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MAX Dispatch Opens the Door to Broadband PTT

Combining 9-1-1 Text and Voice on One Console
Butler County, IA

Preparing for i3 ESInet
Columbia County, WA

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MAX Dispatch Opens the Door to Broadband PTT

The Zetron MAX Dispatch system recently installed for the Boxborough, Massachusetts, Police Department combines many operations onto the console, improves interoperability with other agencies, and can operate remotely over a laptop. It also supports broadband PTT functionality.

When Boxborough, Massachusetts, Police Chief Warren Ryder decided the time had come to update his department's communication technology, his first order of business was to obtain a new dispatch system. His wish list for the new system included things that are vital to public-safety operations: interoperability across different radio equipment, ongoing system health monitoring, ease of use and maintenance, and redundancy that ensures 24/7 operation.

The Zetron MAX Dispatch system Boxborough subsequently installed with the help of Zetron reseller All-Comm Technologies is making virtually all of Ryder's wishes for an effective, future-proof dispatch system come true.

Small is beautiful

Located 28 miles west of Boston, Boxborough has a population of about 5,000 and covers an area of just over 10 square miles. Despite being a stone's throw from Boston, Boxborough has retained much of its rural, down-home character. "It's a lovely, historical community, green and mostly agricultural" says Ryder. "There aren't many places like it in the state."

Updating Boxborough's Communication Center

The Boxborough PD Communication Center is the town's primary public safety answering point (PSAP) and dispatch center. As such, they answer the town's 9-1-1 calls and dispatch for the town's police, fire, public works, and regional animal control.

Ryder explains why he was looking to replace the center's existing dispatch system. "At 15-years old, it was based on old technology and wasn't providing the reliable operation we need."

The new equipment would have to be redundant, reliable, and able to support interoperability across multiple agencies. "If we have to block a road, get help from the fire department, or control a crowd, we need to be able to call in other departments and communities," says Ryder. "The new system would have to be able to help us do that."

Other things on Ryder's wish list included the ability to control the center's doors, alarms and alerts as well as the ability to monitor and adjust the server room temperature, all from the console. They needed the system to be able to support their impending move to a digital Tait Project 25 (P25) network infrastructure. The system would also need to connect to their existing analog infrastructure temporarily, then seamlessly migrate to the Tait system once it was up and running.

MAX Dispatch and All-Comm fill the bill

Ryder researched the latest-and-greatest dispatch systems on the market. Zetron's MAX Dispatch appeared to be the best system to fulfill his requirements at an affordable price. With this in mind, he called All-Comm Technologies, a local Zetron vendor he'd never worked with before but had heard good things about. All-Comm Technologies president, Paul Boudreau, answered the call and immediately agreed to come to the center the very next day to give a presentation of MAX Dispatch.

