



CASE STUDY

## Extron XTP & NAV Systems Ensure Rapid Response at Brunswick County 911

**Extron**



Each 911 workstation includes four consoles, one each for the radio dispatch system, the phone system, a CAD PC, and a browser PC, with Extron DTP Series transmitters and receivers delivering the AV signals to the eight local displays and touch screens.

**“A few of the many factors that made Extron systems the clear choice for Brunswick County’s 911 command center are proven performance, product quality, variety, integrated technologies, and our previous experience with their equipment and service.”**

Chris Jordan  
Vice President of Operations  
North Carolina Sound

The Communications Center for the Brunswick County Sheriff's Office based in Bolivia, North Carolina, serves as the link between the public and emergency services. Operators answer the incoming 911 calls and determine the nature of the situation, entering the information into a computer-aided dispatch system. Then, they check the available resources and assign the closest medical, fire, or law enforcement unit. The operator stays on the line with the caller until help arrives.

## CHALLENGES

AV system failure is not an option for this busy 24/7/365 operations center supporting Brunswick County 911. While the existing AV system was functional, it had a serious drawback. The installation was not designed to provide video throughput redundancy to the operator/dispatcher workstations. Any component failure crashed the system.

The upgraded AV system had to tie together a variety of resources and provide optimal signal integrity, complete reliability, and true redundancy. Additional system requirements included a fail-proof solution to support the multiple monitors and computers at each of the ten 911 workstations, the centralized dispatch system, and the specialized operations equipment, such as the CCOM system, the conduit for phone calls and radio communications.



Extron DTP receivers and a NAV AVoIP scaling decoder support the eight display devices at each workstation. The operator uses an Extron 7" tabletop TouchLink Pro touchpanel for system control.

**“When we initially began the design process for the complete replacement of the AV system at Brunswick 911, we knew we had a challenge ahead of us. Extron was our immediate choice to partner with on this project due to their range of products and our exceptional past experience of working with them.”**

Chris Stephenson  
Audio Visual Design Engineer  
North Carolina Sound of Goldsboro, LLC.

The many call center sources had to be available for viewing on the Planar Clarity G2 videowall, the operator and supervisor workstations, and within the adjacent conference room. The conference room also required its own presentation system and access to the PTZ cameras throughout the facility. Each room's system control had to be intuitive and respond instantaneously to selections made simultaneously from multiple endpoints. Another hurdle was timing the transition of each 911 workstation while maintaining the seamless operation of the existing system.

The county officials contacted North Carolina Sound (NCS) to mastermind the upgrade and integrate the new AV system. The installation within the Brunswick County Sheriff's 911 Communications Center combines an Extron NAV® Pro AV over IP system linking the XTP® and control systems for a high-performance solution for this life-saving 24/7/365 environment.

## DESIGN SOLUTION

The original AV system was based solely on a central processing network system that experienced catastrophic system-wide failure whenever any device or component failed. Although the system could be recovered fairly quickly, down time was unavoidable and unacceptable.



The conference room adjacent to the 911 call center has access to the same resources as the workstations over the NAV system and includes AV and USB data connectivity at the table.

**“The AV system provided by NC Sound and Extron has made a significant impact on our EOC room and 911 call center operations. Seamless integration and ease of operation are crucial in such critical environments, where every second counts. The ability to consolidate various systems into one controlled platform not only enhances efficiency but also directly contributes to the effectiveness of 911 operations and ultimately, the ability to save lives. It's a testament to the dedication and innovation of both NC Sound and Extron in delivering solutions that meet the needs of their clients in such important areas.”**

Robert Benya  
Director of Information & Communications Technology  
Brunswick County Sheriff's Office, North Carolina

For Brunswick County's mission-critical 911 Communications Center, NCS designed and integrated a rock-solid AV system configuration based on a combined central switching and point-to-point topology. Unlike the center's previous AV system, the new design and product selection negated the possibility of the failure of any one device taking down the entire system. This included the rack-mounted components in the server room and the various devices at the nine 911 workstations, the supervisor workstation, the conference room, and the videowall and wall-mounted displays used to augment visibility and monitor evolving situations. The workstations for the rotating skeleton crew were maintained during each functional switch-over.

