

Public Safety Communications Products, Services, and Solutions

Narrative for Reports

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4. **Reporting.** Please provide report examples for a minimum of three (3) installed and fully operational systems that best emulate the proposed system. At a minimum, report should include a detailed description of the system and its significant operational features/components (e.g., number of sites, channels, and subscribers) as well as a current customer contact including name, address, and phone number, title, department and system responsibility.

Table 1: Report 1 Information

Report 1		
Company Name	RiverCom 911	
Company Address	140 S. Mission Street Wenatchee, Washington 98807	
System Description	Codan's LMR Analog/P25 Digital Network was used to deliver an APCO Project 25 voting simulcast system with the MT-4E Series that supports 23 agencies including those in law enforcement, fire, and emergency medical services. The system covers 4,843 square miles across two (2) counties and offers industry-leading reliability, flexibility, and performance. RiverCom also chose to purchase the CodanCare extended maintenance.	
Operational Features	Number of sites	14
	Number of channels	4
	Number of subscribers	>200
Contact Information	Name	Josh Humphrey
	Title	Radio Systems Manager
	Department	Management / Operations
	System Responsibility	Radio Systems Manager
	Phone Number	(509) 662-4667
	Email	jhumphrey@rivercom911.org

RiverCom 911 is a dedicated, multi-jurisdictional Public Safety Answering Point (PSAP) that provides communications for the state of Washington's Chelan and Douglas counties. In 2012, the agency installed a 911 Land Mobile Radio (LMR) network to support its 23 different law enforcement, fire and emergency medical agencies. Less than 10 years later, they learned that the LMR products they had come to rely on would reach their end-of-life in 2018.

In this particular region, there are some specific radio frequency (RF) challenges. Water causes RF signals to reflect, which can distort communication transmissions and degrade audio quality and the valley is populated by numerous mountains that impede the propagation of RF signals. RiverCom's current system only provided an analog signal which works well in the mountain ranges; however, when faced with a required system change, the agency saw it as an opportunity to add digital capabilities which work better in the flatlands.

In order to have both analog and digital capabilities as well as extended maintenance support, RiverCom chose to turn to Codan Communications and our MT-4E flagship series to upgrade their pre-existing LMR network. RiverCom was already using the MT series products at their solar sites, so they knew the products were tough and reliable. To ensure a smooth transition, Codan created

and validated predictive models in field tests where factors including signal intensity, signal quality and interference were measured and analyzed. Based on this real-world analysis, minor adjustments were made to ensure the network achieved the levels of coverage, capacity and quality required to serve RiverCom's first responders effectively. Once installed, switching over the channels only took approximately 10 minutes and first responders never went without coverage. To further mitigate downtime risk, Codan also installed two (2) geo-diverse redundant controllers, something RiverCom didn't have with the previous system. In the unlikely event that one unit goes down, the other server takes over.

"The choice was clear, RiverCom could not continue with an unsupported system where software upgrades, spares, and repair services were no longer available. When you need to talk to public safety personnel in an emergency, there's no real slack for not being able to get parts for a radio or timely repairs."
Joshua Humphrey, Radio Systems
Technical Manager for RiverCom 911

The RiverCom LMR network is now state-of-the-art and provides robust communications to first responders throughout the coverage area. Codan drew on their vast experience to design a system that addressed the region's challenging RF environment and delivers superior coverage and voice quality with the optimum number of sites. The Codan base stations enable RiverCom to support a variety of applications, including VHF simulcast. From remote mountaintop base stations and repeaters, the MT series provides seamless and problem-free operation. Backhaul is provided via an Internet Service Provider (ISP), fiber, licensed and unlicensed microwave. Starting with an existing 14 sites, the modular P25 system stretches from Stevens Pass to Blewett Pass and from Grand Coulee Dam to Crescent Bar providing dependable analog and digital communications for public safety professionals. The system also supports simulcast voice and paging in the same infrastructure. Codan provides 24/7, 365-day technical support to RiverCom as part of CodanCare's extended maintenance program.

After full cutover, the highly redundant network is performing beyond expectations. In the coming years, RiverCom plans to add sites and expand its coverage for user agencies, something they can easily do with Codan's technology.

Table 2: Report 2 Information

Report 2	
Company Name	Carbon County Disaster and Emergency Services
Company Address	10 Oakes Avenue South, Suite F / Box 887 Red Lodge, Montana 59068
System Description	The Codan MT-4E radio system provided to Carbon County Montana replaced their existing voted/simulcast system with an IP based system. The infrastructure equipment consisted of four (4) radio sites (3 current and 1 new), as well as a system controller located at one of the radio sites. The new system controller consisted of two (2) servers operating in a high-available cluster. The System Controller will connect to each of the radio sites, via IP, over the county-owned microwave network. Each of the (4) four proposed radio sites consisted of (2) VHF voted/simulcast repeater channels. One VHF channels (Law) operates in either P25 Digital or Analog and the other channel (Fire) operates in Analog. See Figure 1 to view the system design.