Boudreau arrived the next afternoon armed with a laptop, some brochures, and a MAX Dispatch demo. The presentation he proceeded to give was a resounding success, and the decision was made. With All-Comm Technologies' help, Boxborough would obtain and install Zetron's MAX Dispatch.
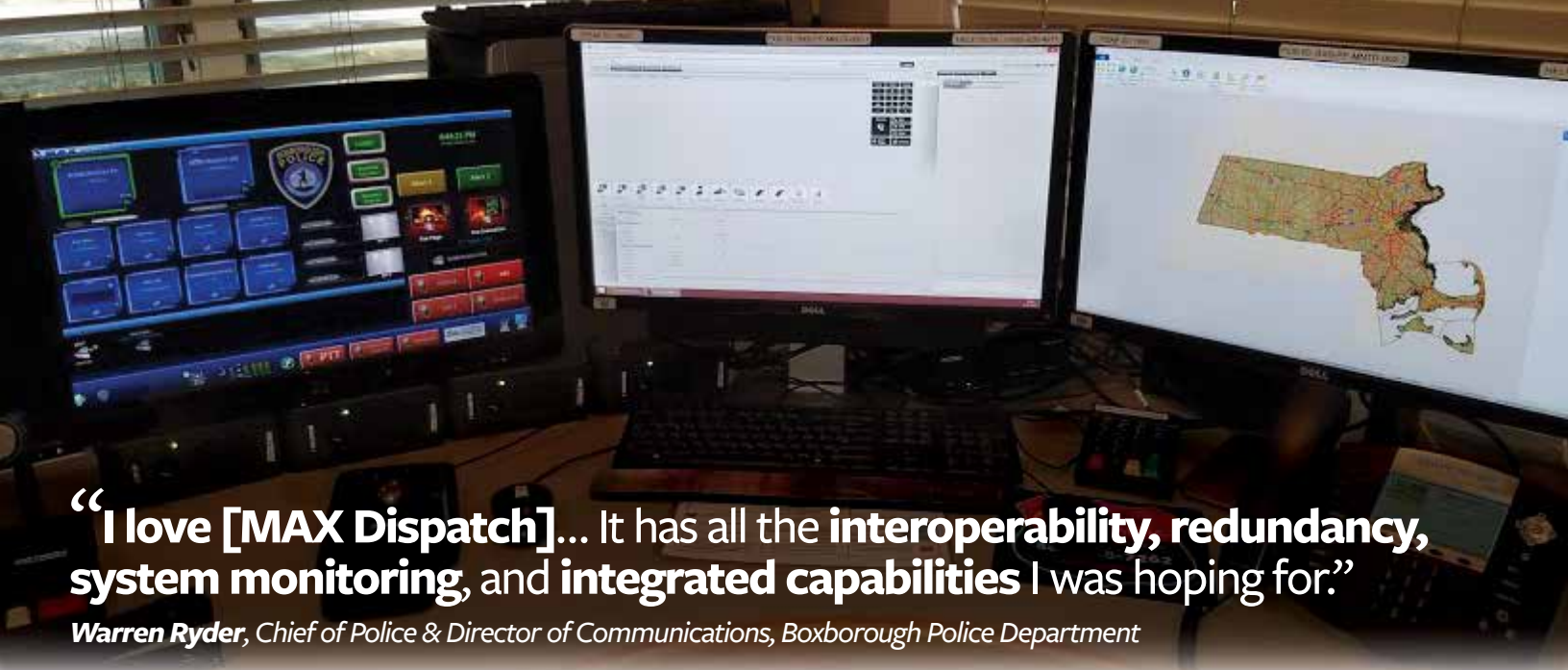
Interviews and observations

The first step of the project involved interviewing and observing the center's dispatchers. "I wanted to talk to and observe them to understand what they do and what they need," says Delvis Javier, the All-Comm Technologies technical supervisor who oversaw the project. He would use this information to design a setup that would streamline and automate many of the agency's procedures.

System staging and review

All-Comm staged the system at their shop. "We set up the consoles, built the rack, and configured the screens based on the dispatchers' input," says Javier. "We also tied in all of the radios so we could demo its interoperability."

Another key feature they demonstrated during the staging and review was the system's impressive network redundancy.

"MAX Dispatch includes a main network and a standby, redundant network," Javier explains. "During the customer review, we disconnected the main network to let them see for themselves how standby automatically takes over and keeps things going as if nothing had happened. They really liked that feature."

'We've already got it all figured out'

Once the system was finalized and approved, it was taken to the communication center and installed in parallel with the center's existing system. The installation was completed without a hitch. Dispatcher training was next, but it turned out to be unnecessary. "We'd scheduled training to acquaint the dispatchers with the system," says Ryder. "But they said, 'There's no need; we've already got it all figured out.'"

3 connections to Tait system

Not long after the dispatch system installation was complete and operational, the new Tait infrastructure was set up. Javier says they made three redundant connections from the Zetron console to the Tait system. "One is a P25 DFSI [Digital Fixed Station Interface] connection. The second is a Tait analog line, and the third is an RF control that uses a Kenwood control station over the air. This gives them alternate ways to connect to the network if any of them should fail. One is in primary use; the others are just a click away."

One button, multiple pages

Boxborough's MAX Dispatch system also includes numerous features that have simplified their operations. For instance, dispatchers are now able to open doors from the console. They also receive visual/voice alerts whenever someone opens a front or back door. and many dispatching procedures are now more streamlined. "Previously, they had to send out separate pages for fire and police," says Javier. "To cut time, we put a single button on the screen so dispatchers could send simultaneous pages to both fire and police. This has shaved precious minutes off their response—a big deal to a communication center."

