

## COVERAGE SYSTEMS

## Wireless Solution Preserves Townships' Heritage

Powerwave & ClearLinx (Now ExteNet Systems, Inc.) Deploy Wireless Services

**Challenge** To provide wireless voice and data coverage in areas of two Michigan townships that did not previously have access to these services.

**Solution** An open Distributed Antenna System (DAS) network devised by ExteNet Systems, Inc. in partnership with Powerwave's Coverage System Innovations team.

**Result** Ubiquitous access to cellular, PCS and AWS services within the residential areas of two Michigan townships.

### Open Distributed Antenna System (DAS) Brings Commercial Voice and Data Services to Residential Areas of Michigan Townships

Located in the heart of "Automation Alley," an area that includes Detroit, Mich., and eight surrounding counties, these Michigan townships are part of a region that is home to a growing number of high technology industries. Entrepreneurs, top-ranking executives, and their families are attracted to this region due to its tranquil, rural setting; first-rate educational institutions; high-quality healthcare facilities; world-class shopping and dining venues; vibrant cultural and recreational programs; and, outstanding public services.

Unlike other high tech corridors in the United States, some areas of "Automation Alley" had been slow to develop the infrastructure that would support advanced wireless voice and data services. The two townships were two such areas that did offer public access to cellular, PCS and AWS.

In 2005, local wireless service providers in collaboration with township governmental bodies, including the Historic Commission of one of the villages, commissioned ClearLinx Network Corporation, now ExteNet Systems, Inc. and its partner Powerwave Technologies, Inc. to design and implement a wireless network that would support the coverage and capacity needs of a community that was rapidly becoming more technologically savvy.

After evaluating the needs of the residential communities in the townships, as well as the requirements of the wireless operators, local governments and the Historic Committee, ExteNet and Powerwave determined that an open DAS network would provide the area with the coverage and capacity needed to support ubiquitous access to wireless voice and data services, including cellular, PCS and AWS.



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### Modern Blends with Traditional in a Rural Setting

Because residents are attracted to southeastern Michigan due to its quiet, tranquil setting, government officials go to great lengths to preserve its serenity and visual appeal. Prior to implementing the open DAS network, ExteNet and Powerwave had to meet one specific requirement put forth by local officials, the historic committee and city residents – the system had to be aesthetically pleasing.

ExteNet and Powerwave leveraged their combined experience in working with local governments to gain a better understanding of the requirements of the town's citizens and local officials, and created a solution that met those needs. To provide the proper aesthetics, the WCS units were mounted next to existing utility boxes on telephone poles and a special antenna cover was developed to protect the antennas which were located at the top of the poles.

### Repeater-Based Solution Improves Access, Lowers Costs

The ExteNet/Powerwave open DAS network is designed to support multiple wireless services including cellular, PCS, and AWS using a single cost-effective, flexible and scalable wireless network platform.

The open DAS network is comprised of a series of repeaters that are used to distribute signals from the base stations and remote nodes placed strategically within the coverage areas of the two townships. Each repeater system supports multiple carriers and consists of a Base station Master Unit (BMU); a fiber-optic distribution system; fiber-optic repeaters and Wideband Radio Heads (WRH); and, a passive antenna system connected to the repeaters and radio heads.

Powerwave offers a technically superior, upgradeable, flexible and adaptable network that can transmit any wireless signal from any wireless service provider. ExteNet open DAS networks are an attractive solution for meeting wireless service provider coverage and capacity requirements. Integrating Powerwave's repeater solution in open DAS solutions helps customers reduce operational expenses with a small form factor that minimizes site rental costs, and eliminates the need for expensive transmission lines, special cabinets, oversize battery backups and extra cooling.

### Conclusion

In the Spring of 2006, ExteNet and Powerwave completed the build-out of the outdoor DAS for the two townships.

"Powerwave's proven track record in providing state-of-the-art outdoor coverage systems for complex environments worldwide, coupled with ExteNet's expertise in the implementation of open DAS networks is a winning combination when it comes to the design and implementation of wireless network infrastructure," said Steve Damewood, Vice President, Network Service Group, Powerwave Technologies. "With the design and implementation phase of the open DAS network now complete, residents can now experience all the benefits associated with access to voice and data services anytime, anywhere throughout the coverage areas."



**Powerwave Wideband Coverage System (WCS)** product line is a flexible platform for wireless enhancement of a base station signal remotely. This line of products can be connected via coax or fiber cable to provide capacity to underserved areas of the network. Applications for this versatile product are indoor distributed antenna systems (DAS) and outdoor coverage challenges. Future expansion and upgrading is made easy using a modular design. Same reliable, field proven technology as Powerwave's Repeater products, as well as the same O&M software for complete NetWay Manager (NWM) and OM-Online compatibility.

#### Key Benefits

- Ultimate flexibility
- Proven technology
- Fiber or Coaxial feed
- Ease of installation
- Output Power options
- Standard O&M platform

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### About Powerwave

Powerwave Technologies offers one of most extensive lines of antennas in the world, covering cellular, PCS, GSM, CDMA, UMTS, AWS, Wi-Fi and public safety frequency bands. The company also boasts an impressive amount of engineering expertise gained from delivery of more than one million antenna systems. The company has a proven track record developing and implementing a variety of in-building solutions that are affordable, efficient and robust, to address complex coverage needs and challenges for some of the world's most densely populated areas.

### About ExteNet Systems, Inc.

ExteNet Systems, Inc, provides "Open" networks for the wireless industry that are based on a Distributed Antenna System architecture. ExteNet deploys Open networks to help Wireless Service Providers improve coverage and capacity while also meeting community concerns regarding the aesthetic impact of wireless network infrastructure.



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