control. If not distributed from Town Hall, press feeds are limited to presentation video and room audio.
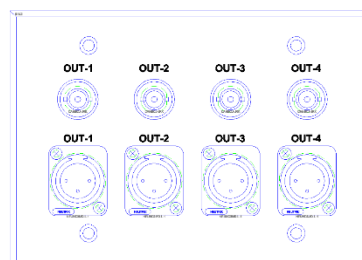
Audio System

Two Biamp TesiraForte digital signal processors (DSP) control mixing and routing of audio signals. Audio from wireless and ceiling microphones are routed through the Ethernet network using Dante protocol. Microphone signals are sent to Town Hall for Q & A sessions.

Each room has nine ceiling speakers in three rows of three and two subwoofers. Speakers are zoned and enable room audio tuning.

Assisted Listening

Each room is equipped with an Infra-Red (IR) assisted listening system (ALS) that meets ADA requirements. Two belt packs with headphones and a neck loop for compatible hearing aids are available in each room. A Wi-Fi based ALS is available to participants through their smartphones and personal ear buds.

Microphones

Each room is equipped with two ceiling mounted beamforming microphone arrays. The beam forming microphones enable full room coverage and remove the need for handheld microphones and a fixed microphone location. The mic arrays coverage is adjusted from the room control GUI.

The following wireless microphones can be used in any of the room use cases:
- Two wireless handheld microphones with floor stands
- Six beltpacks to support four clip-on lapel microphones and two head-worn microphones
- 14 wireless gooseneck microphones

Five charging stations will be in the AV Room for all wireless microphones.

Production Control and Routing

A local production system will support Town Hall meetings, Town Hall Overflow, Work Sessions and Press Conferences. The existing Ross Carbonite Black Solo production switcher in Town Hall will be removed and installed in the Community Center AV Control Room. A 27" monitor will be installed on the desk for the Carbonite Black Solo's multiviewer.

A Ross NK series 34x34 video router will route cameras and other HD-SDI feeds to the recorders and the production switchers in the AV Control Room and Town Hall.

A Skaarhoj PTZ controller will be installed at the operator's desk for independent camera control.

An eight input mixer and a pair of power speakers will be used for monitoring audio and level adjustment to the Matrox Monarch for recording and streaming.

A 48-port PoE HP network switch will provide the backbone for Ethernet and Dante network traffic. This switch will be connected to the Town Hall production system via single mode fiber (duplex).

Production Graphics

A Ross Xpression Prime single channel Character Generator (CG) will be used for production graphics. The CG platform will host Biamp Canvas for audio control and Ross Dashboard for video routing. A 27" monitor will be installed with the Xpression Prime CG.

Whiteboard

A 72" x 40" double-sided whiteboard cart can be rolled in as needed for collaboration and training.

Town Hall Upgrade

Upgrades to the Town Hall infrastructure are necessary to support the functions of the Community Training Room, provide signal integration, and control between the two buildings.

Fiber connectivity between the switch in Town Hall and the new switch in the Community Training Room is required. Fiber to be supplied by the Town of Vienna.

The four cameras in the Community Training Room will be sent to the Carbonite Black switcher. A small Skaarhoj PTZ controller will be located at the operator's desk for independent camera control from Town Hall.

A Dante digital to analog interface will be used to link the audio systems between the Community Training Room and Town Hall. A Biamp Canvas control page will be constructed to enable the control of these audio systems from Town Hall.

Presentation Control

The new touch panels layout will mimic Town Hall for consistency of operation.

Control GUI

Camera Control

There are three points of camera control
- Crestron control surfaces (AiO, iPad, xPanel)
- Production system and the Skaarhoj controller in the AV control room
- Production system and the Skaarhoj controller in Town Hall

Event Production

The Ross Carbonite Black switchers will be used to switch between cameras and presentation. The Ross CG will create graphics for lower thirds, clip playback, and full slate openings/closing. The Soundcraft mixer will enable the operator to adjust the mixed audio from the audio DSP and clip audio from the CG.

Lighting Control

Ceiling mounted lights will illuminate fixed positions meant for productions using the room cameras. The room control system will have presets for different configurations such as a Press Conferences or Town Hall Meetings.

The lights are powered over Ethernet (PoE) from the switch in the AV control room. The lights are recessed into frames that fit into 2x2 ceiling grid T- rails. They will not hang down below the ceiling. 120V electrical service is not required.
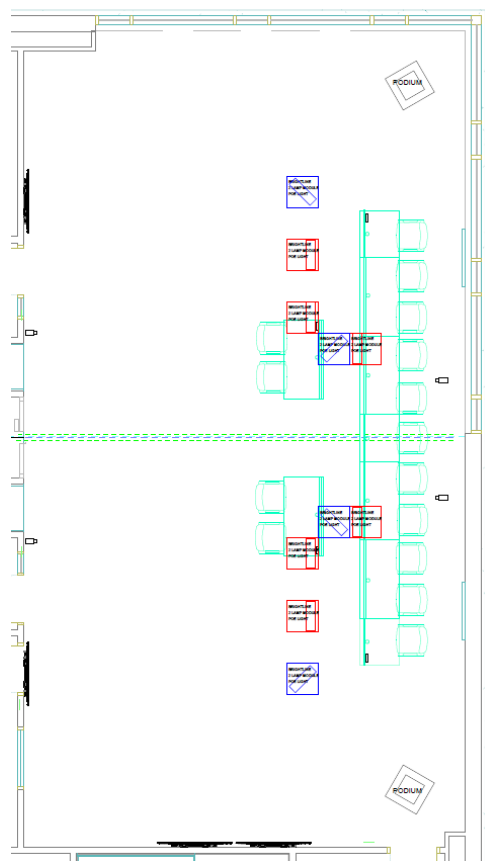
Communication

