Security101®

Security in numbers.
Service that counts.

Dear Members of the Selection Committee:

Security 101 is honored to have worked thus far on the Master Control Upgrade for the Virginia Beach Correctional Center. All things considered, our goal for this project is divided into (but not limited to) three major components:

1. The system must be a massive improvement in comparison to the current security infrastructure
2. The project must provide a smooth transition during deployment, as well as a smooth transition for staff to learn and understand
3. The system must be designed and engineered for the future and to minimize future investments by installing quality solutions by quality companies that are both scalable and open-architecture

With those components in mind, Security 101 is partnered with manufacturers who offer industry-leading solutions, who continually innovate or improve their core systems, and who's goals are beneficial for long-term partnerships. Our team and partners will unquestionably provide great solutions, but we will also support you through the lifetime of this Master Control Project.

Between our knowledge of the existing security system—having installed the existing Genetec system at the Virginia Beach Correctional Center—we are certain that the solutions within our proposal will benefit everyone involved within and around the facility, as well as involved in the decision-making process. Not only are we selecting top-of-the-line partners, but we are including their most robust and secure product lines.

Of equal importance is our capability with each of the platforms proposed, considering we are the most certified local integrators in each of the major components within this project.

Partnering with us on this project will not only guarantee that a complete solution will be deployed within the facility, but it will also guarantee a mutually beneficial partnership with an organization who has your future in mind with every decision. We want this project to go well, just as much as you do.

We appreciate your time in reviewing and considering our proposal, and on behalf of the local team as well as all associated partners for this project, we look forward to serving you in the future, and the opportunity to discuss this proposal with you further.

Respectfully,

Matthew Netardus

Systems Design and Engineering, Security 101

REQUEST FOR PROPOSAL

City of Virginia Beach
ISSUING OFFICE:
PURCHASING DIVISION
2388 LIBERTY WAY
VIRGINIA BEACH, VA 23456
TELEPHONE: (757) 385-4438 FAX: (757) 385-5601

DATE: November 7, 2017
Attention of Offeror is Directed To Section 2.2-4367 – 2.2-4377 of Virginia Public Procurement Act (VPPA) (Ethics in Public Contracting)

ITEM NO.
PPEA #3-523
CLOSING DATE
December 12, 2017
CLOSING TIME
3:00 P.M.
PROCUREMENT OFFICER
D. Sandloop

PLEASE FILL IN COMPANY NAME & ADDRESS IN THE SPACES PROVIDED BELOW: Security 101
3301 Colley Ave
Suite 101
Norfolk, VA 23508

RETURN THIS COPY

THIS IS NOT AN ORDER

THE CITY OF VIRGINIA BEACH RESERVES THE RIGHT TO ACCEPT OR REJECT ANY AND ALL PROPOSALS IN WHOLE OR IN PART AND WAIVE ANY INFORMALITIES IN THE COMPETITIVE NEGOTIATION PROCESS. FURTHER, THE CITY RESERVES THE RIGHT TO ENTER INTO ANY CONTRACT DEEMED TO BE IN THE BEST INTEREST OF THE CITY.

DESCRIPTION OF REQUEST FOR PROPOSAL

THIS DOCUMENT CONSTITUTES A REQUEST FOR SEALED PROPOSALS FROM QUALIFIED INDIVIDUALS AND/OR ORGANIZATIONS TO PROVIDE: CONSTRUCTION OF THE CITY'S CORRECTIONAL CENTER MASTER CONTROL SYSTEM UPGRADES. THE NEW SYSTEM WILL BE A FULLY-INTEGRATED CONTROL SYSTEM (ICS) WHICH INCLUDES TOUCHSCREEN CONTROL, DOOR CONTROL, INTERCOM, CARD ACCESS, UTILITY CONTROLS, AND CLOSED CIRCUIT TV (CCTV) SYSTEM.

A PRE-PROPOSAL/QUESTION AND ANSWER SESSION WILL BE HOLD ON NOVEMBER 16, 2017 AT 10 AM AT 2388 LIBERTY WAY VIRGINIA BEACH, VIRGINIA 23456. A SITE VISIT WILL FOLLOW THE MEETING.

The Virginia Beach City Council has adopted a 10% goal for minority participation in City Contracts.

ACKNOWLEDGE RECEIPT OF ADDENDUM: #1 [illegible] **#2** [illegible] **#3** [illegible] **#4** [illegible] **(Please Initial)**

IN COMPLIANCE WITH THIS SOLICITATION AND TO ALL THE CONDITIONS IMPOSED HEREIN, THE UNDERSIGNED AGREES TO EXECUTE THE CONTRACT AS A RESULT OF THIS SOLICITATION. AN AGENT AUTHORIZED TO BIND THE COMPANY SHALL SIGN THE FOLLOWING SECTION. FAILURE TO EXECUTE THIS PORTION MAY RESULT IN PROPOSAL REJECTION.

AUTHORIZED AGENT/SIGNATURE [signature] TELEPHONE: 757-961-3373

TYPE OR PRINT NAME: Matthew A Netardus DATE: 01/25/2018

ENCLOSURE

ANTICOLLUSION/NONDISCRIMINATION/DRUG-FREE WORKPLACE CLAUSE

ANTICOLLUSION CLAUSE:
IN THE PREPARATION AND SUBMISSION OF THIS BID, SAID OFFEROR DID NOT EITHER DIRECTLY OR INDIRECTLY ENTER INTO ANY COMBINATION OR ARRANGEMENT WITH ANY PERSON, FIRM OR CORPORATION, OR ENTER INTO ANY AGREEMENT, PARTICIPATE IN ANY COLLUSION, OR OTHERWISE TAKE ANY ACTION IN THE RESTRAINT OF FREE, COMPETITIVE BIDDING IN VIOLATION OF THE SHERMAN ACT (15 U.S.C. SECTION 1), SECTIONS 59.1-9.1 THROUGH 59.1-9.17 OR SECTIONS 59.1-68.6 THROUGH 59.1-68.8 OF THE CODE OF VIRGINIA.

THE UNDERSIGNED OFFEROR HEREBY CERTIFIES THAT THIS AGREEMENT, OR ANY CLAIMS RESULTING THERE FROM, IS NOT THE RESULT OF, OR AFFECTED BY, ANY ACT OF COLLUSION WITH, OR ANY ACT OF, ANOTHER PERSON OR PERSONS, FIRM OR CORPORATION ENGAGED IN THE SAME LINE OF BUSINESS OR COMMERCE, AND, THAT NO PERSON ACTING FOR, OR EMPLOYED BY, THE CITY OF VIRGINIA BEACH HAS AN INTEREST IN, OR IS CONCERNED WITH THIS BID, AND, THAT NO PERSON OR PERSONS, FIRM OR CORPORATION OTHER THAN THE UNDERSIGNED, HAVE OR ARE, INTERESTED IN THIS BID.

DRUG-FREE WORKPLACE:
DURING THE PERFORMANCE OF THIS CONTRACT, THE CONTRACTOR AGREES TO (I) PROVIDE A DRUG-FREE WORKPLACE FOR THE CONTRACTOR'S EMPLOYEES; (II) POST IN CONSPICUOUS PLACES, AVAILABLE TO EMPLOYEES AND APPLICANTS FOR EMPLOYMENT, A STATEMENT NOTIFYING EMPLOYEES THAT THE UNLAWFUL MANUFACTURE, SALE, DISTRIBUTION, DISPENSATION, POSSESSION, OR USE OF A CONTROLLED SUBSTANCE OR MARIJUANA IS PROHIBITED IN THE CONTRACTOR'S WORKPLACE AND SPECIFYING THE ACTIONS THAT WILL BE TAKEN AGAINST EMPLOYEES FOR VIOLATIONS OF SUCH PROHIBITION; (III) STATE IN ALL SOLICITATIONS OR ADVERTISEMENTS FOR EMPLOYEES PLACED BY OR ON BEHALF OF THE CONTRACTOR THAT THE CONTRACTOR MAINTAINS A DRUG-FREE WORKPLACE; AND (IV) INCLUDE THE PROVISIONS OF THE FOREGOING SECTIONS I, II, AND III IN EVERY SUBCONTRACT OR PURCHASE ORDER OF OVER $10,000, SO THAT THE PROVISIONS WILL BE BINDING UPON EACH SUBCONTRACTOR OR VENDOR.

FOR THE PURPOSE OF THIS SECTION, "DRUG-FREE WORKPLACE" MEANS A SITE FOR THE PERFORMANCE OR WORK DONE IN CONNECTION WITH A SPECIFIC CONTRACT AWARDED TO A CONTRACTOR IN ACCORDANCE WITH THIS CHAPTER, THE EMPLOYEES OF WHOM ARE PROHIBITED FROM ENGAGING IN THE UNLAWFUL MANUFACTURE, SALE, DISTRIBUTION, DISPENSATION, POSSESSION OR USE OF ANY CONTROLLED SUBSTANCE OR MARIJUANA DURING THE PERFORMANCE OF THE CONTRACT.

NONDISCRIMINATION CLAUSE;

1. EMPLOYMENT DISCRIMINATION BY OFFEROR SHALL BE PROHIBITED.
2. DURING THE PERFORMANCE OF THIS CONTRACT, THE SUCCESSFUL OFFEROR SHALL AGREE AS FOLLOWS:

   A. THE OFFEROR, WILL NOT DISCRIMINATE AGAINST ANY EMPLOYEE OR APPLICANT FOR EMPLOYMENT BECAUSE OF RACE, RELIGION, COLOR, SEX, NATIONAL ORIGIN, AGE, DISABILITY, OR ANY OTHER BASIS PROHIBITED BY STATE LAW RELATING TO DISCRIMINATION IN EMPLOYMENT, EXCEPT WHERE THERE IS A BONA FIDE OCCUPATIONAL QUALIFICATION/CONSIDERATION REASONABLY NECESSARY TO THE NORMAL OPERATION OF THE OFFEROR. THE OFFEROR AGREES TO POST IN CONSPICUOUS PLACES, AVAILABLE TO EMPLOYEES AND APPLICANTS FOR EMPLOYMENT, NOTICES SETTING FORTH THE PROVISIONS OF THIS NONDISCRIMINATION CLAUSE.

   B. THE OFFEROR, IN ALL SOLICITATIONS OR ADVERTISEMENTS FOR EMPLOYEES PLACED ON BEHALF OF THE OFFEROR, WILL STATE THAT SUCH OFFEROR IS AN EQUAL OPPORTUNITY EMPLOYER.

   C. NOTICES, ADVERTISEMENTS, AND SOLICITATIONS PLACED IN ACCORDANCE WITH FEDERAL LAW, RULE OR REGULATION SHALL BE DEEMED SUFFICIENT FOR THE PURPOSE OF MEETING THE REQUIREMENTS OF THIS SECTION.

   D. OFFEROR WILL INCLUDE THE PROVISIONS OF THE FOREGOING SECTIONS A, B, AND C IN EVERY SUBCONTRACT OR PURCHASE ORDER OF OVER $10,000, SO THAT THE PROVISIONS WILL BE BINDING UPON EACH SUBCONTRACTOR OR VENDOR.

