



Firefighting the Wireless Way

How Wireless Technology is Helping Save Lives in Emergency Situations

By Todd Kimberley, ENCOM Wireless Data Solutions Inc.

A wireless exit warning signal enables a rescue engine to emerge from its fire hall unimpeded by passing motorists.

A ladder truck gets to a burning building 45 seconds sooner by using a wireless traffic signal pre-emption system.

A mobile command center employs a wireless MESH network to instantly download building plans to its field units for an evacuation procedure.

Heroes in fire halls everywhere have a new, state-of-the-art ally in their battle to protect and serve. Wireless technology is enhancing service delivery and safety in emergency scenarios, helping to save lives by decreasing response times and ensuring first responders navigate traffic successfully to arrive on scene without incident.

One of the leading providers of wireless communication for intelligent transpor-

tation is ENCOM Wireless Data Solutions, which has been installing radio equipment in traffic cabinets for more than two decades. They take a mobile approach to intelligent transportation, and excels in deploying quick, flexible and cost-effective wireless systems.

And nothing says speed, flexibility and grace under pressure, like the actions of a fire department with lives on the line. Wireless applications provide an extra lifeline for these first responders, and the technology is proving itself in a variety of ways.

Fire Hall Exit Warning Signals

A wireless system, with an activation unit within the fire hall and pole-mounted flashing beacons on the street, gives motorists extra response time to pull aside and let fire rescue vehicles emerge from their headquarters on the way to a call.

Central Saanich Fire Rescue, based on Vancouver Island in the Canadian province of British Columbia, has been using such a system with excellent results.

The wireless network employs Carmanah R838 Solar ITS Flashing Beacons, with built-in ENCOM radios, activated remotely by the push of a button on an ENCOM CommPAK IO 8M Wireless Master Activation Unit.

The system also allows for much-needed flexibility, enabling portable activation of the beacons from inside a vehicle, thanks to an optional secondary master controller. Users can also program the length of time the beacons flash before automatic shut-off.

"It does seem to be quite effective," says Darren Morson, a volunteer lieutenant with Central Saanich Fire Rescue. "When the lights are flashing, there's a little more awareness when drivers

Continued on page 35

IMSA Journal

Firefighting the Wireless Way ...

Continued from page 34

are approaching that something's going on."

Before the installation of the Saanich system, "there was definitely some concern," admits Morson.

"When we pull out, it's a bit blind on one side, and with our larger trucks, our ladder truck and our tanker, we need to swing out into oncoming traffic."

"We did startle people . . . sometimes they didn't even pull over. (Now), we have noticed that the cars will pull over a little sooner."

Ultimately, the wireless advance warning system will pay for itself many times over by preventing accidents and saving lives.

"Yes, definitely," remarks Morson. "It's the safety of everyone, when we're swinging out into traffic, that is so important. You just don't want to be causing accidents, and that's where most injuries happen to firefighters — in the trucks, responding to the call."

Cost-effectiveness and speedy deployment were key benefits of this system. The Saanich installation took a mere matter of hours, with basic tools and equipment requirements — and paid instant dividends.



Within minutes of installation, Central Saanich Fire Rescue received a call for urgent medical attention. Firefighters used the master controller to activate the warning beacons outside the hall. Upon seeing the flashing beacon, the first motorist approaching the fire station took immediate action.

"He pulled over before we'd even got
May/June 2009

out of the hall," recalls Morson. "It showed how effective the system can be."

Above all else, the wireless nature of the Central Saanich exit warning system was a critical component for success.

"Frankly, it made the difference between being able to do it and not being able to do it," notes Morson. "One of the (pole locations) is across the road; we would have had to string wires across, and either trench out or run poles."

"The cost would have been prohibitive, and we'd have had to disturb the tarmac out in front of the hall . . . there's a good possibility that, in the end, it just wouldn't have worked."

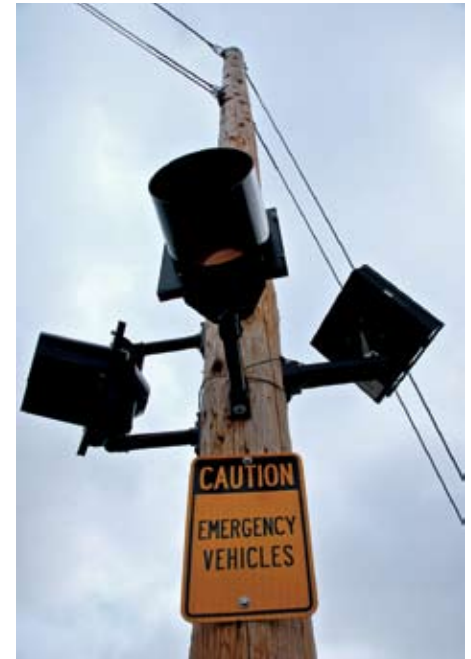
La Quinta Fire Service in La Quinta, California, is already using an identical system, while the British Columbia Ambulance Service is taking a hard look at the wireless, solar-powered network for possible deployment across the Canadian province.

Traffic Signal Pre-Emption

Wireless communication can also help firefighters get on the road as soon as possible, with a green light at the nearest traffic signal sending them on their way.

When the trucks are ready to roll, a master controller within the hall sends a message to a remote radio at the traffic

signal, which then pre-empts its normal cycle to give the first responders the all-clear.