Communication between buildings will be done using cell phones and/or desk phones. This equipment is not included as part of this proposal.

Assumptions

- Vienna will provide a 96" x 30" desk and a chair in the Community Training AV Control Room.
- Vienna will provide and install motorized window shades in room 103A
- Vienna will provide eight strands of Single Mode fiber between the AV Control Room and the Town Hall Control Room
- Vienna will provide fiber patch panels mounted in the racks
- Vienna will provide two small form factor PCs (one per monitor) for the two 65" monitors on the plan view south wall in 103B.   This will be used to display digital signage
- The proposal does not include cost for permits
- Vienna will provide four cable TV set top boxes
- Pricing good for 30 days from date of document

Architectural Drawing Submittals Attached

Equipment List and Pricing Attached

Terms and Conditions

1. After the receipt of a purchase order/contract, Human Circuit will provide the name of a Project Manager responsible for the project scheduling, status reports, and delivery. Upon initial communication with Human Circuit's Project Manager, the client will provide all contact names and information (email address and phone numbers) for the project. Human Circuit's project manager will schedule a kick-off meeting with the client principals.

2. Human Circuit will provide a schedule of delivery after the project kick-off meeting.

3. Insurance & Site Security:
    The risk of loss for all products and materials shall pass to Client upon delivery to project site. Human Circuit reserves a security interest in all product and materials delivered to site until payment has been received in full. Client is responsible for providing secure and lockable spaces for all product, materials and Human Circuit tools and equipment.

4. Fees associated with permitting or licensing are not included unless detailed in the cost proposal. Any additional costs incurred by Human Circuit for permitting and licensing that are not detailed in the cost proposal will be passed onto the Client.

5. Customer Furnished Equipment:
    Human Circuit will not be responsible for any additional costs related to malfunctioning or deficient equipment. Human Circuit will recommend a solution for repair or replacement of malfunctioning or deficient equipment. If Customer Furnished Equipment causes project delays, additional fees and costs will be incurred by the Customer.

6. Returns:
    - No returns without prior authorization
    - Some merchandise cannot be returned
    - Authorized returns are subject to a restocking fee
    - Handling and Insurance charges are additional

7. At completion (use of the system), Human Circuit's Project Manager will inform the client's representative. The final invoice will be sent within one business day after notice of completion. Final system documentation will be delivered within the timeline illustrated in the project schedule.

8. Training must begin immediately after system testing is completed.

9. Human Circuit will provide invoices based on the following payment terms:

    - 50% at contract/purchase order
    - 25% NET 20 at equipment acquisition
    - 15% NET 20 upon commencement of on-site work and equipment delivery
    - 10% NET 20 at project completion

    > NOTE: A Service Charge of 1.5% will be added to unpaid balances monthly on any overdue account. Standard Human Circuit payment terms are NET 20.

10. Taxes:

    Unless otherwise stated in the cost proposal the quoted line item prices are exclusive of any applicable sales or use taxes. Human Circuit is required by law to charge applicable sales tax in the States of Maryland, Virginia, and the District of Columbia. All items "drop shipped" to a project location from a vendor are subject to the state's sales tax of the project location.

11. All prices within the cost proposal are valid for 30 days.

12. Labor Rate Detail:

    Labor costs reflected in the cost proposal unless noted reflect work performed between the hours of 9:00 am and 5:00 pm, Monday through Friday, except for federal holidays ("Normal Work Hours"). If Client elects to have the work performed outside Normal Work Hours, and Human Circuit agrees, then Client agrees to pay additional labor fees.

13. Installation Warranty:

    Human Circuit warrants that all materials and workmanship directly related to the installation and integration of the system will be free from defects for a period of one year from the acceptance of the system. Human Circuit passes through to the client all manufacturer warranties. Human Circuit will negotiate with manufacturers to start the warranty at client's acceptance of the system but cannot guarantee compliance by all manufacturers. At conclusion of the project Human Circuit will provide full warranty information for the system(s).

16. Non-Confidentiality of System:

    The Client agrees that by acceptance of this document Human Circuit has the right to execute press releases, photograph or videotape the System and may use, display, publish, distribute, transmit or broadcast the said photographs or videos for marketing purposes such as press releases, website, brochures, etc. Any third party wanting to use this material will need to get express permission from the Client and Human Circuit Inc. All images are copyright protected.