'These systems really come alive'

Ryder has generous praise for Boxborough's MAX Dispatch system and those who installed it. "I love it. I wouldn't change a thing. It has all the interoperability, redundancy, system monitoring, and integrated console capabilities I was hoping for. Plus, after the initial install, we added a remote laptop position that we can operate from anywhere. As far as maintenance goes, if anything comes up, I call Delvis, and he immediately dials in and walks me through how to fix it, fixes it himself, or sends someone out. All-Comm and Delvis are terrific. When you're working with people like that, these systems really come alive."

Ready for broadband PTT

What's next for Boxborough? Much, according to Ryder. "We're looking at how we might communicate over smartphones, even if we're out of radio range," he says.

The good news is that MAX Dispatch now supports broadband PTT through the P25 Console Subsystem Interface (CSSI).

For more information about support for broadband PTT in MAX Dispatch and AcomNOVUS, see: Zetron's Radio Dispatch-Broadband PTT Integration paper (http://bit.ly/2j8Shl3).

Zetron Combines 9-1-1 Text and Voice on One Console

Dispatcher Todd Stanley monitors activity on his MAX Call-Taking screen.

The Butler County, Iowa, 9-1-1 center's updated MAX Call-Taking system not only accepts Text-to-9-1-1 messages, but it allows dispatchers to take both text and voice calls on the same console. Other 9-1-1 systems require separate consoles for text and voice.

In early 2016, a news report [1] threw a bright light on the value of Text-to-9-1-1. A deaf woman in Georgia had come upon two children—two and five-years old—alone and locked in a car in a mall parking lot. Unable to make a 9-1-1 voice call, the woman tried texting her local 9-1-1 center. Thanks to the fact that the agency is an early adopter of Text-to-9-1-1 functionality, an operator was able to take the text call and immediately dispatch help to the scene. As a result, the children, who'd been in the car for nearly an hour, were rescued, unharmed.

All was well that ended well. But this incident illustrates why the push is on for public safety answering points (PSAPs) to equip themselves with the next-generation technologies necessary to accept text messages over their emergency 9-1-1 call-taking systems. Texting is an important option not only because it has become an increasingly popular means of communication, but it can be the only viable solution when a caller is hearing or speech impaired or in a situation where it's unsafe to make a voice call. What's more, these technologies are the path to a future that will not only support both text and voice messages, but, eventually, images, video, and other data as well.

That future is rapidly approaching, and Zetron and its reseller, RACOM, are already a part of it. Together, they recently updated the Butler County, Iowa, 9-1-1 center's existing MAX Call-Taking system platform to an integrated solution that accepts Text-to-9-1-1 calls over the area's Emergency Services IP Network (ESInet). A critical feature of MAX Call-Taking is that, unlike other systems that deliver text messages over a separate console, MAX Call-Taking accepts Text-to-9-1-1 messages on the same console as a voice call. This saves space and makes it much easier for call-takers to handle both emergency voice and text calls.

Finding a site

The project began when RACOM decided that, given the current trends in public safety, it would behoove them to implement updated Text-to-9-1-1 functionality on one of their key products, Zetron's MAX Call-Taking system.

They began looking for a PSAP that was already using MAX Call-Taking on Iowa's statewide next-generation network, had a next-generation recorder, and was SIP-enabled. They also sought a relatively small PSAP that did not have heavy call volumes. This would help ensure that if it became necessary to reroute calls to another center, doing so would not overburden the center accepting those calls. Last but not least, the PSAP would have to be willing and able to participate with RACOM and Zetron in the effort. The 9-1-1 center in Butler County, Iowa, met these criteria, point for point. It was chosen for the project.

Project prep

RACOM service manager Clint Schlabaugh explains how they prepared for the updates and testing the project would require. "We staged the solution at our office, adding a single, standalone server to cover the text functionality," he says. "That involved a single-space rack server that houses multiple server modules in a single chassis. They're often used to save space and improve system management. We also upgraded the software of their MAX Call-Taking system."

The server was then put in place at the Butler County 9-1-1 facility. Because the equipment could be integrated simply through standard Ethernet cables, RACOM was able to complete this process quickly. The existing MAX Call-Taking system was updated with another software revision and testing got underway

Verifying voice and text functionality

They began by verifying the system's ability to take i3 voice calls, then went on to test the new integrated text functionality.

"When you take a system that's on an i3 network and start running it through its paces in a live situation, you can't be absolutely sure what's going to happen," says Schlabaugh. "We tested the solution with five or six major carriers and also checked a range of functions, such as whether multiple calls could be handled simultaneously, and whether a user on a text session is also able to place a voice call. It all went quite smoothly."