Name and Address of Offeror:

Security 101

3301 Colley Ave, Suite 101

Norfolk, VA 23508

E-mail Address: mnetardus@security101.com
Telephone Number: 757-961-3373
Fax Phone Number: ( )
FIN/SSN #: 46-3304131

Date: 01/25/2018

By: [signature]
Signature in Ink

Matthew A Netardus
Printed Name

Systems Design and Engineering
Title

Is your firm a "minority" business? ☐ Yes X No If yes, please indicate the "minority" classification below:
☐ African American ☐ Hispanic American ☐ American Indian ☐ Eskimo ☐ Asian American ☐ Aleut
☐ Other; Please Explain: _____
Is your firm Woman Owned? X Yes ☐ No
Is your firm a Small Business? X Yes ☐ No
Is your firm Service Disabled Veteran Owned? ☐ Yes X No

City of Virginia Beach

Vbgov.com

Finance/Purchasing
PHONE: (757) 385-4438
FAX: (757) 385-5601

Municipal Center
Kempsville Building
2388 Liberty Way
Virginia Beach, VA 23456

Date: December 4, 2017

To: All Offerors

Re: **ADDENDUM #1 – PPEA Proposal #3-523:** DETAILED PROPOSALS FOR UPGRADE TO THE CITY'S CORRECTIONAL CENTER'S MASTER CONTROL SYSTEM

Dear Sir or Madam:

Please be advised the above referenced PPEA Proposal Item is hereby amended, clarified, and/or changed as follows:

1. "As-Built" electrical drawings (66 pdf files) are now available for review. The drawings comprise all three parts (A, B, & C) of the Correctional Center and show power, lighting, and communications at the time of installation. To receive these drawings via –email contact:

   Steven Allen at Public Works Facilities Design & Construction Division sdallen@vbgov.com

These provisions shall become part of the Proposal package and Offeror shall acknowledge receipt of the addendum by signing in the space provided below and returning this page with the Proposal submittal. All other terms and conditions and specifications of the PPEA Proposal shall remain the same.

Signature: _____
(Offeror)

Sincerely,

David A. Sandloop

David A. Sandloop, CPPB
Procurement Specialist

cc: PPEA Proposal File #3-523

City of Virginia Beach

Vbgov.com

Finance/Purchasing
PHONE: (757) 385-4438
FAX: (757) 385-5601

Municipal Center
Kempsville Building
2388 Liberty Way
Virginia Beach, VA 23456

Date: December 8, 2017

To: All Offerors

Re: **ADDENDUM #2 – PPEA Proposal #3-523:** DETAILED PROPOSALS FOR UPGRADE TO THE CITY'S CORRECTIONAL CENTER'S MASTER CONTROL SYSTEM

Dear Sir or Madam:

Please be advised the above referenced PPEA Proposal Item is hereby amended, clarified, and/or changed as follows:

1. The closing date and time for the subject solicitation shall be moved to January 4, 2018 at 3:00 P.M.
2. Please note that an Original and Eight (8) copies of both the Detailed/Technical Proposal and the Financial Proposal are required from each Offeror.
3. For clarification, on Page 9 in "Instructions for Proposals" the Technical Proposal is limited to 25 pages excluding charts, diagrams, etc.
4. There is no 3rd item for the Technical Proposal (Page 9). There are only 2 items.
5. The "City of Virginia Beach Request for Proposal Form" noted on Page 11 of the solicitation is hereto attached.
6. Various questions have been presented to the City and they, along with the answers, are hereto attached.

These provisions shall become part of the Proposal package and Offeror shall acknowledge receipt of the addendum by signing in the space provided below and returning this page with the Proposal submittal. All other terms and conditions and specifications of the PPEA Proposal shall remain the same.

Signature: _____
(Offeror)

Sincerely,

David A. Sandloop

David A. Sandloop, CPPB
Procurement Specialist

cc: PPEA Proposal File #3-523

Correctional Center Master Control Upgrade - QUESTIONS

1. Is it the intent for the complete building (to include buildings A, B & C) to be put onto one (1) redundant PLC system where the redundant CPU's will reside in the MEC at BLDG C and all other devices become slaves of that redundant controller Yes or will housing units that have stand-alone PLC CPU's remain stand-alone? It is as described in the requirements
2. Will the AMS (Audio Monitoring System....scream alerts) be removed from the intercom system? Or, is it preferred to be a facility-wide requirement?
   Answer to follow at a later date.
3. Are the actual intercom stations and paging speakers to be replaced if they can be re-used? Correct. All items installed are to be new and current technology.
4. Is this total replacement of the card access control system inclusive of software, hardware, server and cards? Yes. As stated in the Scope. The card system is to be replaced with current technology.
5. Do you require a visitor management system? No
6. Is there a list or description of the additional cameras mentioned? Can you provide a list of existing camera locations? No
7. How many work stations outside of Master Control? 16
8. How many work stations required at Master Control? 6 stations inside Master Control
9. Do you require a Jail Management System? Preferred brand? No
10. Who retains the current software backup? Esitech
11. Who owns the licensing for Wonderware? This is property of the Sheriff's Office
12. Is there a non-functioning system that needs to be restored? Yes, the backup PLC
13. Any current systems that are to be removed? Yes, all VICON installed equipment
14. Are as-built drawings available? Yes, they were made available as noted in Addendum #1

City of Virginia Beach

Vbgov.com

Finance/Purchasing
PHONE: (757) 385-4438
FAX: (757) 385-5601

Municipal Center
Kempsville Building
2388 Liberty Way
Virginia Beach, VA 23456

Date: December 29, 2017

To: All Offerors

Re: **ADDENDUM #3 – PPEA Proposal #3-523:** DETAILED PROPOSALS FOR UPGRADE TO THE CITY'S CORRECTIONAL CENTER'S MASTER CONTROL SYSTEM

Dear Sir or Madam:

Please be advised the above referenced PPEA Proposal Item is hereby amended, clarified, and/or changed as follows:

1. The closing date and time for the subject solicitation shall be moved to January 18, 2018 at 3:00 P.M.
2. The Audio Monitoring System (Scream Alert) may be included as an option to the Proposal.

These provisions shall become part of the Proposal package and Offeror shall acknowledge receipt of the addendum by signing in the space provided below and returning this page with the Proposal submittal. All other terms and conditions and specifications of the PPEA Proposal shall remain the same.

Signature: _____
(Offeror)

Sincerely,

David A. Sandloop

David A. Sandloop, CPPB
Procurement Specialist

cc: PPEA Proposal File #3-523

City of Virginia Beach

Vbgov.com

Finance/Purchasing
PHONE: (757) 385-4438
FAX: (757) 385-5601

Municipal Center
Kempsville Building
2388 Liberty Way
Virginia Beach, VA 23456

Date: January 17, 2018

To: All Offerors

Re: **ADDENDUM #4 – PPEA Proposal #3-523:** DETAILED PROPOSALS FOR UPGRADE TO THE CITY'S CORRECTIONAL CENTER'S MASTER CONTROL SYSTEM

Dear Sir or Madam:

Please be advised the above referenced PPEA Proposal Item is hereby amended, clarified, and/or changed as follows:

1. The closing date and time for the subject solicitation shall be moved to January 25, 2018 at 3:00 P.M.
2. Please see the attached documents referring to an outstanding question involving the PLC-Programmable Logic Control System.

These provisions shall become part of the Proposal package and Offeror shall acknowledge receipt of the addendum by signing in the space provided below and returning this page with the Proposal submittal. All other terms and conditions and specifications of the PPEA Proposal shall remain the same.

Signature: _____
(Offeror)

Sincerely,

David A. Sandloop

David A. Sandloop, CPPB
Procurement Specialist

cc: PPEA Proposal File #3-523

PROGRAMMABLE LOGIC CONTROL SYSTEM

Programmable Logic Control – PLC

Programmable Logic Control and monitoring of selected Doors, Intercom Calls, Duress Alarms, and Low Voltage Lighting Control is provided via the Master Control Center operator stations and the local control consoles by sending and receiving commands from the PLC.

The PLC uses multiple layers of ladder logic programming to facilitate action commands that are sent from multiple HMI control stations.

1. Standard Control Functions by the PLC:

   a. Movement Control

      1) The PLC logic interfaces with the HMI control stations through the TCP network to control and monitor doors and other equipment using Inputs and outputs of certain voltages.

   b. Power System Monitoring

      1) Input points at the PLC are used to monitor Emergency Generator Power and Uninterruptible Power Supplies.

   c. Lighting, Electric, Water, & Phone Control

      1) These devices are controlled by relay points that are activated by the PLC.

PROGRAMMABLE LOGIC CONTROLLER

Definitions of PLC Logic and Security.

"Secure"	The door/gate is closed and locked. This is effected by monitoring the series connection of the latch bolt monitor switch and the door position switch at the PLC Input Module.
"Locked"	The status of a locking device when the latch bolt is fully extended. The device will not be locked until the door/gate is closed.
"Open"	The door/gate is "Open NOT Secure".
"Unlocked"	The status of a locking device when the latch bolt is partially or fully retracted. Status is always an Input to the PLC logic.
"Lock"	Control power is removed from the locking device as required to effect a "locked" mode.
"Unlock"	Control power is applied to the locking device in an "unlocked" mode. Control may be by momentary or continuous application of power as dictated by the locking device. . An Unlock command will be activated by the PLC Output Module.
"Interlock"	Interlocked doors are controlled so that only a single door in the interlocked group can be electrically opened at one time. In the PLC logic a status point that is indicating an "Open" at a door can block an "Unlock" command

VA Beach HMI Controller Overview

Log-On Screen /Log-Off Screen

The Log-On / Log-Off Screen is the initial screen displayed after system start-up and before a valid Controller/Operator is signed-on. There are three (3) buttons present on this screen that perform the following functions:

1. Logoff – Pressing this icon takes the current operator off the system and shows NONE as the operator.

2. Logon – Pressing this icon displays a keypad that allows the operator to enter his/her logon name.

3. Password – Pressing this icon displays a keypad that allows the operator to enter his/her password.

    a. After the operator has entered a valid name and password the system will take them to the Main Floorplan Display.

Control Icons

The Main Screen consists of a graphical display of the building and/or its individual floors. Along the side of this screen is the controls menu. The icons on this menu perform the following functions:

Disable Panel

When this icon is touched the user is logged off the system and the panel is disabled until an enabling password allows the operator to re-enter the system. The panel can also be enabled by another main Touch Screen.

System Control

When this icon is touched the system control screen will be shown. This screen will allow supervisors to manipulate the OS if needed. The operator also may clean the touch screen, view a local alarm/event log, and manually control the camera call to monitor functions and take over elevator controls.

Log Off

When this icon is touched the user is returned to the logon screen where they are able to log off the system.

Locate Alarm

When this icon is touched the user will locate the next alarm in the alarm queue. (Note. Panic alarms and Duress alarm will always go to the top of the queue.)

Next Call/Clear

When this icon is touched the user will locate the next intercom call in the intercom call in queue.

Alarm Acknowledge

When this icon is touched the system will be put in Alarm Acknowledgement mode. Selecting the active alarm will silence its audible tone and stop the alarm from flashing. If no action is taken this function will time out.

Bypass Alarms

When this icon is touched a pop window will be shown to indicate the system is in Bypass Alarm selection mode.

Water Control

When this icon is touched a pop window will be shown to allow the operator a selection of water solenoids to control.

Lighting Control

When this icon is touched a pop window will be shown to allow the operator a selection of lighting control.

Telephone Control

When this icon is touched a pop window will be shown to allow the operator a selection of telephone control.

Power Control

When this icon is touched a pop window will be shown to allow the operator a selection of receptacles and circuits they want to control.

PTZ Control

When this icon is touched a pop window will be shown to allow the operator the PTZ controller.

Emergency Door Functions

When this icon is touched a pop window will be shown to allow the operator a selection of which emergency functions to use. Once one of the levels of emergency door release icons have been activated that functions background will constantly flash red. The Menu icon will also flash Red and a tone will sound to alert the operator that an emergency door function is activated. This is toggle control. If the icon is on selecting it will turn it off and if the icon is off selecting it will turn it on.

Group Release

When this icon is touched a pop window will be shown to allow the operator a selection of which doors in that area to release in a group function. This icon is Grey when there are no Group release functions on the current graphic and is blue when there are Group Controls available.

Directional Map

When this icon is touched a pop window will be shown to allow the operator a selection of which floor or direction they want to go depending on where they are at graphically at the time.

Panel Control

When this icon is touched a pop window will be shown which will allow the operator viewing of control panel status and/or the ability to disable or enable a respective panel.