Extron's XTP system serves as the AV switching and distribution system for the room's displays, with DTP® transmitters and receivers facilitating signal extension within the call center. In the conference room, XTP transmitters and scaling receivers provide signal extension from connected devices to the room's displays. An Extron NAV system also links 911 call center resources with the conference room and backup emergency operations center (EOC).

The server room with the rack-mounted AV equipment doubles as the control room. An Extron 17" Tabletop TouchLink® Pro Touchpanel provides full system control from this central



Users are able to manage content selection and presentation to the conference room's video projection system and additional displays using the Extron 17" TouchLink Pro tabletop touchpanel.

**“We knew that Extron XTP, DTP, control, and NAV are solid systems and products that we could depend on for such a critical installation as Brunswick County’s 911 communication center.”**

Chris Stephenson  
Audio Visual Design Engineer  
North Carolina Sound of Goldsboro, LLC.

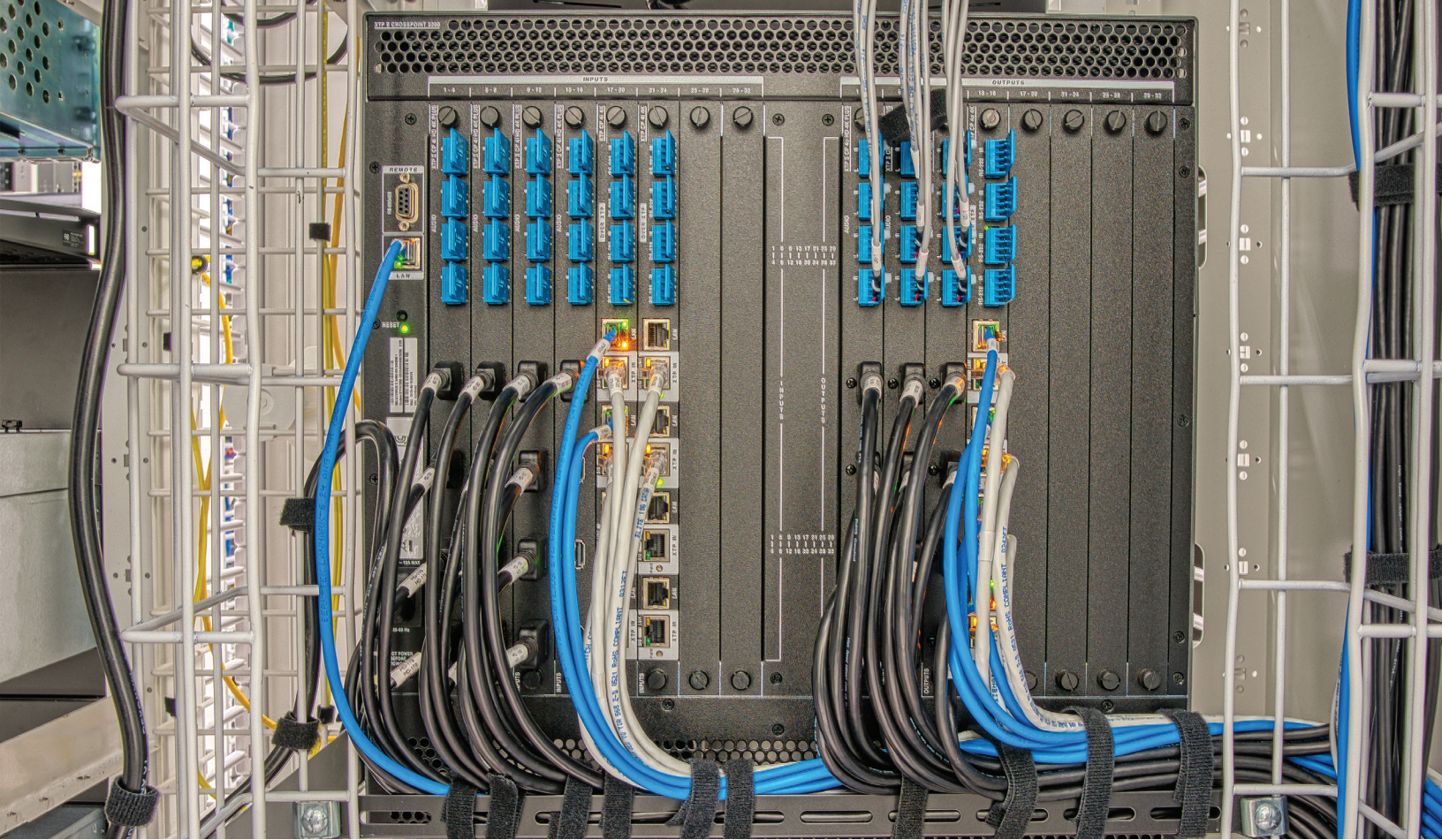
location. TouchLink Pro touchpanels facilitate local system control at the workstations and the conference room table.