Issues that did surface were minor and had to do with refinements that would help all of the equipment function together. "With Zetron engineers working in tandem at the site and in house, we were able to work efficiently throughout the testing process," explains Zetron technical support engineer, Cory Coffin. "This, along with our ability to coordinate directly with the text vendor's technical staff, resulted in a rapid deployment of the refinements necessary to ensure that text delivery was completely successful."

Meeting the needs of dispatchers

Zetron MAX Call-Taking product manager, Alice Johnson, was on hand at Butler County during the implementation process to help facilitate the center's transition to the new technology.

"Because I've worked as both a dispatcher and an assistant 9-1-1 director," she says, "I understand the impact change can have on a 9-1-1 center staff. I made it a point to be a voice for the dispatchers and help make sure that their preferences and needs were being communicated and addressed."

"Alice was great," says Butler County Sheriff, Jason Johnson. "She helped dispatchers learn how to handle the Text-to-9-1-1 functionality and also served as a liaison between the engineers and dispatchers so we could be sure that the system was set up to be as efficient and effective for them as possible."

Fully integrated Text-to-9-1-1

As a result of this project, Butler County 9-1-1 is now fully equipped for Text-to-9-1-1 messaging. Plus, their MAX Call-Taking system is able to provide a more streamlined and easy-to-use method for delivering and handling Text to-9-1-1 messages compared to systems that are not ESInet compatible.

*Dispatcher Deb Bills takes a 9-1-1 text call on MAX Call-Taking.*

"**It's very important** to us that our **Text-to-9-1-1** functionality is fully **integrated** into the **MAX Call-Taking** console... It puts us in a **perfect position** to **handle other kinds of message formats** as **9-1-1 capabilities continue to evolve**."

Jason Johnson, *Sheriff, Butler County, IA*

"It's very important to us that our Text-to-9-1-1 functionality is fully integrated onto the MAX Call-Taking console," says Sheriff Johnson. "We're very pleased with the system and the avenues of communication it opens up between the public and our dispatchers. It's much easier to use than other systems, including the technologies those with disabilities have traditionally used to communicate with us. Last but not least, it puts us in a perfect position to handle other kinds of message formats as 9-1-1 capabilities continue to evolve."

[1] Gaither, Tanita. (2016, Jan 7). *Deaf GA woman uses text-to-911, saves 2 kids left in car.* Retrieved 2016, Dec. 12 from KCTV5 website: http://www.kctv5.com/story/30907578/deaf-ga-woman-uses-text-to-911-saves-2-kids-left-in-car.