Panel Control

Previous Screen

When this icon is touched the operator is returned to the previous screen.

System Reset

When this icon is touched a pop window will be shown that will ask for conformation to restart the Control System.

Level 2 Graphics and Controls

The main floor icons and the "Zoomed" floor icons show more function control.

The first functions are the door functions. The door icon functions are used to open secure doors and/or to open secure doors and hold the doors open after they have been unsecured if necessary.

Steps to use Lock Release

1. **Press Lock Release icon.**
2. **Select the door to be opened.**
3. **If this is an exterior door a warning is issued first.**

Steps to use Lock Hold Release

1. **Press Lock Hold Release icon.**
2. **Select the door to be opened.**
3. **If this is an exterior door a warning is issued first.**
4. **When a door is held released an "H "will flash in the door icon.**

Interlock Override Functions

If a particular door is in an interlock group with a member door open, its outline will be yellow; using the normal opening sequences of a door icon with the interlock active will not unlock the door. Only one door in an interlock group can be unlocked at a time. **IN THE EVENT OF AN EMERGENCY** the interlock can be overridden. If the door that is selected is in an interlocked state the operator will be prompted and can select to override the interlock.

Selecting YES at the interlock override prompt will cause the yellow border to flash and allow the door to be opened by using the normal opening sequences. If no action is taken within (6) seconds the interlock override will be disabled. **THIS IS ONLY FOR EMERGENCY PURPOSES SINCE IT BREECHES THE INTENDED SECURITY OF THE FACILITY.**

1. **Press Lock Release icon. Select the door to be opened.**
2. **When the Override window appears select yes to allow the override or No to cancel.**
3. **Press Lock Release icon. Select the door to be opened.**

ZOOM ICONS

Placed on various areas of the floor plan are Zoom icons that allow the operator to zoom into a more detailed view of that area of the building. They also provide status indication of devices in their particular area as described below. Pressing this icon will always display a detailed floorplan of that area.

Unsecure doors with active alarms in that area are denoted by a red background icon with a magnifying glass turned to the Right while the glass part of the magnifying glass flashes red.

Unsecure doors with all active alarms acknowledged in that area are denoted by a red background icon with a magnifying glass turned to the left while the glass part of the magnifying is blue.

A yellow flashing background indicates that an intercom in that area has placed a call-in that has not been answered yet.

Pressing one of the ZOOM icons displays a more detailed map of the designated area. It is from this screen that most of the individual devices (doors, intercoms, cameras, etc.) are monitored and controlled. Along the right side of these screens is a menu that contains a key-plan of the facility to show you what part of the building you are "zoomed" into, touching different areas of the building key-plan will take you to that specific area without going back to the main screen and having to use the Zoom icon.

Steps To Use Zoom Icons

1. **Select the icon for which area is to be zoomed into.**

DOOR CONTROL ICONS

Swing Doors

Door Control and Status Icon – A Black Key symbol icon over top a button icon indicates that this is a user-operated swing door. Door position only is indicated by the key symbol icons with out the button icon.

A door that is secure (locked) and acknowledged will display a gray background and a Black Key symbol.

A door that is secure (locked) and unacknowledged will display a red flashing background and a Black Key symbol.

When a door that is unsecured and unacknowledged has been located by using the Locate Alarm icon it will display a yellow black border to show it is the located alarm.

A door that is unsecure (unlocked) and unacknowledged will display a red flashing background and no key symbol.

Steps To Use Door Icons

1. **Press Lock Release icon.**
2. **Select the door to be opened.**
3. **If this is an exterior door a warning is issued first.**

Steps To Acknowledge Door Alarms

1. **To acknowledge an alarm**
   a. **Select Alarm ACK from the control menu**
   b. Select door to acknowledge.

Other Door Functions

When the Bypass Alarm has been selected a popup will stay on top of any window until the exit has been selected. While this is active the operator may select or de-select door shunting of alarms. The shunted doors will have indication of weither they are secure or unsecured but will stated the are shunted and no alarm will sound.

exterior door operation will require a second activation from an operator.

When a group release is selected the operator is prompted to select doors that will be in the group release. If the icon is Green and the check box is checked the door will be opened in the group release. If the icon is Grey and no check is seen the door will be skipped and not opened in the group release.

INTERCOM AND PAGING ICONS

When a caller presses the button on the intercom station out in the facility, this icon will flash yellow and an audible tone is heard at the TCS.

Selecting this icon connects the intercom to the active controller for voice communications and turns the icon background blue with white flashing speaker. Selecting this icon again cancels the communications.
If a camera is in the area of the intercom, its picture will be switched to the designated monitor in order to observe the caller.

Paging Station Icon – This icon indicates a paging station and will have a different icon symbol than a regular intercom station. The paging icon will fill blue when connected.

Monitored Intercom Stations

Monitored Cell Station Icon – This icon indicates an intercom station with sound monitoring and will have a different icon symbol than a regular intercom station. When the sound threshold is peaked on these stations, this icon flashes yellow and Red and a tone is heard at the TCS.
Selecting this icon connects the intercom to the active controller for voice communications and turns the icon background blue with white flashing speaker. Selecting this icon again cancels the communications.

Steps To Use Intercom

1. **Select the intercom or paging speaker to be activated.**
2. **Select a second time to de-activate the intercom.**

WATER CONTROL ICONS

Water Icon – This icon shall show Hot and Cold water control.

LIGHTING CONTROL ICONS

Lighting Icon – This icon shall show lighting control.

TELEPHONE CONTROL ICONS

Telephone Icon – This icon shall show control of the inmate telephones.

RECEPTACLE AND POWER CONTROL ICONS

Receptacle Icon – This icon shall show control of the power receptacles.

Television Icon

Television Icon – This icon shall show control of the power receptacles to the television.

ELEVATOR CONTROL ICONS

Elevator control – If the operator needs to control the elevators they may call up the system controls screen and select elevator controls. Once the elevator is captured the operator has the ability to control the elevator as per specification.

CAMERA ICONS

Camera Control Icon – This icon indicates a camera location and number designation. Pressing this icon causes its video to be displayed on the call-up monitor and the icons color to change to green.

Duress Activation

When Duress is activated in the facility all corresponding cameras will switch their video to monitor the event. Also the background floor of the facility where the Duress was activated will flash red and a tone will be heard at the TCS. Once the Duress has been acknowledged the floor plan will stay a steady red until the actual point has been reset.

Contents

Communication Platform 3

Unified Security Platform 5

Surveillance System 10

Servers & Network 12

Control Room 15

PLC Platform 19

Planned Schedule 23

Security 101 has selected **Commend** as our premier partner for the robust communication platform, including both vandal-resistant intercoms and paging speakers, in this project. Their industry leading Intelligent Volume Control (IVC) and Background Noise Suppression provide near-perfect speech intelligibility. Commend is world-renowned for their audio quality, as well as their dual Health Check system, and this is the reason our federal clients require this platform within their facilities. This partner specializes in ensuring communication while using these devices is near flawless.

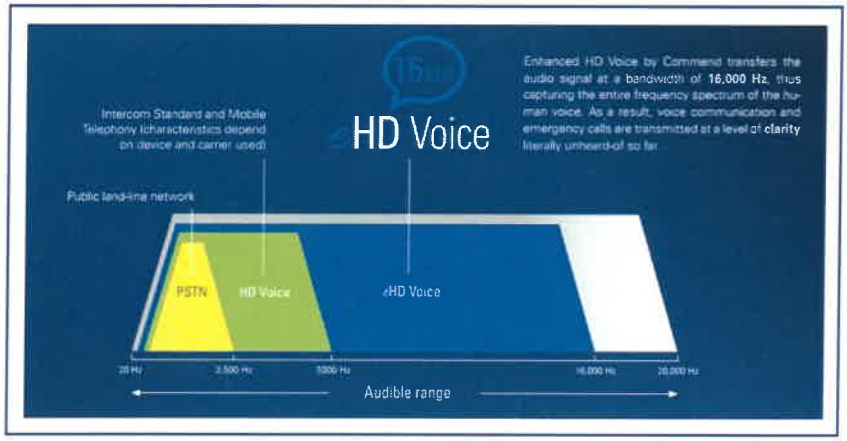
Sound Quality: Commend's intercoms and paging speakers provide enhanced HD sound quality at an industry-leading **16 kHz bandwidth**—a drastic improvement from its competitors who are at only 7 kHz. The 16 kHz audio quality captures the entire frequency spectrum of the human voice, and as a result, leads to voice communication and emergency calls that are transmitted at a crystal-clear quality. Having 16 kHz quality with a correctional facility reduces devastating risks when managing prisoner movements, de-escalating hostile situations, and handling other high-risk circumstances that require two or more parties to have clear, concise communication. Both the intercoms and paging speakers are also equipped with Commend's **Intelligent Volume Control (IVC)**, an audio processing method that automatically adjusts the volume to its background noises. The IVC provides comfortable volume levels in silent settings, as well as delivers loud volumes in busy surroundings, by automatically changing volume controls of the speakers. Even if the background noises are fluctuating while an audio message is being delivered, the speaker will react with louder and softer volumes, ensuring the message is delivered to that audience without being lost in the noise. Thanks to Commend's dynamic **Background Noise Suppression**, transmission of communication is as clear as possible by subtracting audio signals from locations other than the speaker. Each of these components will work together to aid Virginia Beach Correctional Center in ensuring safety and operational success.

16kHz
eHD Voice

Volume is controlled by IVC depending on the surrounding noise

Health Checks: Security 101 specifically partnered with Commend for their dual **Health Check** system, both of which are conducted automatically at customizable intervals. The first of the two is a power and communications health check. If any devices identify a lack of power or a loss of communication, deputies will be immediately notified, allowing for resolution before the impending breakdown of that device. The second is a functionality test. Any device that houses both a microphone and speaker will perform periodic self-tests by outputting a nearly silent signal from the loudspeaker that is then picked up by the microphone. If the microphone fails to detect the test sound, an output notification will be sent to a deputy, allowing for early detection of tampering, muffling, or maintenance. In a correctional facility environment, this health check is critical by alerting deputies if the speakers or microphones become obstructed. Intercom systems without a self-health check have an increased risk of resulting in communication breakdowns since these problems will not be identified until someone needs to utilize the system, opening the correctional facility to other major liabilities. By deploying Commend, staff is immediately notified of issues, rather than learning about them during attempted use, which is dangerous for everyone involved.

Customization & Low Maintenance: Lastly, Commend's system is forward compatible, which is unlike classic PA systems, using their **VirtuoSIS**—the world's first 100% software-based communication server, eliminating the need for extra hardware. Commend's VirtuoSIS allows for this system to easily scale in future projects by providing a reliable foundation with an organization dedicated to continually leading the industry. By reducing the amount of hardware required for the correctional center's intercom and PA system, maintenance troubles will become minimized. Within VirtuoSIS, our professional engineers can program the communication platform to fit within current operational protocols, as well as adjust that programming if any needs change in the future; this eliminates having to rework working operational habits to fit a new system, as well as allows future operational changes to be made without restriction. Equally important, this can all be completed without replacing costly hardware. Standard intercom systems are point-to-point, allowing one intercom to speak to one master station; however, with VirtuoSIS, stations are capable of communicating seamlessly to other stations within the system.



Security 101 has elected to continue with **Genetec's Security Center Platform** as our integration and unification partner for this new project. We personally installed the existing Genetec platform at the Virginia Beach Correctional Facility, as well as fully understand what pieces are necessary to ensure the Master Control Project's success. Choosing a software that is already deployed within the correctional center brings an abundance of benefits, for example: reduced end-user training needs, improved response time by deputies, and minimal organizational and operational changes and much more.

