



MONITOR TRAFFIC TIE-UPS

Just as the morning rush hour is beginning, a fender-bender in the middle lane of an expressway is causing a major traffic tie-up. A video camera mounted on a light pole sends real-time images of the situation to traffic control for immediate response.



MEASURE STRUCTURAL INTEGRITY

A four-lane causeway has served a populous coastal area well for almost 30 years. To help ensure its structural integrity, the department of transportation measures and monitors stress levels remotely via sensors and wireless broadband connectivity.



TRANSMIT IMAGES IN REAL-TIME

On a two-lane roadway in a semi-rural area, a semi has jackknifed and spilled a significant amount of hazardous material. Video cameras capture the event and transmit images to the control center, which can share the data with police, fire and other first responders.

**MOTOROLA WIRELESS
TRANSPORTATION
INDUSTRY LEADERSHIP**

Motorola is an acknowledged industry innovator and leader in the design and deployment of indoor and outdoor wireless broadband networks. We offer outstanding experience in developing wireless broadband networks that deliver high-speed connectivity with exceptional reliability, efficiency and cost-effectiveness across the entire transportation industry.

No matter how many patrol vehicles and personnel a municipality or state can deploy, they can't be everywhere at once. What *can* be virtually everywhere at once? More and more departments of transportation are installing video cameras and sensor systems along highways and arterials to capture and transmit management-enabling data to control centers in real-time.

Sensing and Monitoring

There are a number of ways transportation departments are utilizing technology to improve efficiency and safety. The use of video leads the way. As municipalities and states deploy video cameras at half-mile or mile intervals along expressways and major highways, safety is improving as real-time knowledge is expanding. Video cameras can instantly alert traffic control centers about accidents, tie-ups, weather-related issues and other roadway problems. Response can be faster, more appropriate and more successful. And video isn't the only technology being used to increase highway safety. Sensors embedded in highways and bridges also provide a wide view of SCADA (Supervisory Control and Data Acquisition) data including stresses on bridge infrastructure, road and pavement conditions, more accurate traffic counts and more.

Data Transmission

Of course, data collection is only half the story. Once the data is collected, it must be backhauled to the traffic control center quickly and accurately. Many transportation departments use existing wired networks to transmit data. But there are issues with wired systems. Older copper lines may not have the reliability or the bandwidth to handle ever-increasing amounts of data. There are also situations where there's no connectivity at all. Last, but certainly not least, there's the cost issue. Not only are wired systems expensive to lease and maintain, they're also difficult, time-consuming and costly to deploy for expansion of the highway monitoring and control system.

The Wireless Alternative

It's no surprise, then, that a growing number of departments of transportation are turning to Motorola Point-to-Point (PTP) wireless networks for accurate, high-speed, real-time backhaul. By delivering superior reliability, bandwidth, efficiency and cost-effectiveness in both network operation and expansion, Motorola PTP solutions are helping to improve highway safety by enabling transportation agencies of all sizes to keep their eyes on the roads at all times.

Eyes on the Road: Highway Safety in the 21st Century

Transmitting real-time traffic monitoring and sensor data via high-speed wireless technology facilitates more efficient, more cost-effective highway safety management

MOTOROLA WIRELESS BROADBAND

Transportation Solutions

High-Speed Backhaul Without the High Cost

The gathering and analysis of SCADA information and the real-time monitoring of roadways and bridges are contributing to significant 21st Century improvement in overall highway safety. As they make increasing use of technology, departments of transportation are discovering a variety of ways of deploying wireless broadband PTP networks to streamline backhaul.

Complementary Networks. Wireless broadband backhaul networks can supplement and augment wired networks, interoperating with them to provide higher-speed transmission of critical video images and SCADA data.

Network Expansion. When departments of transportation wish to extend highway and bridge data capture and monitoring to locations where there are no wired networks, PTP wireless technology is the clear choice. With no need for trenching over long distances, wireless broadband networks can be deployed much faster and much more cost effectively than fiber or copper wire systems.

Wireline Replacement. Many transportation agencies are deciding to replace their aging wireline systems with wireless broadband. Cost savings are one of the most important drivers for this replacement. In addition to providing added performance and enhanced reliability, wireless systems can virtually eliminate expensive monthly leased line costs and lessen the cost of expansion, adding directly to the bottom line and ROI.

Motorola PTP Wireless Broadband Solutions

Motorola's high-speed PTP solutions provide departments of transportation with cost-effective high-throughput wireless Ethernet bridges and extensions that transmit data with maximum performance and reliability in unlicensed and licensed frequencies... even under some of the harshest conditions. Benefits include:

Maximum Throughput. Motorola's PTP technologies enable transportation departments to establish reliable and secure Point-to-Point wireless links for bandwidth-intensive applications ranging from video feeds to SCADA data transmission, with data rates up to 300 Mbps half-duplex in unlicensed frequencies and 368 Mbps full duplex in licensed bands.

Extended Range. Motorola PTP wireless bridges can provide connectivity across varying distances and even up to 155 miles with select radios in line-of-sight conditions.

Enhanced Security. With over-the-air DES encryption and optional AES encryption, Motorola PTP technology makes code breaking virtually impossible and delivers images and data with optimum reliability and security.

Interference Resistance. PTP networks offer powerful multi-level modulation schemes that help penetrate signal path obstacles, mitigate against interference from other systems and avoid self-interference.

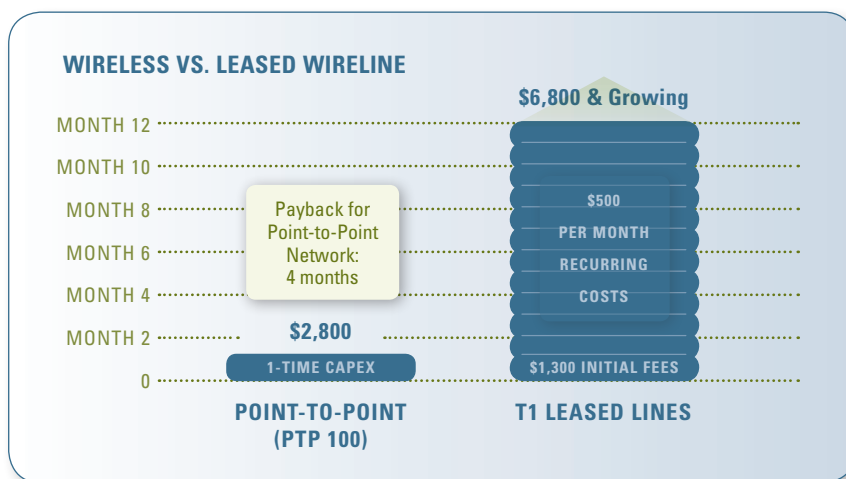
Scalability. As the need for real-time surveillance and SCADA data capture grows to include roadways and bridges in outlying areas and new construction, Motorola PTP networks can be expanded and extended quickly and cost effectively, leveraging current investments.

Faster Deployment. Because they need none of the expensive trenching usually necessary for a wireline network expansion, PTP backhaul networks can be deployed faster and more cost effectively often in a matter of days or weeks, rather than months or even years for wired systems.

For more information about how Motorola PTP broadband wireless technology can help your department increase highway safety while decreasing costs, contact your Motorola representative or visit www.motorola.com/government/transportation.

IMPROVING HIGHWAY SAFETY MORE COST-EFFECTIVELY

Motorola PTP 100 wireless broadband solutions not only help provide safer highways, they also typically provide ROI in just four to eight months.



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