



TRANGO POWERED CITY

# Connecting the City of Sheboygan, WI

## 4.9 GHz wireless public safety network for fire, police and other municipal services

### Benefits

- » Eliminated costly T1 and ISDN lines
- » Greater throughput, up to 120x
- » Redundant dispatch center
- » High-speed citywide connectivity
- » Ease of installation and scalability
- » Wireless video surveillance
- » Mobile live streaming video from police squad cars via WiFi APs
- » Live video fire training broadcasts

### Products



**HD Mesh™ - HD4900-INT-22**  
Self-healing High-Capacity  
Metro-Scale Network  
Backbone Ring



**TrangoLINK-10™ - TLINK-10**  
Dual-Band 5.3/5.8 GHz  
Point-to-Point 10 Mbps  
Wireless Ethernet Bridge



**Atlas Series™ - Atlas5010-INT**  
Dual-Band 5.3/5.8 GHz  
Point-to-Point 45 Mbps  
Wireless Ethernet Bridge



**Access5830™**  
Dual-Band 5.3/5.8 GHz  
Point-to-MultiPoint 10 Mbps  
Wireless Broadband System

### About Sheboygan

The City of Sheboygan, Wisconsin is a 15-square-mile town nestled on the shores of Lake Michigan. The nearly 200-year-old settlement has five fire stations, a county courthouse, police department, municipal service building and city hall—servicing over 50,000 residents.

### The Challenge

Sheboygan needed to expand and strengthen its public safety network by connecting all of the city fire stations as well as the police department and several other local municipal services.

### The Trango Solution

- » A high-capacity self-healing network backbone using seven Trango HD Mesh™ nodes consisting of fourteen 4.9 GHz Atlas4900 backhaul radios.
- » Several other critical city facilities were also connected using four TrangoLINK-10 links and one Atlas5010 link.

### The Successful Outcome

- » Sheboygan fire stations have a high-speed redundant connection to local critical public safety services
- » Huge cost savings by eliminating expensive leased T1 and DSL lines
- » City and county dispatch centers now have a reliable emergency alternative
- » Police squad cars have mobile drive-up access to the network and to video surveillance via WiFi access points
- » Ease of adding features and ease of expanding network to neighboring cities

### The Challenge

When Sheboygan added a new fire station, the city decided to re-evaluate the network requirements of the fire department and other safety and municipal services. While adding the new fire station to the network, they wanted to innovate and expand their technology infrastructure to serve additional facilities. A new high-bandwidth network would boost overall network performance, thereby increasing municipal government efficiency.

The Sheboygan Fire Department secured a Homeland Security Grant to install a wireless communications network. Ideally, the city needed a secure WAN connecting not only the fire stations, but also the Municipal Services Building, Police Department, May Environmental Park, wastewater treatment plant, City Hall and other facilities.

One main priority was to reduce their reliance on the costly leased T1, ISDN and DSL lines, which provided access to various buildings. Additionally, it was important to address future civic and public safety needs and to assure that they could easily add locations and features to the municipal wireless network.

“Our main goals were to increase throughput and connectivity to all city buildings, and to eliminate costs of the leased lines. Other major priorities were redundancy of critical systems and security, reliability and expandability of the network,” says Margie Verhelst, IS Manager, Sheboygan Police Department. “We feel all of these things were accomplished with the Trango installation.”

## The Trango Solution

For Sheboygan's primary connectivity requirements, Trango proposed an HD Mesh network backbone using Atlas4900 backhaul radios. The system consists of seven 4.9 GHz HD Mesh nodes installed on top of fire stations, water towers, City Hall and other buildings. This 45 Mbps backbone ring provides a highly secure, highly scalable, self-healing network that is ideal for delivering high-speed metro backhaul, broadband access, VoIP traffic and IP-based video surveillance.

Several other buildings were added to the network by utilizing the Power-over-Ethernet ports (PoE), which come standard in each HD Mesh node. These wireless offshoots used the TrangoLINK-10, a dual band 10 Mbps point-to-point wireless bridge and the Trango Atlas5010, a dual band 45 Mbps wireless bridge. One building was linked via a pre-existing Trango installment, which consists of the Access5830 access point and subscriber unit. The 5 PoE ports in HD mesh afford the City of Sheboygan virtually limitless options and expansion capabilities.