Unification: Genetec's **Security Center** is a comprehensive security platform that allows deputies to work smarter by using a single interface to control multiple security sysems. This means that within Security Center, deputies can monitor cameras, authorize access through controlled areas, respond to alarms, and make changes to the security system without having to manage multiple softwares. This unification also eliminates common issues, such as when a software crashes when a new firmware becomes available for only one software within a multiple-software integrated security system. The entire Genetec system is updated and coded to work together. Security Center is also the current interface that deputies are comfortable using to monitor surveillance and manage the access control system. Security Center uses a collaborative, task-based approach, where a deputy can handle any number of tasks, while effortlessly remaining focused on the highest priorities. The collaborative component to this software allows deputies to cooperate on or re-assign tasks to others if necessary.

DHS Awarded: In January of this year, Genetec was named the only unified platform to be awarded the **Safety Act Certification for Anti-Terrorism Technology** by the United States Department of Homeland Security. This certification means that Security Center, as well as other associated modules and softwares, meets the highest possible standards for quality, cyber security, and liability. Having a unified platform such as Genetec will ensure that the Virginia Beach Correctional Center is well-prepared for both today and the future. Now that the DHS certification has been awarded

to Genetec, organizations who choose this platform are fulfilling their civic responsibilities to protect the people who work within them.

Open Architecture: **Open architecture** means that a software is *not* proprietary, as in the system is not locked into a single manufacturer, allowing you to easily integrate other innovative technologies from a wide-range of companies without restriction. Genetec's open architecture philosophy is essential because it simplifies the process of adding, upgrading, and swapping components. **Contrary to Genetec, when locked into a proprietary system, organizations become completely dependent on one manufacturer's ability to solve complex problems, even if another manufacturer has already solved them.** When running on an open architectural platform like Genetec, hardware is compatible with multiple other devices, reducing the risk of "rip-and-replace" when upgrading the system, providing an immense return on investment. Genetec continually partners with new and innovative technologies and provides optional modules that will help the correctional facility adapt to future climates. These modules simply improve the quality of the existing Genetec system, specifically the facility's Omnicast surveillance system and the Synergis access control platform. Following this section are examples of the modules Security 101 is providing within the PPEA scope.

Mapping: Genetec's **Mapping** module offers both command and control of a secured environment. It is an interactive map that will provide deputies with a clearer visualization of the entire environment they are viewing, as well as simplify the management of those areas. This new tool allows deputies to dynamically navigate through the jail facilities and streamline the process of overseeing a larger number of cameras, doors, intrusion devices, and other security hardware by providing them with a customized map that includes shortcuts to each of the security devices located on the Genetec system. As doors open and close, cameras detect changes, and other important moments occur during operation, deputies will see each event in real-time, as well as will have a one-click ability to investigate any of those events thoroughly. The result of this module is an advancement and optimization of all jail operations, especially during the movement of inmate population, communication with staff through the Genetec software, managing visitors, and maintaining staff accountability. More than just recording video, controlling access, and managing alarms, Genetec is designed to facilitate collaboration and communication between staff, especially in response to handling a threat or controlling a breakdown in Jail SOPs. Maps will allow deputies to reach a new level of awareness within a unified and consolidated view of all the security applications including: viewing live or recorded video, handling access control events with cardholder pictures, instantly controlling multiple access points, highlighting zones within the map to show all cameras simultaneously, easily responding to alarms in real time, receiving visual notifications the moment they are triggered, and more. When staff is lacking an accurate representation of their security environment, they may never be as effective as needed.

Genetec's Mapping module is openly customizable, and allows you to design a process that best fits your current practices.

Threat Levels: As you are well-aware, when multiple security incidents occur, some take priority over others due to their more dangerous or risky nature. The **Threat Levels** module allows deputies to select the threat level for incidents as soon as they occur, and once they are notated with a level, the module automatically changes the behavior of each system on the Genetec platform. Regular operations are forced to change when major incidents occur, such as limiting access to a common area when a violence breaks out amongst inmates. Once a deputy notates an incident with a threat level, the system responds automatically, but the deputy is also granted the temporary ability to change cardholder and visitor access rights, send immediate notifications to staff regarding the incident, as well as customize camera schedules and settings. This module is key to changing security conditions at a moment's notice, allowing the facility to properly protect staff and inmates, as well as decrease liability and collateral damages.

Sample applications

Government applications

Threat Level Management is ideal for protecting critical infrastructure and governmental organizations. With greater security concerns, these organizations now have a tool to proactively prepare for and instantly respond to potential threats.

Multi-site and campus security

In a campus-style environment with multiple buildings, Threat Level Management's multiple activation options allows you to restrict access to a particular building or selectively control access in response to a threat.

Emergency response and other applications

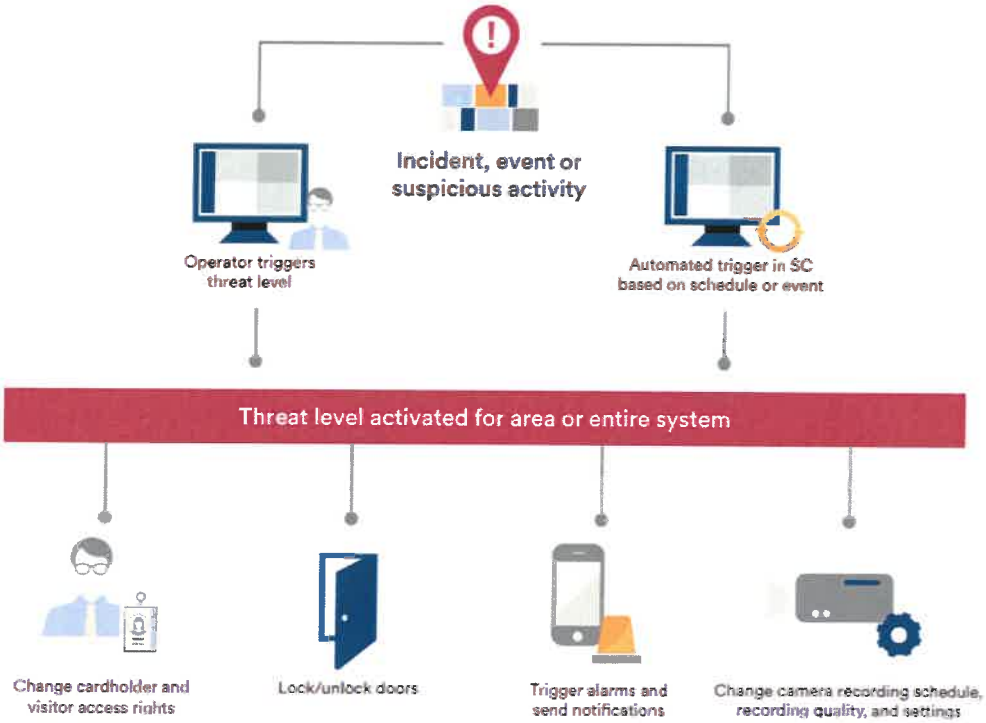
Beyond responding to threats, Threat Level Management can be used in any situation requiring your security team to dynamically change the state and operation of your Security Center system.

Standardization of responses to threats

As part of any organization's need to handle to threats and emergencies, Threat Level Management makes it simple to standardize the responses, helping to ensure the same process is followed.

Threat Level Management overview

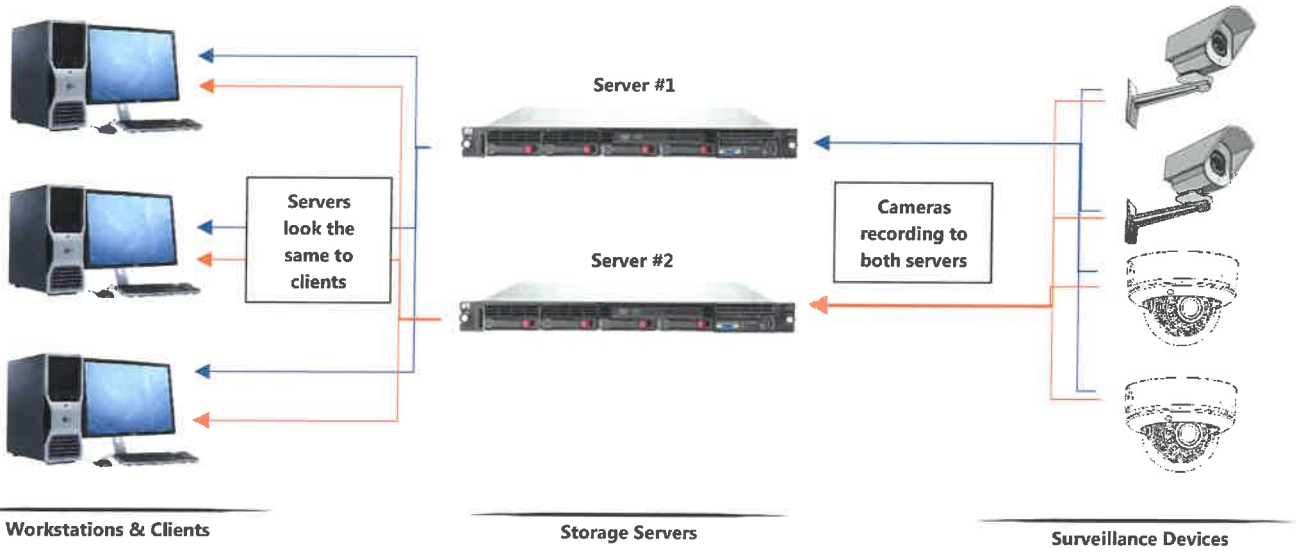
Whether triggered manually by security personnel or automatically by an event or alarm, threat level activation will change the state of your Genetec video or access control system and help protect your workforce, visitors, and assets.



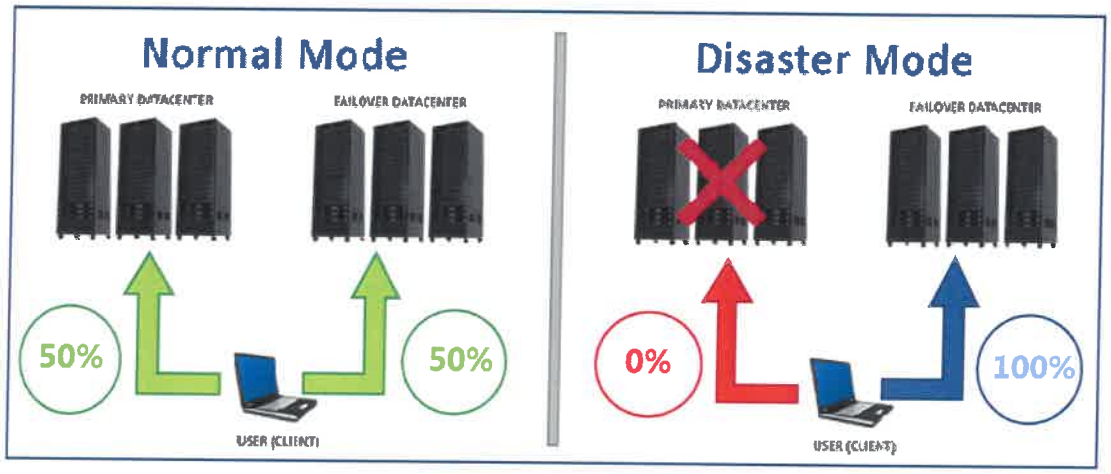
Advanced Reporting: The **Advanced Reporting** module allows organizations to build and save reporting templates that will automate the reporting procedure. This automation guarantees that incident reports are immediately sent with the right content to the proper recipient, eliminating loss of information and standardizing procedure. There is no need to export and re-import incident information from external reporting tools with Genetec's Advanced Reporting, greatly improving overall efficiency. A few examples of the tools accessible within this module are: investigations of alarms, incident reports, zone activities; user activity audits; system statuses; hardware inventory; system health statistics; and asset management.

Failover and Redundant Recording: With Genetec, Security 101 is engineering a drastic improvement in stability to both existing Synergis and Omnicast systems at the correctional center by implementing both failover and redundancy.