MAX Call-Taking Prepares PSAP for i3 ESInet
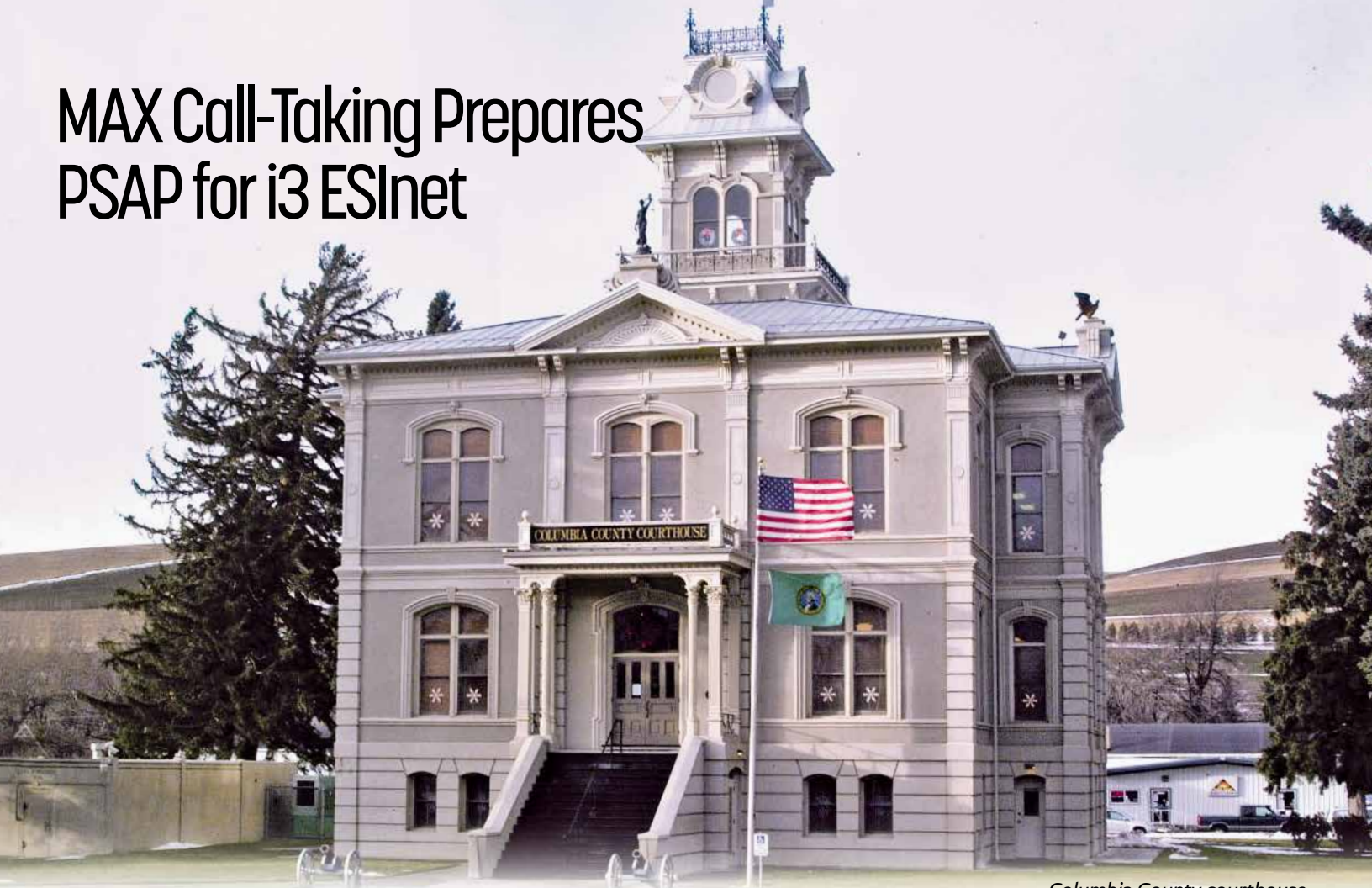
Columbia County courthouse.

The MAX Call-Taking system recently installed at the Columbia County 9-1-1 center is designed to make the most of the open-standards-based ESInet that will soon be deployed throughout Washington state.

The state of Washington is in the process of implementing a Next-Generation (NG) 9-1-1 Emergency Services Internet Protocol Network (ESInet). The current plan is for the network to be phased in over a period of five years, with public safety answer points (PSAPs) connecting to it as time and their budgets allow.

This is an important development for public-safety and law-enforcement agencies throughout Washington. The ESInet will improve their ability to accept and use a variety of data, including text messages, video, images, and other bandwidth-intensive data files that narrowband systems can't support. It will also improve interoperability and the ability of PSAPs to share information and coordinate efforts during an emergency. Last but not least, the ESInet will provide improved levels of redundancy that will help protect the continuity of 9-1-1 operations, even if some circuits or end points become unavailable.

In preparation for the upcoming network, the Public Safety Communications and Emergency Management Center in Columbia County, Washington, has just replaced their outdated 9-1-1 phone system with Zetron's MAX Call-Taking system. This equips the agency with the latest-and-greatest IP-based 9-1-1 call-taking technology. The system is currently connected to the agency's legacy proprietary ESInet, but is ready and able to connect to the i3 ESInet as soon as it comes online.

Columbia County and its public safety responsibilities

Columbia County is located in Southeastern Washington at the base of the Blue Mountains. Covering roughly 873 square miles, it is a region of rolling hills, expansive wheat fields, deep canyons, and rugged wilderness.

The Columbia County Public Safety Communications and Emergency Management Center serves as the area's primary PSAP. The scale and scope of the agency's responsibilities are typical of a center that serves a primarily rural area. They answer all of the county's 9-1-1 calls and provide dispatching for three fire jurisdictions, two ambulance companies, and the sheriff's office, which is the county's only law-enforcement agency.