*With the increase in performance and the elimination of the expensive leased telephone lines, this is a great benefit to the City. Also, the HD Mesh backbone will make network management much easier.*

Margie Verhelst, IS Manager  
Sheboygan Police Department

*I cannot say enough about the excellent support we received from Trango. Their engineer was always available and the installation of the system went much more smoothly than anticipated.*

Russ Schreiner, Communications and Electronics Technician,  
Sheboygan Police Department

"We are planning to connect the Plymouth Police Department, and will likely connect two other police departments in the future. This will eliminate even more leased lines and their continuing costs," says Verhelst.



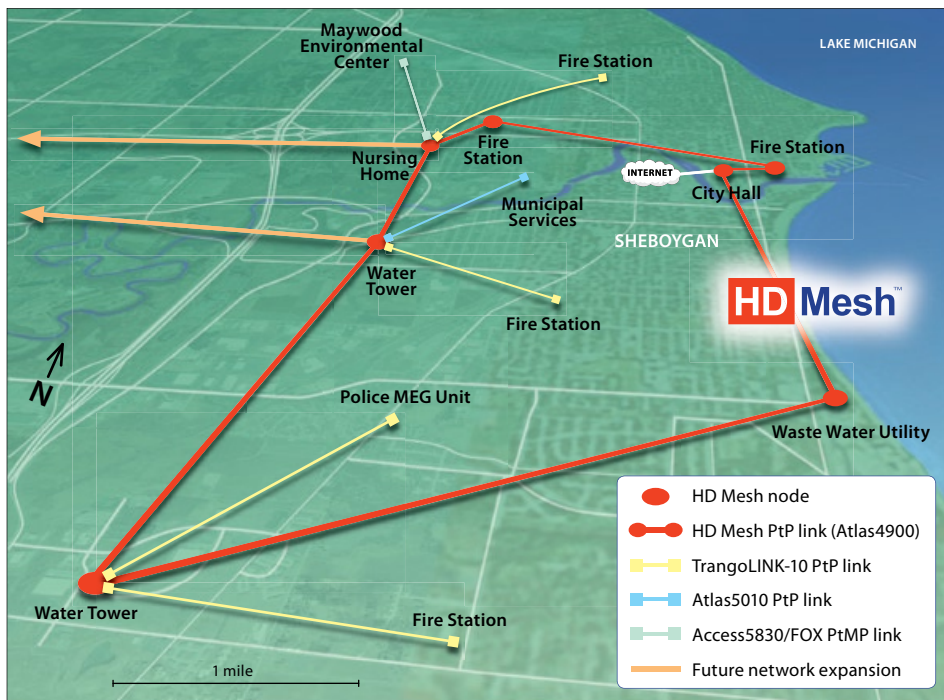
## The Successful Outcome

Increased network speeds, superior accessibility, improved public safety, better network redundancy, greater scalability, reduction of operating costs and complete multipurpose versatility—that is what the Trango installation has made possible.

Sheboygan now delivers high-speed access to all critical public safety and municipal facilities at speeds far greater than before. Prior to the installation, the slowest connection was dialup and the fastest was T1 (1.544 Mbps). The new Trango wireless backbone network is delivering usable throughput that is 30 to 120 times faster, giving some city facilities access to capabilities that were previously unattainable.

Police officers have more tools to help make Sheboygan a safer place. WiFi-equipped squad cars have drive-up access to the built-in 802.11a/b/g hotspot featured in each HD Mesh node. Officers will be able to view live video from networked surveillance cameras as well as send live streaming video for real-time review by a shift supervisor.

"All of our goals were met. All city buildings are now connected to the network through HD Mesh and all have excellent performance," reports Verhelst. "We also connected two Sheboygan County facilities, giving the county interoperability and redundancy for their connection. Trango's products were easy to install and configure."



WWW.TRANGOSYS.COM

### Trango Systems, Inc.

14118 Stowe, Suite B, Poway, CA 92064  
Tel.: +1 (858) 391-0010 | Fax: +1 (858) 391-0020 | Email: sales@trangosys.com

