The City of Farmington, New Mexico

Mission Critical Communications Needed for Fire and Emergency Medical Service Department.

The Farmington Fire Department is a non-profit municipal fire department for the City of Farmington, New Mexico, with 75 firefighters working out of 6 widely dispersed fire stations. Communications is literally mission-critical for this rural community. In the past, Farmington's public safely first responders were limited to 2-way hand held voice communication with each other and with command and control. The result was a potentially dangerous lack of situational awareness. In addition, the City of Farmington was a growing community with a decreasing budget that required public safety officials to be creative and practical in the use of new technologies. With existing budget restrictions, traditional IP-based wired solutions were very costly and did not meet the scalability and capacity requirements for the Southwest community.

Randy Wakeland, the Technology Coordinator for the Farmington Fire Department, was tasked with creating a system to provide affordable and reliable IP services to the remote fire stations, some of which were more than 8 miles away from the main communications tower; for a combined distance of more than 32 miles for all locations.

With the advent of licensing in the 4.9 GHz spectrum for the exclusive use of public safety agencies and AIRAYA's fast, reliable and affordable WirelessGRID™ Architecture, Farmington public safety officials were able to provide the

Public Safety City Wide

Customer Facts	Integrator
Headquarters:	Farmington, New Mexico
President/CEO:	Troy Brown - Fire Chief
Contact Info:	tbrown@firenet.org

About the City of Farmington Fire Department - Our mission, in serving the citizens and visitors of Farmington, is to prevent or minimize the loss of life and property through education, emergency intervention, and code interpretation.

communications capabilities that were long overdue.

The Challenge

Provide High Speed Secure Connectivity Over an Extended Geography to Remote Fire Stations.

Achieving reliable, high speed mobile broadband connectivity and integration over such a wide rural area took some doing. Previously the City of Farmington had experimented with dedicated T-1 phone circuits, and then expanded its' 802.11b Wi-Fi network for their Wide Area Network (WAN). But the T-1 lines did not have the bandwidth to run the client server based applications, and the 802.11b did not provide the security or reliability required by the department.

The challenge: How to overcome the latency incurred as signals travel the long round trip between the remote fire stations and the main communication tower. Previous solutions were not able to resolve the low-latency requirements, deliver maximum capacity and take full advantage of the unlicensed spectrum. Additionally, the wireless network needed to be used as the primary backbone to the Farmington Fire Department's PC WAN with future growth for new services centered around video surveillance which required more throughput to guarantee operation in the covered geography.

The Solution

A High Bandwidth Wireless System for Public Safety.

To handle the throughput requirements, AIRAYA's software selectable frequency range setting in the 40 MHz wide channel supplied the high throughput and low latency as well as provided seamless backhaul connectivity to the Farmington departmental PC WAN network. The AIRAYA radios met the challenge for the high capacity demands of the city's public safety and government offices.

According to Randy Wakeland, Technology Coordinator for Farmington Fire, "AIRAYA's equipment is the preferred choice for 'last mile' connectivity to these departments. We are very satisfied with the AIRAYA products and especially AIRAYA's technical support."

The AIRAYA solution provided point-to-point and point-to-multi-point secure private network connectivity to Farmington's Fire Department as well as enabled public safety officials to roll out new applications such as wireless video surveillance as an effective tool to fight crime. By implementing an affordable, cutting-edge wireless surveillance solution AIRAYA's wireless technology has provided the City of Farmington, New Mexico with a secure high and scalable network that meets public safety requirements at an affordable price.

"The 802.11b was congested and our links were failing. The AIRAYA 4.9 GHz radio was chosen for our 'last mile' links because of price and immediate availability of hardware following the FCC release of the 4.9 GHz frequency band to

AIRAYA

Public Safety" stated Mr.. Wakeland. "AIRAYA's multipoint base stations were affordable on our limited budget and provided connectivity to multiple stations as well as future mobile apparatus" he added. "The integrated outdoor/indoor bridges purchased provided connectivity to third party antennas for greater flexibility".

Presently, projects are underway for the San Juan County, in conjunction with the City of Farmington, to expand their WAN to 14 surrounding County Volunteer Fire Departments. This approved expansion will also provide limited support for future mobile clients as they are deployed. Through careful capacity planning and system design, this installation meets the city's current requirement and allows for future expansion.

About AIRAYA
Predictable, Fast and Affordable Technology.

Founded in 2001, AIRAYA is a world-class designer of proven, fast and affordable outdoor wireless multipoint and backhaul products for high capacity public safety, service provider, and enterprise networks. The company is located in Morgan Hill, California and is privately held. AIRAYA products are available through a network of experienced North American and International distributors and reseller partners. For more information, please visit AIRAYA's web site at: http://www.airaya.com, email info@airaya.com, or call toll free 1.866.2AIRAYA (224.7292) - International 1.408.776.2846.

For information on how your business can benefit from the innovative approaches being developed by AIRAYA, please contact us via email info@airaya.com

WirelessGRID™ Full-Duplex Backhaul Link with 29dBi Antenna

Fully Integrated Radio and Antenna Technology

The integrated architecture of WirelessGRID™ outdoor bridges provides ease of installation, maximum range and capacity, delivering outstanding performance in a fully integrated design. Ideally suited for bandwidth-hungry applications that require fast, affordable, reliable, and secure point-to-point connectivity, the fully-integrated outdoor series of WirelessGRID™ bridges provides optimal delivery of IP voice, data, and video services.

Utilizing OFDM technology in the 4.90-5.85 GHz frequency range, WirelessGRID™ Full Duplex links operate in Backhaul (Point to Point) mode at ranges of up to 12 miles* and at speeds up to 108 Mbps per radio.

The Farmington Fire Department is responsible for protecting life and property at the Four Corners Regional Airport, located in the western part of the city. The WirelessGRID™ Full-Duplex Backhaul Link with 29dBi Antenna provides the low latency and high throughput needed to meet the city's dispersed geographical requirements.

The Farmington Fire Department prides itself on being able to respond to and arrive to a scene or incident quickly. AIRAYA's WirelessGRID™ network provides the bandwidth, predictability and speed that allows fire fighters, EMT's and Paramedics to communicate together as a team, to extinguish a fire, search for victims and administer the appropriate medical care for its citizen's.

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