### Extron XTP Delivers for 911 Call Center

In the server room is an Extron XTP II CrossPoint® 32x32 modular matrix switcher populated with XTP I/O boards, supporting high-performance switching and local distribution of 4K/60 HDMI and stereo audio signals. The rack-mounted computers, CCOM system, and Apple® TVs are connected directly to the matrix switcher over HDMI. The XTP II CrossPoint routes source signals and camera feeds to the videowall and among the workstation consoles. Signals are also available in the conference room and at certain displays within the facility.

Each 911 workstation includes four consoles, one each for the radio system, the phone system, a CAD PC, and a browser PC. The individual consoles have DisplayPort outputs, with the CAD console having four outputs to support a variety of specialized 911 functions. These signals are converted to HDMI for ingestion into the AV system and delivery to the HDMI display devices.

Extron DTP Series transmitters send DisplayPort and HDMI source signals from each 911 workstation to DTP receivers mounted with that workstation’s touch screens and monitors. USB transmitters and receivers facilitate data extension.



To ensure seamless integration and serviceability, meticulous attention was given to cable management.

**“I contacted Extron at the very beginning of the design, and they were there to help every step of the way!”**

Chris Stephenson  
Audio Visual Design Engineer  
North Carolina Sound of Goldsboro, LLC.

This design is duplicated at each of the nine 911 workstations. The supervisor workstation has these same capabilities and includes Extron audio amplifiers and a 4K TouchLink interface used to augment operation of the 23.8" touch screens.

### **Conference Room / Breakout Space Benefit with XTP Transmission and Scaling**

The conference room within the communications center is used for a variety of staff and management meetings and serves as a backup EOC. The displays in the room include a professional-grade projection system and three 55" 4K LCD panels mounted on the walls. Content can be sourced from devices connected at the conference table or around the room, accessed through the facility's auto-tracking PTZ videoconferencing cameras, and pulled from the same resources available at the 911 supervisor workstation.

Eight XTP three-input switchers and pairs of USB extenders enable delivery of video signals and USB data to the rack-mounted matrix switcher. Each switching transmitter is configured to automatically switch among the three inputs based on the active signal. For personal source devices, Extron Cable Cubby® enclosures offer AV connectivity through the table. AV transmission distances are well within the 330-foot (100-meter) range of the switcher's built-in XTP transmitter.



An Extron NAV AVoIP system links the rack-mounted XTP II CrossPoint matrix switcher and the XTP point-to-point installation in the conference room over the center's network.

An Extron XTP scaling receiver is mounted with the projector and behind each of the displays. This receiver accepts video with or without embedded audio, bidirectional RS-232, and Ethernet over XTP and scales the video to the display's native resolution. Monitors such as the display on the mobile cart receive signals from an Extron six-output 4K/60 HDMI distribution amplifier to ensure additional visibility during a high-profile emergency operation or a county-wide crisis.

An Extron 17" tabletop TouchLink Pro touchpanel is installed at one end of the conference table for content selection and AV system control. It is connected to the server room's IP Link® Pro xi control processor over the NAV Pro AVoIP system.

