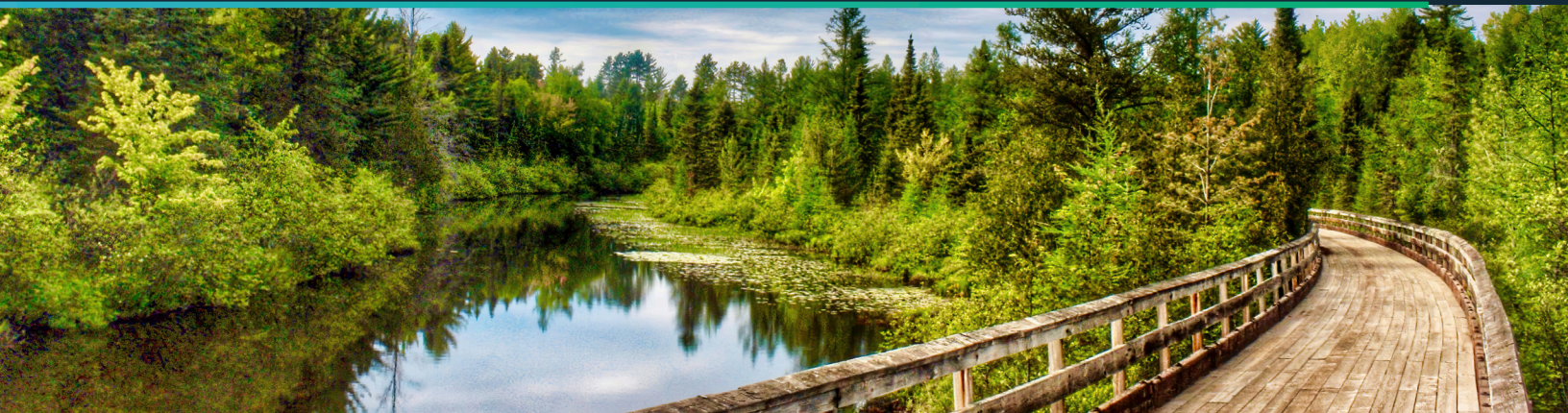# Wisconsin Forestry Division: Statewide radio system upgrade delivers flexibility, resilience and savings



Looking for an end-to-end solution to cover the state's communications needs, the Wisconsin Department of Natural Resources invested in Zetron's ACOM Command & Control system and MT-4E repeaters.

## CHALLENGE

With an aging statewide analog radio system and repeaters that were beginning to fail, the Wisconsin Department of Natural Resources Forestry Division needed to implement a system upgrade. The solution had to deliver flawless reliability across a 54,000-square-mile, multi-terrain area and flexibility to respond to changing needs and situations.

## SOLUTION

The Forestry Division replaced its aging system with:

- Zetron MT-4E Repeaters with UIC cards at 82 sites statewide
- Zetron ACOM Command & Control at eight dispatch centers with 15 consoles and three mobile consoles
- Four analog repeaters on the network utilizing Zetron Pathway+

### Wisconsin Department of Natural Resources Forestry Division

- **Featured Solution:** ACOM Command & Control, MT-4E Series
- **Location:** Wisconsin, USA
- **Market:** Natural Resources

## RESULT

The system upgrade has delivered the resilience and flexibility benefits the Forestry Division prioritized. The state has saved time and money with network monitoring tools that allow them to diagnose and address radio system issues remotely, as well as with software that allows them to be flexible in dispatching resources around the state.

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## Planning an end-to-end solution

With 54,000-square-miles to cover, managing statewide radio communications for the Wisconsin Department of Natural Resources' Forestry Division is a demanding task. The diverse terrain includes 17 million acres of forestland that covers 40% of the state. And the system supports 1,800 users working in roles from wildland fire protection and state parks to law enforcement and search and rescue.

As the Forestry Division's radio system network administrator, John Schrader's mission is to ensure the system delivers flawless reliability and flexibility across Wisconsin, keeping users connected through changing conditions and life-or-death situations.

In 2018, with an aging analog system and repeaters that were beginning to fail, Schrader and his team began planning a system upgrade. Given previous positive experiences with Zetron repeaters, they chose to begin their upgrade with Zetron's MT-4E repeaters and base stations, before addressing command and control.

"The Zetron partnership offered a unique opportunity for us to have an end-to-end solution when it was time to update our VHF P25 system," Schrader said.

## Upgrading the system in stages

During the first phase of the upgrade, Zetron MT-4E repeaters and base stations – connected via microwave and fiber – were installed at 82 sites around the state. Designed to be rugged and reliable, they offer low-current draw and deliver uninterrupted connectivity, ideal for Wisconsin's diverse terrain. Built to Project 25 (P25) standards, they provide interoperability across disparate radio systems and vendor technologies, which was important to Wisconsin.

The following year, Wisconsin purchased open standards-based IP connectivity (Universal Interface Cards or UIC) for the MT4Es, allowing them to utilize their existing network. This made the transition of connecting the consoles seamless and easy, and removed the need to convert audio. When reviewing options, Schrader's team's excellent experience with Zetron's repeaters ultimately pointed them in the direction of ACOM Command & Control, which met all their communications requirements and provided the added benefit of having an end-to-end solution from one trusted vendor of 15 consoles. A year later, three mobile consoles were added to support remote and backup needs.

After the system went live, Wisconsin added a network voice recorder from a third-party vendor, which integrated seamlessly with the ACOM system, as well as some of the analog repeaters using the Zetron Pathway+ gateways.

When the ACOM system was operational, Zetron staff delivered in-person and online training. "They trained our staff working on the servers in all the different software and design tools needed to integrate and maintain the system," Schrader said. "When it was up and running, we had all the dispatchers at the centers across the state sitting at the consoles for live online training. It worked out great."

Zetron developed a training document that was customized for the Wisconsin system and layout on the dispatch consoles, and the online training was recorded for training new staff.

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>
> John Schrader
> Radio System Network Administrator for Wisconsin Department of Natural Resources' Forestry Division

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## Delivering multiple benefits

Two years into operation with the system, Schrader notes that flexibility and resilience are key benefits.

"The flexibility of the system is working out well for us. We have two cores on our system and they're geographically diverse. If one of them goes out with some type of outage or disaster, we can switch over to the other core and it gives us that added resilience," he said. "And if I have a staffing shortage at one dispatch center, I can have it covered by another."

He also appreciates the system tools. "There are a lot of networking tools and software that [through ACOM] allow us to monitor the system live. When we have an outage or an issue, we get alarms right away," he said. "We can then pull up the software tools and see what's happening, including how many and what things are affected. That gives us an in-depth look that we weren't seeing on our old analog radio system."



*Wisconsin Department of Natural Resources Radio Team*

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> **I can sit in the office and remotely do firmware updates to all sites across the state or reboot a repeater. I think about all the time I'm saving not having to drive to different towers or send technicians to the sites."**
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> **John Schrader**
> Radio System Network Administrator for Wisconsin Department of Natural Resources' Forestry Division

The ACOM Command & Control software offered Schrader's team the flexibility needed to dispatch resources statewide and easily add external resources to cover staffing changes.

The system has also saved Schrader and his team time. "I can sit in the office and remotely do firmware updates to all sites across the state or reboot a repeater," he said. "I think about all the time I'm saving not having to drive to different towers or send technicians to the sites."

"I've worked with other large radio vendors in my career, so I had a pretty high standard," Schrader said. "When I started working with Zetron, I was very surprised and impressed with the resources they have and with how responsive they've been in coming up with solutions and helping us."

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Always ready, always on.