Redundancy: With the growing dominance of IP, adoption of higher resolution cameras and the expanding types of video analytics, integration of these devices means more data is being generated by security systems than ever before. As a result, this data proves to be more difficult to protect and control. As data traffic grows, video storage servers are greatly impacted, considering they are the backbone to any great security infrastructure. **Even the best servers can momentarily fail, and depending on how long that server is down for, cameras attached to that server are unable to save their video data, resulting in a loss of important data during the downtime of the server.** Therefore, redundancy is crucial. **Redundancy** is the process of having all cameras attached to a surveillance system record to multiple storage servers simultaneously, resulting in separate servers containing the same video information. Why is this important? If one server crashes or fails, the other will continue to record the video feeds as if nothing were wrong. Without redundancy, systems become obsolete until a maintenance staff fixes the problem completely, not just when they are available to be on-site. Regardless if the issue were solved in minutes, the data transferred during the downtime is completely lost, which opens organizations to complex liabilities. Security 101 is providing a two-server redundancy for the surveillance system.



Failover: When a system, such as access control, is running on a single server, a server crash could also result in a breakdown of daily operations. It is important to have standby servers that are programmed to automatically assume control over tasks if the primary server becomes slowed, experiences large pressure from a network, or even crashes. This is called **Failover**, and it considerably reduces breakdowns in enterprise scale systems. This does not mean that one server will be working until failure, while the other waits. Instead, both servers will be actively functioning, distributing work equally between one another, and both will be engineered to assume the entire system if one of them were to shut down. Security 101 has designed the correctional facilities system to have a two-server failover system throughout all security platforms.



In Summary: The goal of these engineering decisions is to minimize the downtime of the security infrastructure, which minimizes operational downtime due to these crashes. Not only have we chosen to improve the security backbone, but many of the systems will operate if a catastrophic failure occurs. The access control platform, as well as the intercom system, are engineered to function even without a server, such as during thorough maintenance; the only missing data would be audit trails during the server downtimes, but daily operations will continue without issue.

Hanwha Techwin

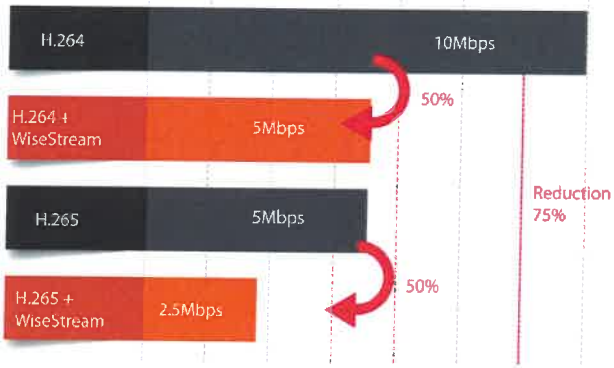
Security 101 has selected **Hanwha Wisenet X-Series** vandal cameras as our premier surveillance partner in this project. Their industry leading Wisenet X camera line will provide considerably improved video quality and offer sound analytics, all while drastically reducing network load and server storage needs. Camera locations and quantity will be chosen to meet PREA standards, ensuring the jail's compliancy with all ACA requirements.

Video Quality: The Hanwha X-Series video quality is derived from an incredible **Wisenet 5 chipset** that is located inside of each individual camera. This chip, a recent improvement from their previous Wisenet 4, provides the camera with an industry redefining processing power; higher processing power not only stabilizes and delivers sharp images, but also offers faster image processing and a wide-array of video analytics. The most important analytic to a correctional facility is the Wide Dynamic Range (WDR), which stabilizes the light sources of an area in view. Hanwha X-Series provides an industry leading **150 dB WDR**—*over 100 times more powerful* than the standard 120 dB of their competitors—which provides the most flexible and quickest response WDR to suit both excessive lighting and low-lighting environments. By stabilizing the lighting and contrast, the cameras will severely reduce glare from florescent and LED lighting within the correctional facility, along with sunlight and spotlights from the exterior of the facility. Below is an example of Hanwha's 150 dB WDR:

Sound Analytics: Hanwha's X-Series line also provides advantageous sound analytics, one specifically that will heavily benefit a correctional facility environment: **scream detection**. Each X-Series camera offers scream detection, as well as having the ability to output an alarm and notify anyone

necessary, i.e. deputies. This aids the correctional facility staff respond more quickly to violent events wherever cameras can detect the sound, along with them providing early detection for rowdy inmates and staff. When complemented with a robust integrated software, such as the existing Genetec software, this analytical tool can pop onto a security guards screen with associated cameras, allowing the guards to quickly and efficiently scan areas of concern using the surveillance cameras local to the scream alarm.

Low Network Impact: The X-Series houses two specific components that aid in minimizing network impact and server requirements. The first important component is Hanwha's **H.265 video stream compression** technology. This new compression tool reduces data by up to 50% compared to the previous H.264 standard, further reducing server and network impact without compromising image quality. The second important component, which co-exists with H.265 compression and also reduces data by another 50%, is Hanwha's **WiseStream II technology**; Wisestream dynamically controls encoding, balancing quality and compression according to movement in the image. When working together, H.265 compression and the Wisestream II reduce network impact by an astounding 75%. Hanwha's H.265 compression technology and the complementary WiseStream II technology collaboratively scan a camera's field of view, probing for movement and changes in the viewed area. If the camera does not detect changes or movement, the camera reduces its bandwidth, which then minimizes the impact on the network and server storage capacity. By reducing pressure on a network, this minimizes the risk of a network failing; when a network fails, this can have a cascade of impacts on other softwares that are integrated with it. When the camera detects motion, on the other hand, it increases its bandwidth needs, which provides the sharpest image possible for changes in a scene. Bandwidth changes are automatic, and do not require approval. Ultimately, the Wisestream technology II and H.265 technology aid in stabilizing a network, along with minimizing storage costs and the costs of future projects.

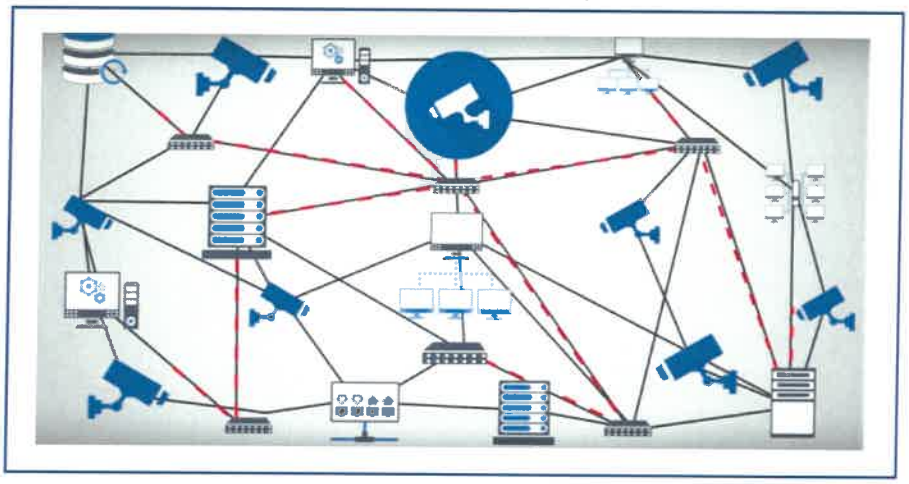


Security 101 has selected **BCD Video** as our premier partner for the servers, network hardware, and client workstations within this project. BCD Video is the go-to IP server manufacturer for 47 of the leading 50 security integrators in North America, many of which are global in size. The reason is simple: BCD Video architects customized solutions that precisely fit each application to deliver optimal performance, scalability, and efficiency. BCD Video products are designed for applications where resilience and redundancy are required, and downtime is not an option, which is why many of their systems are deployed in governmental and military applications.

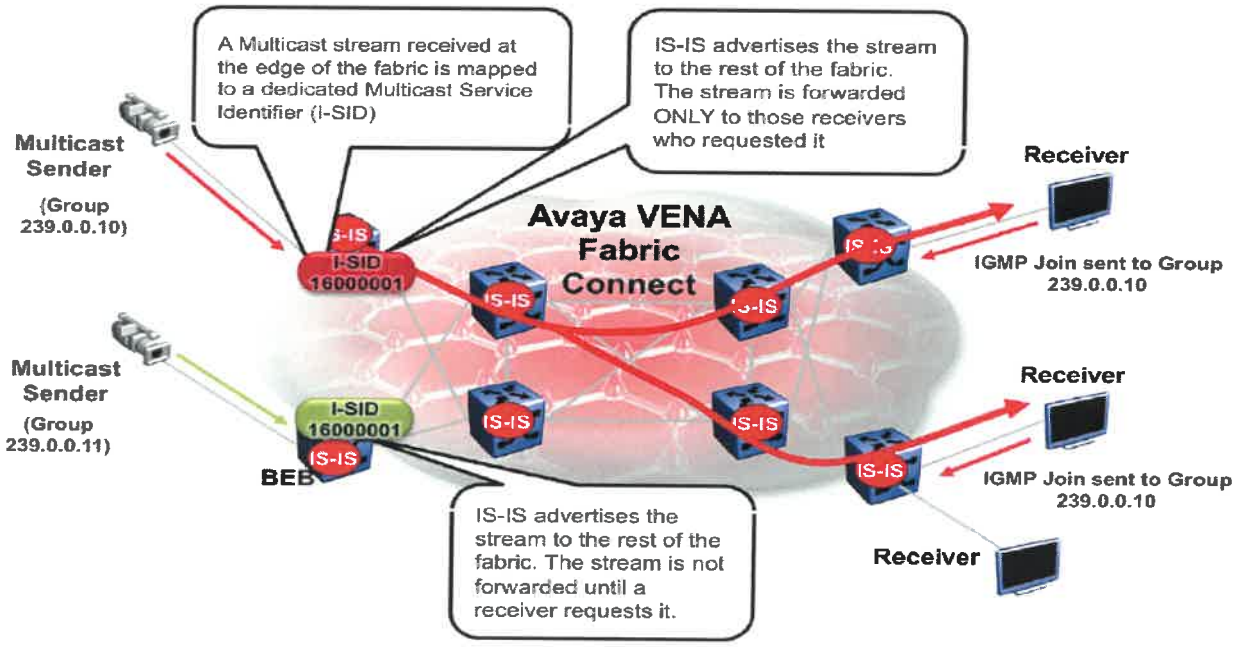
Servers & Storage: BCD Video will be providing SuperNova servers for this project, each of which will be controlling components of the security infrastructure, such as the access control system, the surveillance system, the storing of data audits, and more. They understand that quality solutions start with quality parts, which is why the facility's servers will be **Hewlett-Packard Enterprises (HPE)-**based, the worldwide leader in video surveillance storage. HPE and BCD Video specifically architect and engineer these servers to store and manage IP Video data, which is exactly what we are using them for. When choosing a server for a security platform, it often becomes confusing and granular. At the end of the day, a server needs to do these things: store *quality* data, maintain working status, and function efficiently. BCD Video has ensured each of these will be continually met by equipping your servers with the highest quality components necessary. Each server will be equipped with a **Xeon E5-2620V3 processor, 16 GB RAM, 56 total TB of SATA Drives, and a 5-year on-site warranty**. The Xeon processor is designed specifically to operate servers, all while ensuring data is both secure and processed quickly—it is known as the "heart of an agile data center." Integration of this processor ensures that the servers function efficiently by increasing processor frequencies across a wide range of workloads; this allows the system to process diverse assignments. On another hand, this server allows for maintenance without shutting down the entire server, by removing only a hot swappable drive, which will help with continuing normal operations even while system maintenance is being performed on-site.