Report 2		
Operational Features	Number of sites	4
	Number of channels	2
	Number of subscribers	> 100
Contact Information	Name	Cyrina Allen
	Title	Disaster and Emergency Services (DES) Coordinator
	Department	Management / Operations
	System Responsibility	Radio Systems Manager
	Phone Number	(406) 446-1038
	Email	cyrinaa@co.carbon.mt.us

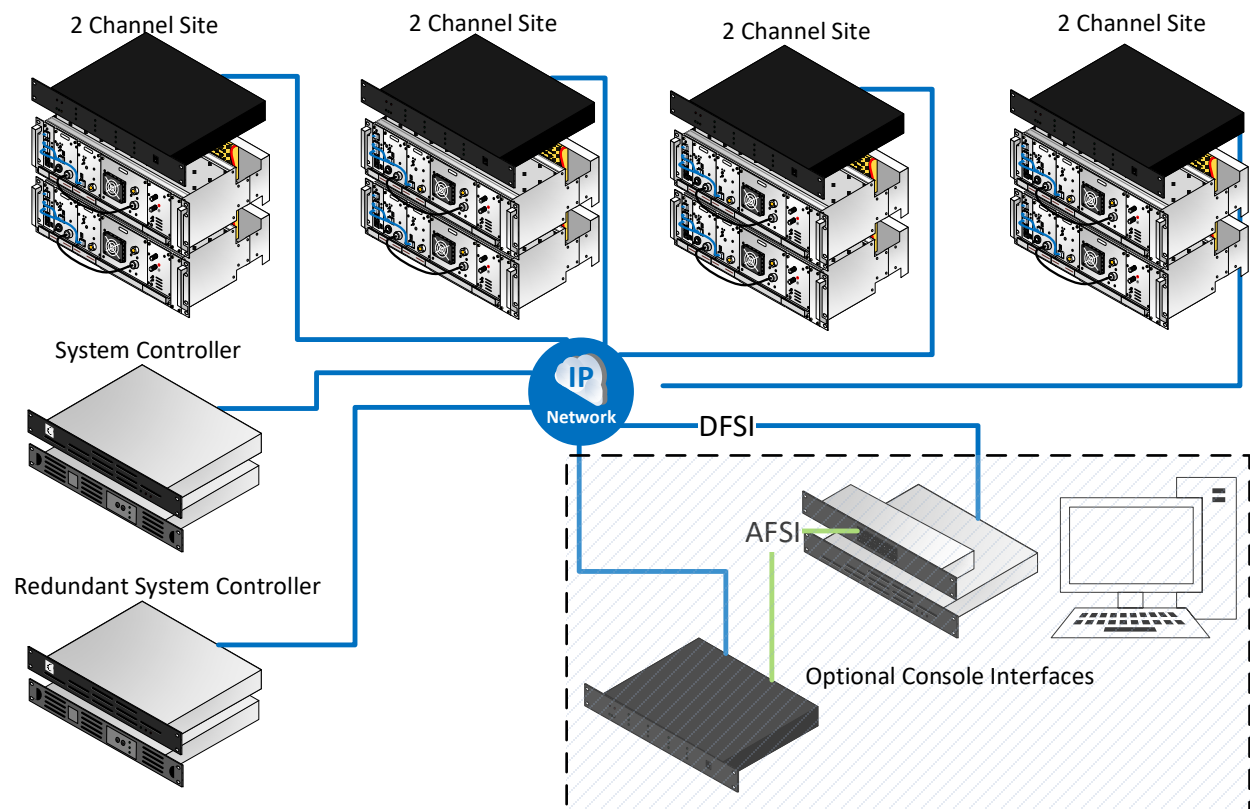


Figure 1: Carbon County System Design

Table 3: Report 3 Information

Report 3	
Company Name	Whitman County Emergency Management
Company Address	301 North Mill Street Colfax, Washington 99111
System Description	The Codan MT-4E radio system provided to Whitman County replaced their existing voted/simulcast system with an IP based system. The initial phase of the project (Phase 1) added new controllers to recently installed Codan equipment located at five (5) sites in the Northern Region of the

Report 3							
	county. Further, a new, redundant system controller replaced the existing analog voting and simulcast equipment to allow for IP based operation and the capability to support the remaining sites and channels added in the next phases. The subsequent phases utilized Codan MT-4E radios connected to the new system controller. In the final stage, the MT-4E radio in the North zone was replaced with an MT-4E networked radio. Eventually the entire system of 21 sites with various configurations of 10 channels was switched to the new Codan IP based controller connected to MT-4E radios.						
	Operational Features	<table><tr><td>Number of sites</td><td>21</td></tr><tr><td>Number of channels</td><td>10</td></tr><tr><td>Number of subscribers</td><td>>200</td></tr></table>	Number of sites	21	Number of channels	10	Number of subscribers
Number of sites	21						
Number of channels	10						
Number of subscribers	>200						
Contact Information	Name	Bill Tensfeld					
	Title	Director					
	Department	Management / Operations					
	System Responsibility	Radio Systems Manager					
	Phone Number	(509) 397-5605					
	Email	bill.tensfeld@whitmancounty.net					

Whitman County Emergency Communications, a division of the Whitman County Emergency Management Department, utilizes a Land Mobile Radio (LMR) system for emergency communications that is used by every Law Enforcement, Fire, EMS and other Public Safety Agency throughout the county. In 2018, Whitman County needed new, replacement equipment from Codan to support an IP Based Conventional Voted/Simulcast LMR System. The proposed Codan radio system replaced the entire existing analog-based voted/simulcast system with an IP based system. The proposed infrastructure equipment is located at 21 current radio sites as well as the system control at the dispatch center.