Fire Station No. 208 in Brampton, Ontario, Canada, uses an ENCOM CommPAK IO 8M Wireless Master Activation Unit to control an ENCOM CommPAK IO 8 slave radio within the cabinet of its nearest traffic signal — to great effect.

"Minutes save lives. Seconds save lives. That's definitely the logic," says Steve Hutton, a traffic signal technologist with the City of Brampton.

Continued on page 36

Patriot | Detection Loops & Traffic Systems

PATRIOT | DETECTION PREFORMED INDUCTIVE LOOPS

The LT-1000 has been specifically design for field use. This rugged, portable hand held device connects to loop feeder cables via flexible leads with alligator style clips. The unit has an LCD panel for displaying all relevant loop parameters, built in MEGGER, loop locator (up to 70MPH) and is powered by a regular 9V D cell battery.

ALSO AVAILABLE

DETECTORS
TRAFFIC SYSTEMS
DATA ACQUISITION
(SPEED, OCCUPANCY, HEADWAY, ETC.)
PREFORMED LOOPS



THE LT-1000 INDUCTIVE LOOP TESTER

Visit us on the web:
www.patriotdetection.com

Phone:
512.846.1387

Fax:
512.846.1389

Firefighting the Wireless Way ...

Continued from page 35

"The wireless system works fine . . . everything's working the way it's supposed to," adds Hutton. "Prior to its installation, it would have been an underground duct system, which is obviously costly. If there are repairs required, depending on what's going on and what was damaged, that could be an issue."

"Firefighters don't want to have to wait for the signal to turn green for them. They want to get out there."

Wireless communication can also give an emergency vehicle the "green wave" – by allowing a single moving vehicle to pre-empt a long series of intersections, the system can give first-response teams nothing but green lights along emergency routes.

While strobe-based or infrared-based signals have been traditionally used in rolling fire trucks, they are limited by their reliance on line-of-sight communication between the emergency vehicle and the receiver.

Radio communication, either at 900 MHz or 2.4 GHz, provides a flexible, more precise alternative, allowing emergency vehicles to proceed through a series of intersections quickly and safely whether they're in the same line of sight or not.

Mobile Networking

Wireless mesh networks and broadband wireless technology have recently proven their worth to municipal governments as an extremely secure, reliable, and flexible form of communication.

Reliability and flexibility, in particular, make them ideal for emergency situations, when vital information and clear communication can save lives.

Mesh networks differ from other networks by continuously connecting and reconfiguring themselves around broken or blocked paths by "hopping" from one node to another, with component parts all connecting to each other via multiple hops.

In other words, mesh networks are self-healing, because the network can still

operate when a node breaks down or a connection is lost.

Nothing could be more important for the relay of critical information, and when a mesh network or a high-performance point-to-multipoint network is established on wireless broadband, it creates an ultra-reliable communications fabric with infinite possibilities.

Thanks to the advent of wireless communication, firefighters on the scene of a burning building, for example, would have the following resources at their fingertips:

- Video links from the mobile command center to other field units, and from one fire truck to another, with invaluable visual information being passed back and forth.
- Instant, mobile access to building blueprints, owner information, unlisted phone numbers and other critical data, from the Internet and the city's internal network.
- Voice-over-Internet Protocol (VoIP), which eliminates the need to rely on cellphone service providers during a major crisis.
- Mesh networks that provide the ability to pinpoint the location of a firefighter within a burning building (which even GPS systems are unable to do).

Dedicated to safety

For the past seven years, emergency response units have also had a dedicated wireless frequency at their disposal in order to have access to all the information they need and be more effective in their work.

In February 2002, the Federal Communications Commission designated the 4.9 GHz band for the exclusive use of United States public safety officials, ensuring those involved in the protection of life and property have the communications resources needed to do their job.

Because of this development, emergency crews now don't have to compete with heavy wireless Internet traffic at the 2.4 GHz and 5.8 GHz frequencies in order to communicate properly.

Wireless technology also has myriad other municipal applications — includ-

ing video surveillance systems for parks and public transit, water and waste management, and IT networking.

But when the alarm call reaches the fire hall, and lives are on the line, wireless systems offer reliable, proven, unwavering support to the courageous men and women risking their lives to make the world a safer place.

About ENCOM Wireless Data Solutions Inc.: ENCOM, based in Calgary, Canada, provides field-proven, cost-effective wireless data solutions for municipal and industrial clients, with applications in the areas of Intelligent Transportation Systems, public safety communications, municipal corporate security and IT networks, waste and water management, electric utilities and oil and gas.

For more information contact:
John Wilson, Senior Sales Representative,
ENCOM Wireless Data Solutions Inc.,
#7, 640 42 Ave, N.E., Calgary, Canada.
Phone: 403-230-1122, ext. 203.
E-mail: johnw@encomwireless.com



I Always Do Class "A" Work!

Continued from page 32

judge an installation's reliability, begin with an evaluation of its quality first. The rest should be easy.

Wayne D. Moore, P.E., CFPS, SET, FSFPE, F.NSPE

Wayne is a licensed professional fire protection engineer, is a Principal with the fire protection engineering and code consulting firm, Hughes Associates, Inc. and is located in the firm's Warwick, Rhode Island office.

He currently serves as a member of the National Fire Alarm Code Technical Correlating Committee, Chairman of the NFPA 72-2010 Emergency Communications Systems (ECS) Technical Committee and is the Editor of the 1993 edition and Co-Editor of the 1996 through 2007 editions of the National Fire Alarm Code Handbook ®.

Mr. Moore can be reached at:
wmoore@haifire.com.