Switches & Network: The **Titan 4850 Series,** which will be the driving force of the correctional facility's network, is designed specifically to maximize both scalability and stability when maintaining an enterprise network, reducing network outages most importantly. The software that drives the Titan Series is **Avaya Fabric Connect**, their flagship networking technology. Avaya Connect is a network-wide, end-to-end

virtualization designed with both **Shortest Path Bridging (SPB) and Multi-Cast**. SPB is an industry-leading technology (only top-of-the-line network switches include this software) provides a network with nodes (hardware on a security system that communicates at another hardware, i.e. switch to workstation) that are engineered to communicate using the quickest route possible, maximizing performance without heavily pressuring the network infrastructure. SPB and Multi-Cast work together when a workstation is attempting to pull information from multiple data sources, such as pulling video feeds from all the cameras within a room. Both technologies co-operate to allow massive data exchanges without crashing the network, an important component for deputies to maximize their oversight. Without these technologies, pulling large amounts of video feeds would hamper or crash a network, along with the possibility of having a negative impact across other associated systems.

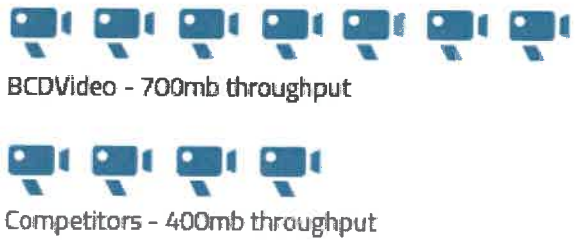


The Fabric Connect technology is one of the most advanced network virtualization solution on the market today. Going beyond the simple L2 multi-pathing offered by alternatives, Avaya has leveraged the extensibility of SPB to enable Fabric Connect to deliver the full breadth of services: **Layer 2 and Layer 3 virtualized services, and fully integrated and optimized IP Routing and IP Multicast.**



Standard networking softwares are exceptionally complex, often involving multiple layers of protocols that speak to each other in a highly specific manner, which typically results in data-clogging (when data becomes backed-up and pressures both a networks stability and a reduction in the quality of data being transferred). The elimination of these overlay protocols, and consolidation to a single unified technology has a profound impact on the **ability for the network to re-converge**. Fabric Connect customers are experiencing **recovery times of less than 50 milliseconds** – network-wide – for core, link, or node failures. This represents a vast improvement over large OSPF-based Cores, and massive improvement when compared to average recovery times in PIM-based IP Multicast networks. This means that applications typically don't hang, and users remain unaffected.

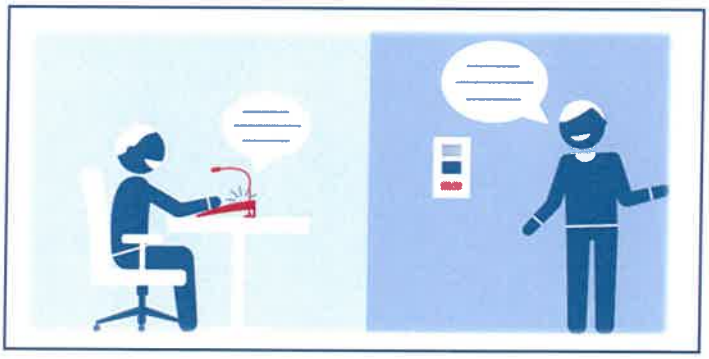
Fabric Connect enables service provisioning to be implemented solely at the edge of the network – eliminating error-prone and time-consuming network-wide configuration practices. Adding services or changing existing services can now be completed in real-time, revolutionizing the conventional Change paradigm that typically mandates delays of weeks if not months, limited as it is by the serial nature of box-by-box, link-by-link configuration, and the risks induced when configuring the Core. Outage-free Change is undoubtable change for the better.



Workstations: BCD Video is equipping the jail with industry-leading workstations specifically designed alongside Genetec's engineering and IT staff. When the partnership originated, both companies wanted to ensure that users could view **multiple HD-quality video streams simultaneously, without reducing the video quality**. And they did. Genetec and BCD Video continually develop increasingly powerful workstations as Genetec's platform becomes more robust and secure. These devices are tested by both BCD Video Staff and Genetec staff before being deployed on-site, allowing us to ensure that these systems are geared for a successful deployment. Each workstation is equipped with the NVIDIA GTX960 graphics card, a staple GPU that is known for its ability to stream the highest quality video in the market. Through GPU accelerated video decoding, Security Center leverages the power of NVIDIA graphics cards onboard BCDVideo workstations to free up CPU resources and enhance viewing performance. This capability enables deputies to display **more high-resolution video streams from a single workstation, enhance video playback, and run more simultaneous applications.** The BCDVideo workstations are designed for Genetec solutions and ship pre-loaded with Security Center, simplifying system specification and implementation. With in-house tested configurations and a three-year on-site hardware warranty included, these workstations provide organizations with a powerful and reliable solution. With a Core i7 processor and up to 16 GB of RAM, BCDVideo client workstations ensure a high-performance solution for your video surveillance application. Security Center is installed on a separate Solid-State Drive (SSD), **providing rapid boot time and low latency within client applications, translating into a smoother viewing and faster response times.**

Security 101 has partnered with **Winsted Control Room Consoles** for the design of the new control room. Winsted is one of the top control room manufacturers, specializing in designing rooms that will provide both comfort and functionality. The room renovation will offer a more ergonomic space that provides both comfortable and function for the staff, but the largest question when renovating this space remains: *how do we ensure operations can continue while performing such an overhaul*? Well, we found the solution.

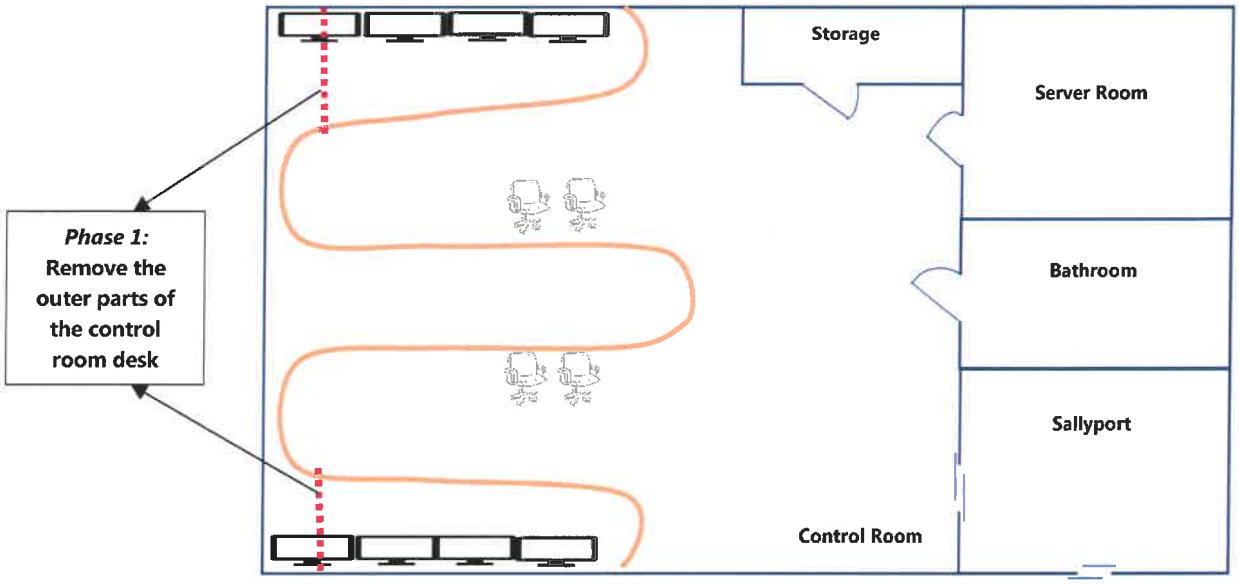
Maintain Jail Operation Success: During the deployment of the new Control Room, labor noises will be common within the local area. This would normally be a massive obstruction to daily operations since communication platforms, such as the intercom and speaker system, would be hindered by the background noises. This is where our implementation of Commend's intercoms provides another considerable benefit, specifically to the renovation of the control room. Deputies will be able to continue with operational success by allowing Commend's communication platform to remove labor background noises from the conversations using both of its specialty softwares: **Background Noise Suppression** and **Intelligent Volume Control (IVC)**. IVC will provide deputies with the appropriate volume settings to ensure they are able to effectively communicate, considering the system automatically adjusts volume settings based on environmental background noises. With the addition of noise-cancelling headsets for the deputies, **operations will not only continue, but improve with Commend's help, regardless of the labor noises from the control room renovation.**



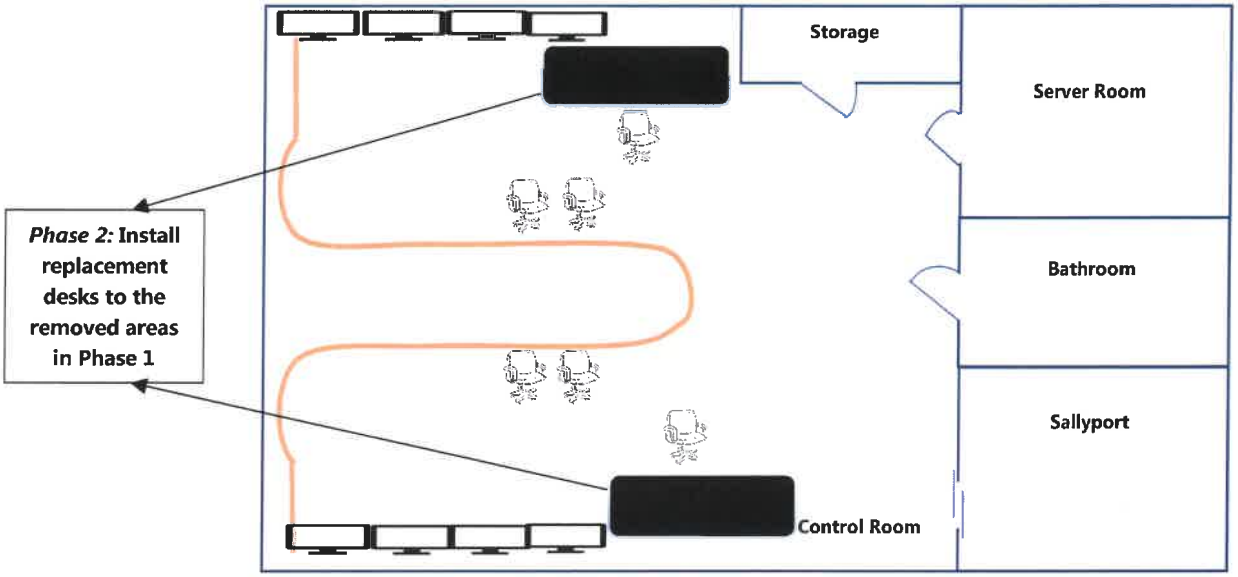
Design: We designed the new control room using the **Spectrum 2 Consoles**, a customizable workstation that provides built-in touchscreen monitors, corner dual 24" LCD Displays, and spacious work area for deputies to multitask. These consoles provide a mission-control atmosphere and make exceptional use of the space they are installed in. We will provide enough Consoles to support six (6) deputies to work comfortably within the new control room, each of which will have access to workstations. Finally, there will be a unified video wall, allowing all deputies to see all LCD screens, contrary to the current system, in which the viewing monitors are located on opposite walls.

Our Process: Security 101 will be breaking up the deployment of the new control room into phases. By doing so, we can ensure that the **jail's 24/7 operations will not be hindered by our work**. We have a firm understanding of the control room layout, as well as a grasp on what systems take priority over others to ensure a successful project.

