# City of Dallas
## Firetide Mesh Takes Bite Out of Crime in Dallas

**ORGANIZATION**
City of Dallas, Texas

**TECHNOLOGY**
Video Surveillance

**INDUSTRY**
Public Safety, Government, Tourism

**PURPOSE**
Increase safety and improve quality of life in downtown Dallas

**SOLUTION**
Firetide Wireless Mesh Network; Sony IP Cameras; BridgeWave point-to-point backhaul; OnSSI video manage-ment software

**RESELLER/INTEGRATOR**
BearCom, Dallas

**MORE INFORMATION**
www.firetide.com
www.bearcom.com
www.sony.com
www.onssi.com
www.bridgewave.com
www.dallaspolice.net

### The Dallas Challenge

The city of Dallas has a population of 1.2 million and spans 385 square miles, while the metropolitan Dallas area has nearly 6 million people. Founded in 1841, Dallas is world-renowned as a center for IC technology, banking, telecommunications, and transportation. Yet the city nicknamed "Big D" has a troubling side when it comes to criminal activities.

Downtown is an especially busy area. During the day, hundreds of thousands of people visit the area. At night, thousands dine at the district's restaurants or spend an evening at the many clubs and entertainment venues. Police department budget constraints limited the number of officers who could be deployed, so the department has called up wireless mesh technology for duty.

The Dallas City Council and the local police department implemented a wireless video sur-veillance system consisting of 32 Firetide mesh nodes and 40 Sony cameras in the troubled Central Business District. The goal is to reduce crime while keeping citizens satisfied, so resi-dents and visitors can feel safer. With 24/7 monitoring, the system provides a way to deter crime and improve the police department's detection and investigation capabilities.

### Digital Eyes on the Streets

A system as big as the one proposed for Dallas had to be given public exposure before instal-lation, so that as many people as possible felt comfortable about surveillance in public areas. On Nov. 15, 2005, the city unveiled camera pods and other equipment for public viewing. The city cordoned off about three blocks so system components could be exhibited. Installation began the following day.

"Our goal was to reduce crime in the downtown business district and to combat the percep-tion of inadequate safety measures in the area," said Deputy Police Chief Tom Lawrence. "We were pleasantly surprised at the speed of implementation and the tremendous support from the business community. While we did not go into the project with the concept of wireless, the benefits quickly became obvious: the mesh enables quick setup of the network without a complete overhaul, while providing excellent bandwidth and security for video streams."

### Integrated Solution for Dallas PD Needs

Dallas-based BearCom was the designer, integrator, and overall manager for the project, bringing in Firetide, Sony, OnSSI, and BridgeWave as strategic partners.

The Dallas PD deployed Sony Model 550 cameras. Thirty-one of them are equipped with pan-tilt-zoom capability; the other nine are fixed. Placed at major intersections in a dense area of business, tourism, residential, and entertainment venues, the cameras cover over 30% of the total downtown area. The criteria used for camera-site selection included maxi-mum coverage, mounting locations, pedestrian and vehicular density, tourist spots, enter-tainment facilities, quality of life and chronic social problems, plus technological limitations of where the network can operate and legal limitations for where cameras can be utilized.

*Monitoring at police headquarters*

The cameras connect to Firetide wireless mesh nodes. Together, the Firetide nodes form a resilient mesh network which can route around any RF or technical problems, thus guaranteeing camera connectivity even when problems occur. The mesh operates in the 4.9 GHz spectrum reserved for public safety used by the FCC. Use of the reserved spectrum minimizes interference from, and with, other wireless services. Regular consumer 802.11b/g operates at 2.4 GHz. By avoiding this congested band, the Dallas PD keeps wireless users happy and avoids problems.

The surveillance system uses a 60-Gigahertz backhaul by BridgeWave Communications to connect the Firetide mesh to Jack Evans Police Headquarters, where officers monitor the cameras. The surveillance system stores 14 days of digital images.

OnSSI software enables the Dallas PD to monitor and control the video cameras from one central location. The management and archiving capabilities of the software also help ensure the depart-ment's ability to hold criminals accountable.

## Reliable Connectivity for Video Streams

A key factor in selecting the Firetide system was its ability to handle high-quality video traffic from the video cameras. Sony and Firetide met the goal of being able to read vehicle license plates at 300 yards, as well as delivering positive identification of individuals.

"Without Firetide's wireless mesh, it would have been too dif-ficult and cost-prohibitive to install the cameras where they were needed," said Jeff Murray, project manager for BearCom, who oversaw network design and installation. "In addition, the mesh network forms itself, making installation even easier. It creates many alternate wireless links so the network is extremely reliable. Even if a wireless link is blocked or a node loses power, the video will always go through without any interruption in service."

The Dallas PD says that the factors which recommend Firetide include fast delivery and setup of all of the



*Preparing for the installation*

stories tall, a challenging RF environment. The ease with which cameras and nodes can be moved is important, too.

## Moving Forward

The ability to monitor real-time activity in downtown Dallas gives the police department a new weapon against crime. Response to police calls is quicker. Police vehicles can deploy at needed streets as officers in cars monitor different locations on their laptops. When combined with police officers on the ground, the department gets a multiplier effect in terms of surveillance and force.

As a benefit of a mesh technology, new nodes and cameras can be added simply by switching them on – they can be pre-configured to join the existing mesh automatically. In addition to deploying more cameras, the Dallas PD is looking at other technologies it can deploy. Portable cameras are under review now.

The City of Dallas is impressed with the system as well, and other departments are looking at ways wireless mesh technology and video cameras can help them.