Time for new equipment

Several considerations contributed to Columbia County's decision to purchase a new 9-1-1 system. Although they could have opted to keep their old call-taking system and connect it to the new ESInet, this approach would offer limited functionality and be unable to deliver Text-to-9-1-1 and other next-generation features the PSAP will eventually be required to provide. In addition, their aging 9-1-1 system was no longer performing reliably. They decided to purchase an IP-based 9-1-1 system that would provide updated features and allow them to take full advantage of the benefits the new ESInet will offer.

Choosing MAX Call-Taking

Lisa Caldwell is the director of Columbia County's Public Safety Communications and Emergency Management Center. She says that

replacing their call-taking system with Zetron's MAX Call-Taking was not a foregone conclusion. Far from it.

"We'd already decided to go with another vendor's system, when Scott Grimmett, who owns Industrial Communications, and Zetron territory manager, Eric Olsen, came by the PSAP for a visit," she explains. "In the course of things, Eric asked if we'd looked at MAX Call-Taking. I said no, we'd already made the decision to purchase equipment from the manufacturer of our existing 9-1-1 system. But we kept talking. Eric pulled up a YouTube video showing how MAX Call-Taking operates, and before he left, he handed me some documentation on the system. Afterwards, I discussed the system with my dispatchers and we watched the video together. They really liked what they saw, especially the system's unique GUI. Shortly thereafter, Eric and Industrial Communications followed up with a quote for Industrial Communications to install Zetron's MAX Call-Taking."

"We have a lot of trust in both Zetron and Industrial Communications," Caldwell continues. "We have a Zetron radio dispatch console that's performed very well for us, and Industrial has proven themselves over many years of servicing our equipment. If we had gone ahead and bought the system we'd been considering previously, the manufacturer would have had to service and maintain the system. But if we went with the Zetron system, Industrial would be our service provider. To us, that was a big plus. After carefully weighing the options, we decided to purchase MAX Call-Taking."

Setting a high bar

Columbia County purchased the system through the National Association of State Procurement Officials (NASPO). Caldwell, who was new to this funding mechanism, says that the process could have been overwhelming, but Zetron walked her through it, step by step.

"Zetron was just phenomenal," she says. "They worked with me to ensure that the contract language was complete and correct. Zetron's customer service during this process set a bar that remained high throughout the entire project."

Staging and implementation

Once the funding had been secured, the three-console Zetron system was ordered and shipped to Industrial Communications, and they began setting it up at their shop.

"Over a period of several weeks while all the parts came in, we built the system into the cabinet, set up all three positions, and programmed the system to do what the agency needed it to do," says Industrial Communications engineer, Thor Wiegman. "We left the system running for a few weeks to give it time to 'burn in' and allow any equipment failures to surface. None did."

Wiegman adds that, at the same time they were installing MAX Call-Taking, the PSAP was also implementing a new computer aided dispatch (CAD) system.

"Moving the dispatchers from a 20-year-old 9-1-1 system to brand new technology while they're also learning a new CAD system was a tall order," he says. "But we were able to make this transition without any interruptions."

Applying past ESInet experience

Zetron's past experiences integrating equipment to next-generation networks served them well during the implementation for Columbia County.

"Even though deployments for different agencies have their own unique characteristics, they also have many elements in common," says Zetron senior project engineer, John Scott. "The projects we'd already completed in Washington state contributed significantly to the success of our implementation for Columbia County."

Adding features, cutting costs

Scott says they employed several approaches to simplify the PSAP's operations and cut costs. "We integrated their new MAX Call-Taking, and their existing Zetron dispatch system so they could both be controlled through a single headset," he says. "This allows dispatchers to move seamlessly back and forth between the different systems. We also integrated MAX Call-Taking to their existing ShoreTel phone system through SIP trunking. Not only was this an easy solution, but it eliminated the need for more-costly interfaces and connections between the new and legacy equipment. Their MAX Call-Taking system is equipped with the software they'll need to field next-generation voice and text calls when the state is ready to support those services."

A committed, long-term customer

Columbia County's MAX Call-Taking system went live in June of 2016; it's getting rave reviews. "I'm so impressed with the quality of the equipment and customer service we got during this project," says Lisa Caldwell. "We're now set up to connect to the new ESInet and will soon be ready for Text-to-9-1-1. Plus, in the next few years, when it's time to replace our radio system, we can upgrade to Zetron's MAX Dispatch and have a uniform look and feel across both our call-taking and dispatch consoles. There's no question that we are committed to being long-term Zetron customers," she adds. "Zetron delivered on every single thing they promised."

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