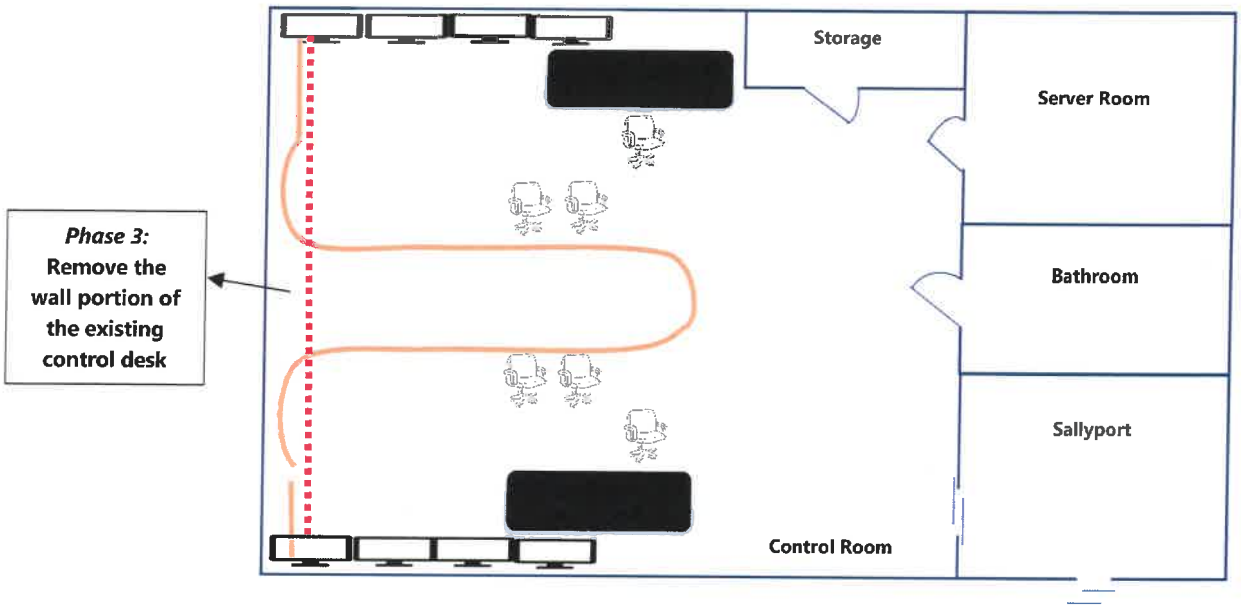
Phase 1: In Phase 1, we will **deploy Commend's communication platform** throughout the jail facilities, replacing the current intercom and speaker systems. This will start as the foundation to a successful project. After the intercom and paging speaker systems are installed, we will **remove the extremities of the existing control room desk**, which is not a critical component to operations in the control room.

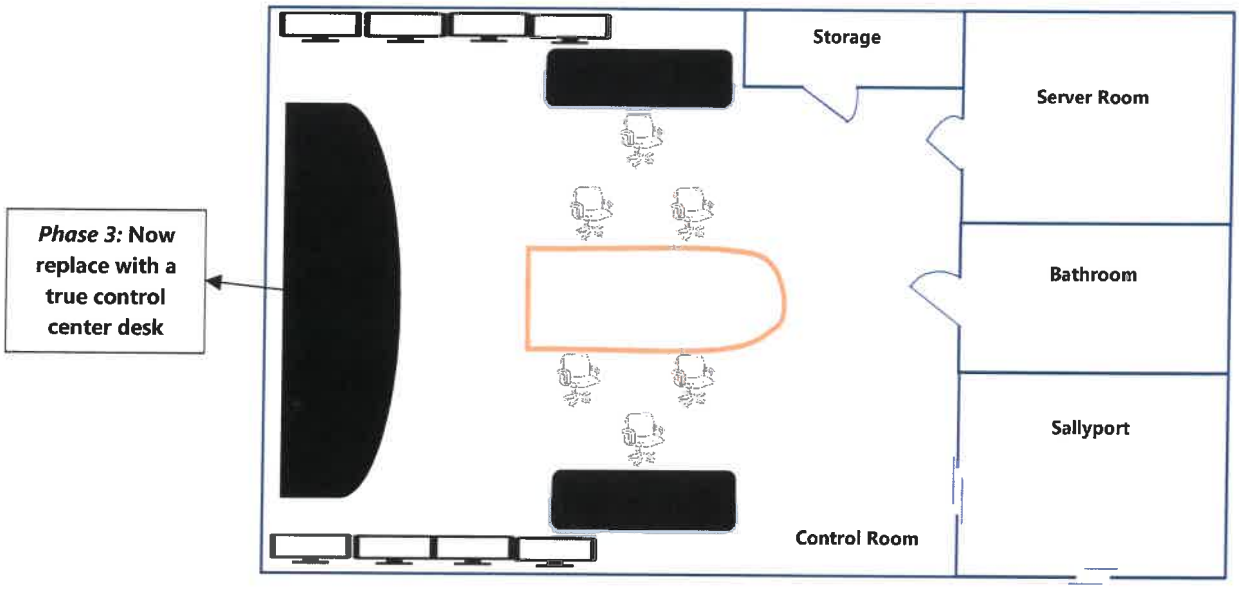


Phase 2: We will be installing flex desks in similar positions as the removed desks in Phase 1, permanently providing enough space for up to six (6) deputies to work comfortably within the control room, if necessary.



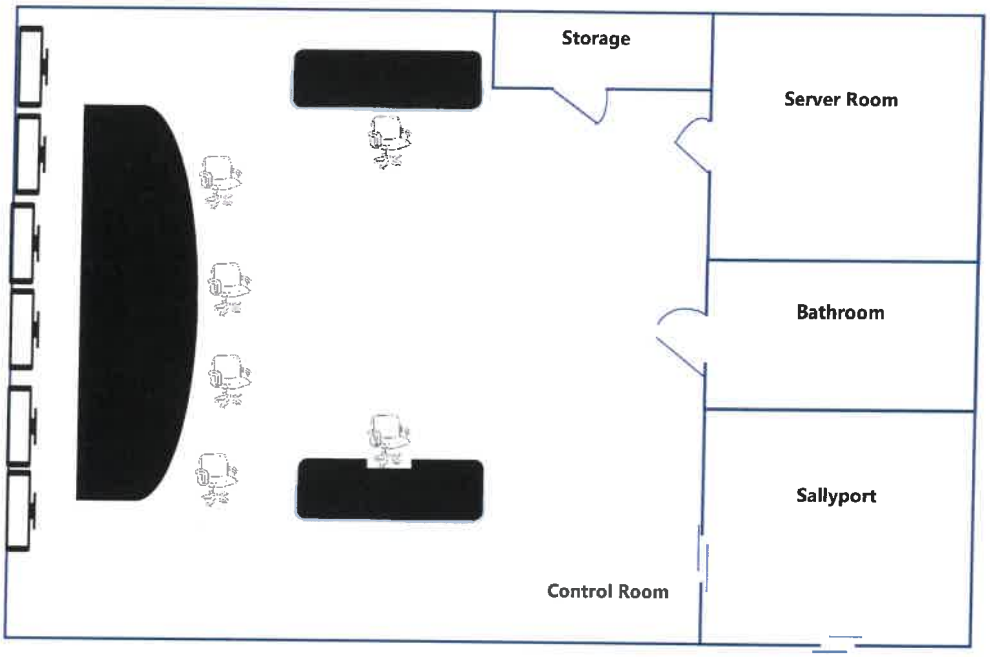
Phase 3: After installing replacement desks, we will be removing the back part of the desk and replacing it with a true command desk, allowing all deputies to view all possible monitors, rather than the previous setup where deputies had two (2) different monitor walls to view.



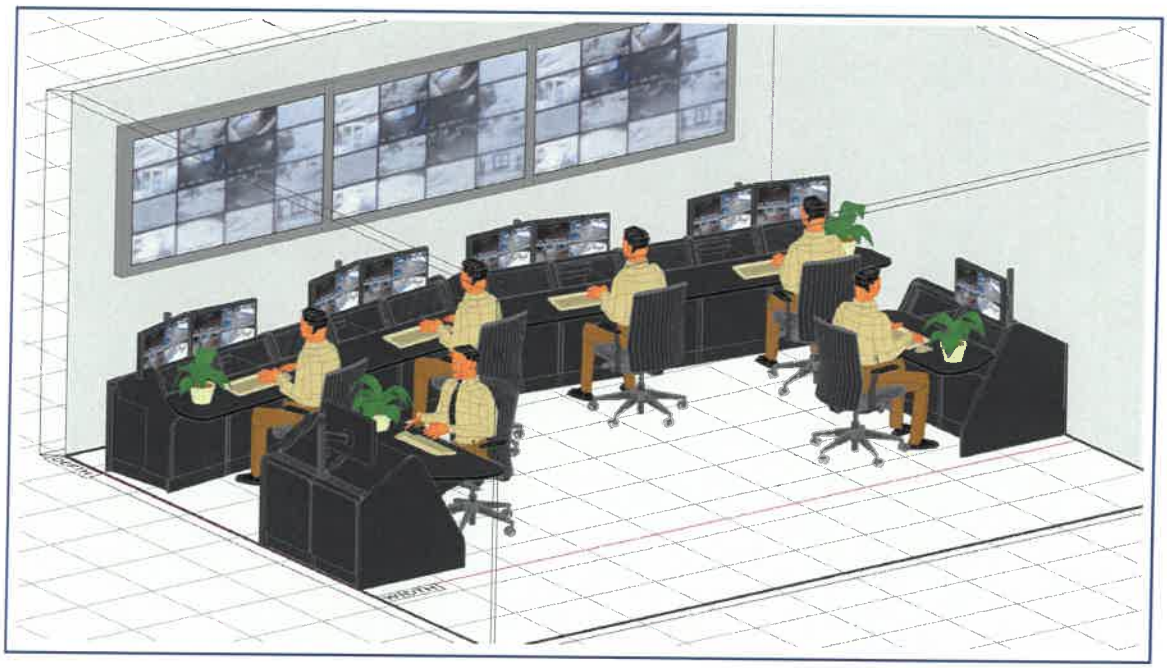


Phase 4: After the desks are completely installed, we will add a unified master monitor wall in front of the main control room desk, allowing all deputies to view the all systems on one wall. This will help optimize organization and deputy production. After the wall is completed, we will remove the

remainder of the previous existing desk, as well as the existing monitors from each side, providing an improved ergonomic feel to the control center.



Phase 5: After improving the control room, we will be alleviating the congestion within the server room. This is simple, considering the large amounts of existing analog video storage will be removed, and be replaced with significantly less server storage. The hardware required for IP is significantly smaller, allowing for the room to be renovated easily. Below is our expectations of the future control room.



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Programmable Logic Controllers (PLCs): This proposed system is a GE 90-30 to RX3i conversion. The approach will reutilize as much of the existing installation as is practical to **facilitate a quick replacement and reduce downtime of the system**.

1. CPU processors, power supplies, and backplane racks will be upgraded and replaced, providing a total of nineteen (19) PLC racks within this scope of work.

2. The facility's networking protocol will be upgraded from Genius Bus to ProfiNet, which will leverage the power of Industrial Internet, providing the jail **quicker speeds, quality performance and improved efficiency**.

3. All existing 90-30 Input and Output (I/O) cards will be replaced and upgraded to the RX3i series, though the replacement components will fit inside the existing mounting areas. This requires no alteration to panel design or existing Input and Output wiring. Upgrading to the newest of technologies effectively increases the entire platform's capabilities, as well as **provides significant savings on replacement component costs in the future.** This approach also allows all wiring and terminations for field devices to remain the same. The risk of wiring issues and the need for extended down time to troubleshoot and debug an installation will be eliminated, **providing the jail with a smooth transition**. Labor hours, downtime, and support needed from Virginia Beach Jail staff are minimized through this approach.

required for maintenance personnel is significantly reduced as the need to relocate or rewire the existing system is kept at a necessary minimum.