### **NAV Unites 911 Operations into a Support Network**

An Extron NAV professional AV over IP system links the control room, the various workstation resources, and the conference room over the facility's network. NAV 1G encoders also link the conference room PC, Cisco® Catalyst switch, and BrightSign® system to the XTP II CrossPoint matrix switcher.

A NAV 1G scaling decoder supports the sixth Lenovo 27" display at each 911 workstation, enabling display of HDMI content from other sources connected to the NAV AVoIP switching system. The same NAV scaling decoder model is used in the conference room and mounted with the Sony 65" 4K HDR LED LCD display on each mobile cart. The NAV system also ties in the CCOM phone and radio system for presentation control on any combination of display devices throughout the facility.

A NAVigator Pro AV over IP System Manager allows for monitoring, management, backup, and recovery of all NAV Pro AVoIP endpoints.

## **RESULTS**

Decommissioning the outdated AV system and integrating the new state-of-the-art AV system in carefully staged phases took 18 months to complete. NCS's process guaranteed zero downtime, ensuring that the county's emergency dispatch services remained available around the clock.

The personnel at the Brunswick County Sheriff's 911 Communications Center are using the Extron products to compile information, assign resources, and manage emergency services at top speed and with complete confidence in

**“We have utilized Extron products in many installations and currently lead with them on every AV project. Here at NCS, we have definitely witnessed time and time again that Extron components are made to last.”**

Chris Jordan  
 Vice President of Operations  
 North Carolina Sound of Wilmington, LLC.

the powerful yet stable installation. With the new XTP and NAV systems, the 911 operators are empowered to uphold their integral part of protecting the public and saving lives throughout Brunswick County.

## EXTRON EQUIPMENT - PARTIAL LIST

Model	Description
NAV E 101	1G Pro AV over IP Encoder - HDMI
NAV SD 101	1G Pro AV over IP Scaling Decoder - HDMI
NAVigator	Pro AV over IP System Manager (16 Endpoints)
NAV LinkLicense (48 Upgrade)	NAVigator 48 Endpoints Upgrade with Enhanced Features
XTP II 3200 with RPS	32x32 Modular Digital Matrix Switcher with SpeedSwitch® Technology
XTP II CP 4i HD 4K PLUS	Four Input XTP Board, 4K/60 HDMI with Stereo Audio
XTP II CP 4o HD 4K PLUS	Four Output XTP Board, 4K/60 HDMI with Stereo Audio
XTP T USW 103 4K	Three Input DisplayPort, HDMI & VGA Switcher with HDMI Output and XTP 4K Transmitter
XTP SR HD 4K	4K HDMI Scaling Receiver
DA6 HD 4K PLUS	Six Output 4K/60 HDMI Distribution Amplifier
SW2 USB	Two Input USB Switcher
USB Extender Plus Series	Twisted Pair Extenders for USB Peripherals
DTP T DP 4K 230	DTP Transmitters for DisplayPort – 230'
DTP HDMI 4K 230 Tx	DTP Transmitters for 4K HDMI – 230'
DTP HDMI 4K 230 Rx	DTP Receiver for 4K HDMI – 230'
DPM-HDF 4K PLUS	DisplayPort Male to HDMI Female Active Adapter
XPA U 1004-70V	Four Channel Audio Amplifier, 100 watts at 70 volts
MPA 152 Plus	Stereo Amplifier – 15 Watts Per Channel 8ohm
IPCP Pro 555Q xi	IPCP Pro xi Control Processor with LinkLicense–User Interface Upgrade
TLI Pro 201	4K TouchLink Interface
TLP Pro 1725TG	17" Tabletop TouchLink Pro Touchpanel, Black
TLP Pro 1025T	10" Tabletop TouchLink Pro Touchpanel, Black
TLP Pro 725T	7" Tabletop TouchLink Pro Touchpanel, White
GUI Designer	Interface Design Software
Global Scripter	Integrated Python Development Environment for Extron Control Systems Programming

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