

Improving Water Utility Operations While Reducing Communications Costs



“We were able to connect the entire system: Narrowband to meters and sensors, and broadband for database and Internet. Communications were running in weeks with equipment and support from Cambium Networks.”

- CARLOS MENA,
TECHNOLOGY
LEADER, AGUAKAN

Challenge

WHEN COMMUNITIES GROW, UTILITIES MUST ALSO GROW AND change to support the increased demands. When the city of Playa del Carmen, Mexico, grew by adding new residential areas and hotel developments, the water services needed to be upgraded. Both the drinking water supply and waste water collection and treatment facilities were expanded to accommodate the increasing population.

While the water services infrastructure was being improved, Aguakan also had the responsibility to ensure that the operations would be first class as well. The previous communications infrastructure to monitor systems and connect offices had been provided by the local public telecommunications service provider, and the amount of communications would exceed their services and cost parameters.

Aguakan needed a solution and was on a tight timeline to implement a communications network.

Solution

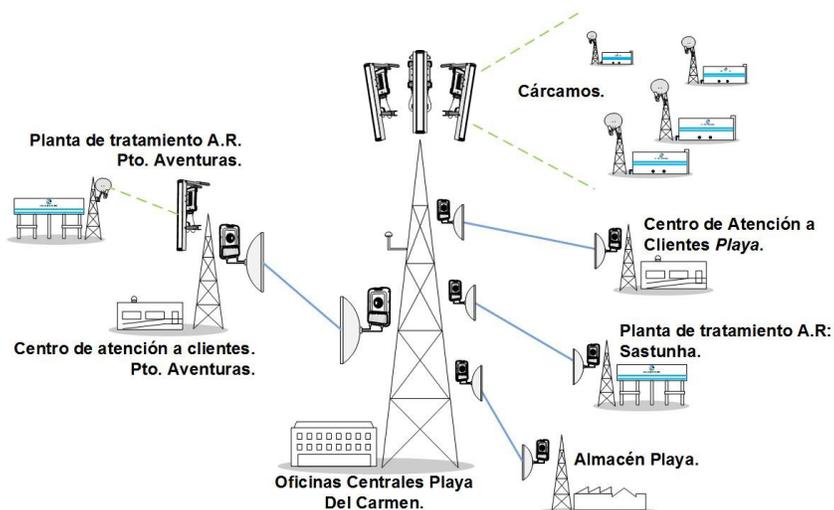
“IN ADDITION TO CONNECTING SENSORS AND METERS IN THE AREA, WE NEEDED TO connect remote locations, including the customer service center, warehouse, and plant facilities,” says Carlos Mena, Technology Leader, Aguakan. “These interoffice connections needed database access, voice services, and Internet – which requires broadband speeds.”

The offering from the local telephone company consisted of leased lines, which provided too much bandwidth for the narrowband communications at the meter locations and too little bandwidth at the office locations. In addition, the cost of leased lines would have been too high in the new and larger facility.

“We chose to build a private network,” says Fabiola Ojeda, IT Project Manager, Aguakan. “This gave us the flexibility to build exactly the capacity that we needed at each location, without the monthly subscription costs.” The private network can also be extended as demand grows in the future.



With assistance from Cambium Networks, Aguakan designed an all-wireless network with point-to-point (PTP) transport backhaul links in the unlicensed 5 GHz frequency band and a point-to-multipoint (PMP) distribution network in the unlicensed 900 MHz and 5 GHz bands.



PTP 650 Wireless Backhaul Infrastructure Solution	
Frequency	4.9 to 6.05 GHz
Throughput	Up to 450 Mbps in a 45 MHz channel
Award-Winning Performance	Highest Capacity in 20 and 40 MHz channel Highest Spectral Efficiency in 20 and 40 MHz channel

PMP 450 Distribution Access Network Platform	
Frequency	900 MHz, 2.4, 3.5, 3.65, and 4.9 to 5.9 GHz
Throughput	125 Mbps

ePMP™ 1000 Distribution Network Solution	
Frequency	2.4 and 5 GHz
Throughput	100 Mbps in a 20 MHz channel

Results

AGUAKAN DEPLOYED WIRELESS broadband connectivity in three cities in the Quintana Roo area: Cancun, Puerto Morelos, and Playa del Carmen. The water utility communications network has 17 PTP links and 180 PMP 100 radio modules operating in the 900 MHz spectrum.



About Aguakan

www.aguakan.com

Aguakan provides the municipalities of Benito Juarez, Isla Mujeres, and Solidarity drinking water and the collection and treatment of wastewater. Aguakan employees are a team of experts who use the latest training and technology to ensure that communities receive the highest possible quality service.

Why Aguakan Chose Cambium Networks:

- **Outstanding technical support** to see the project through to completion
- **Network Flexibility and Capacity** to support communications needs in different parts of the network
- **Reliable connectivity** that performs consistently under heavy demand and harsh conditions

“The system worked very well, and we had better connectivity than ever before,” says Ojeda. “We have complete telemetry information of pumping stations, wells, and pipes. After seeing the improvement in the first three cities, we extended the network to include the city of Isla Mujeres with ePMP connectivity.”

Next Steps

AGUAKAN IS CONTINUING TO GROW THE NETWORK AND REPLACING LEASED LINES AND ANALOG SERVICES

with their private wireless broadband network. Says Mena, “All Aguakan corporate network applications and data are now being sent over the network. This was impossible before. We now have the bandwidth and communications to do what we need to do.”



<https://www.facebook.com/DHCAGUAKAN>



<https://twitter.com/dhcaguakan>



<https://www.youtube.com/channel/UCuJ4tZNmAOh0BGTrZWCFjkQ>