Although the current operations are unidentified based on the PPEA information released to date, our approach will achieve (but not limited to) the following:

1. Transferable control of each CC unit between two areas, master control and the CC unit. This design allows for uninterrupted management of all areas. This can be programmed needing confirmation at each area or with user level override at Master Control. Currently only CC3 can be controlled locally, but this new design will extend this **ability to locally control both CC1 and CC2 units.**

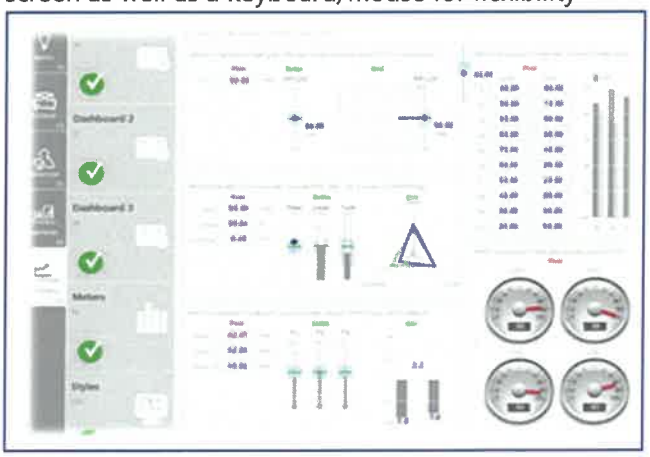
2. Master control will **utilize a redundant PLC system** to further prevent loss of operational control upon the failure of a single system. It is stated that this design is currently in place, but not functional. TechComp has examples of successfully completing similar work available upon request.

3. We will support and integrate with elevators, doors, camera, vehicle detection, and intercom systems.

4. Additional I/O slots will be included in the PLC system, and tag count in the HMI software will exceed what is required for the full installation to **allow for future expansion**.

Computer Hardware: A combination of new servers and workstations will be provided for Virginia Beach Jail. The servers will include **built in redundancy**, and will be mounted in a rack with UPS backup. The design of the system will allow for flexible control of different areas, all while maintaining centralized authentication and access control. The servers will be installed with Microsoft Windows Server 2012 R2. All servers will be mounted in a rack with UPS backup, and two servers with RAID 1 hard drives will be provided in this proposal. Additional servers can be provided if the design criteria changes.

Each of the twenty-two (22) workstations will contain individual versions of the HMI software, instead of locating the software on a central server, allowing each workstation to operate independently if needed, **simplifying maintenance and preventing a single point of failure**. The workstation's hardware configuration will exceed the minimum required standards called for in software requirements in anticipation for future expansion and any required upgrades. Each workstation will be installed with a Windows 10 operating system and include a 22" touch screen as well as a keyboard/mouse for flexibility of use.



Human Machine Interfaces (HMI): The HMIs allow for the visualization of the systems status and control for a deputy, with the help of **Wonderware's InTouch 2017**, latest version of the InTouch software. Additionally, communication with the PLC control system will be facilitated through Wonderware's communication drivers, eliminating the need for third party drivers and licensing. We will provide the Jail

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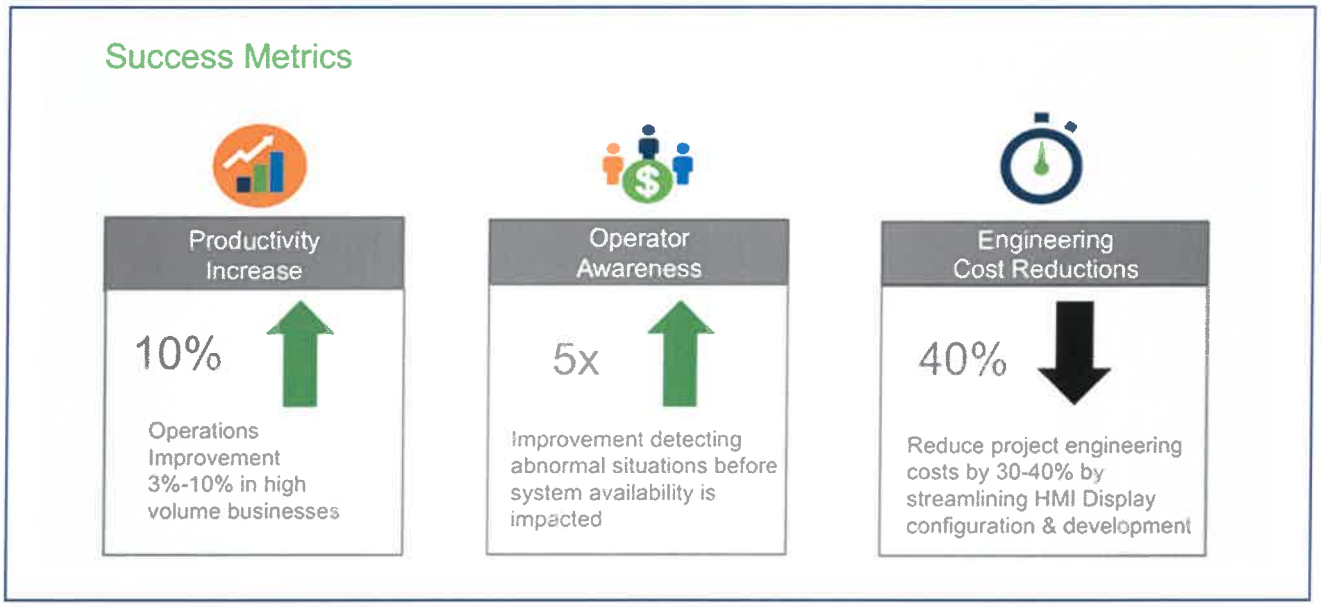
The HMI screens will be developed based on **Situational Awareness**, a platform that offers perception of the environmental elements with respect to the projection of their status. Given the jail's normal operations, only those devices, such as active call boxes, will be displayed to the operator. The HMI's will be capable of controlling and monitoring any electric strikes, pneumatic locks, door position indicators, vehicle gate control, any other device associated with and controlled/monitored by the Security Control System. It will be capable of interfacing with intercom stations and speaker output selections to include **Talk-thru Communicators (TTC) and Talk-Thru Units (TTU),** as well as be capable of interfacing between video surveillance system alarm inputs and monitors. The HMI can also control various Auxiliary control systems such as remote control of lighting, plumbing, television receptacles, and inmate telephones, if installed. It will also interface with and monitor push buttons and duress stations, if installed.

Individual evaluations of Wonderware's Situational Awareness strategies report a **five-fold (5X) improvement in detecting abnormal situations before system availability is impacted, a 37% improvement in the success rate for handling those abnormal events when they occur, as well as a 41% reduction in the time required to complete tasks**.



Because no two systems are alike, TechComp will tailor the design of the system to Virginia Beach Jail. Functions to be identified with the input of the jail staff will include, but not be limited to, automatic

camera callup, schedule of control, security, color schema, and more. We will work with your staff to determine the best design of the software, with the objective to determine your needs, and produce a set of accurate HMIs.

Project Description: Our Process Control and Automation Services **experience is extensive** with large turnkey automation projects.

1. Upon project initiation, we will develop electrical drawings, control system layout drawings, and HMI design for review with your staff. Drawing packages and schematics will be approved by you prior to programming and purchasing of the components.

2. A Functional Specification will be developed that describes how the platform operates and how the facility's staff will interface with the control platform. Input from staff members is critical during this phase of the project.

3. After the PLC & HMI development has been completed, In-house simulation and testing will be performed including as many components as possible to validate the system operation before site installation.

4. Installation will be accomplished in parallel with the existing system. An initial installation of the servers and central control workstations will be performed.

5. Based on the jails schedule, different CC units will be upgraded with a new PLC control system and HMI as time allows. This will allow the system to be validated over time.

6. Once validation is complete the final changeover will be accomplished to switch to the new redundant system. Throughout this process each I/O piece will be validated and tested.

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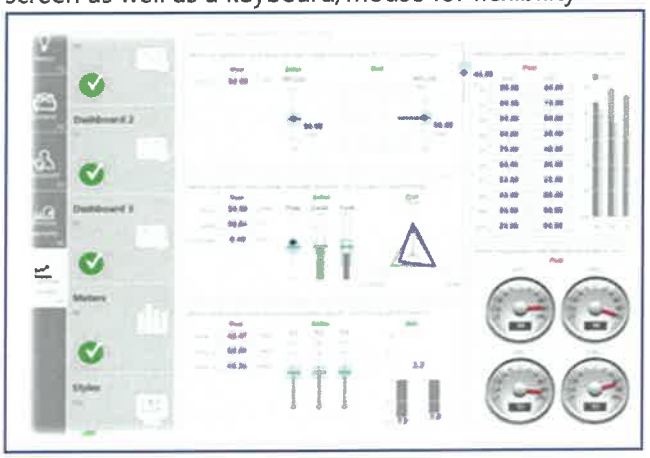

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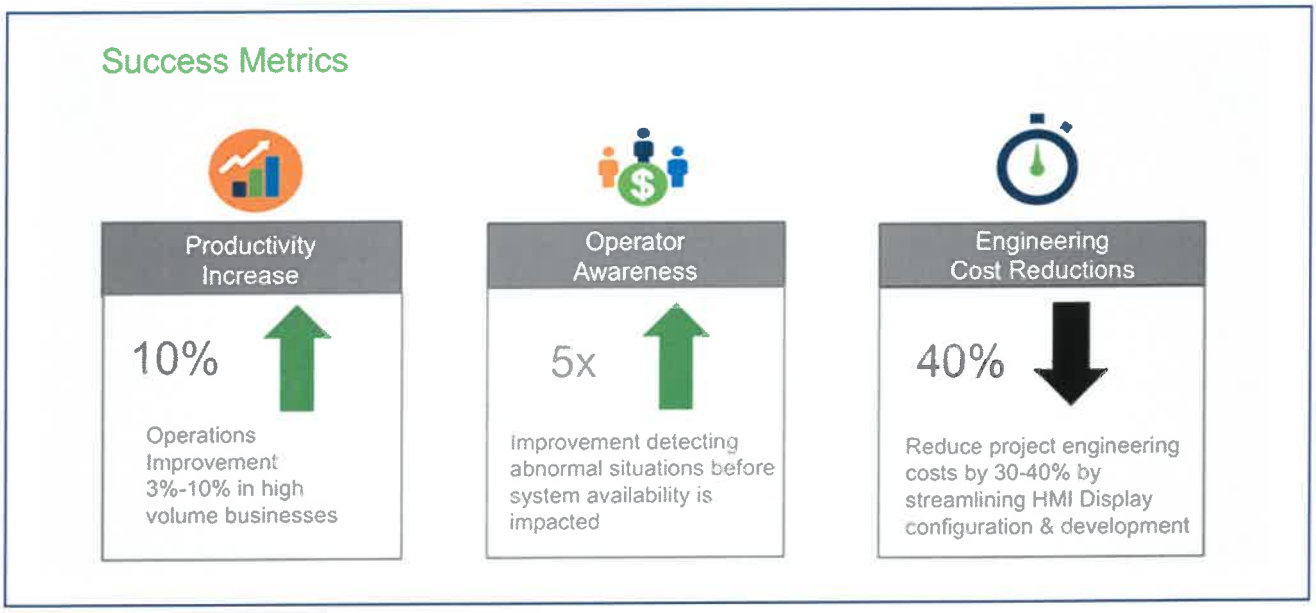

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Security101®

Security in numbers.
Service that counts.

Prime Contractor Workforce Composition Form

Prime Contractor: RRMM Design Build LLC

Submittal Date: 1/25/2018

	# Employees	% Employees	% Managers	% Supervisors	% Professionals	% Non-Professionals
Woman	7	44%	19%	0	19%	25%
Minority						
Other	9	56%	13%	38%	13%	44%
Total	16	100%	32%	38%	32%	69%

Descriptions
Manager: Responsible for directing and controlling the work and staff of a business, or of a department within it.
Supervisor: Oversees and guides the work or activities of a group of other employees.
Professional: Requires extensive education in their field (undergraduate degree or higher) or a specialized certification from an accredited agency.
Non-Professional: Not in one of the above categories.

SBEP-8