

CASE STUDY

Road Commission for Oakland County



Roads in Oakland County are Safer and Less Congested Thanks to wi4 Fixed Solutions



“The Motorola wireless technology is allowing us to operate our adaptive traffic signal system more efficiently with reduced costs. That’s a positive outcome for us and for the motorists we serve.”

Brent Bair
Managing Director, RCOC

ENTERPRISE OVERVIEW: Road Commission for Oakland County (RCOC)

Located northwest of Detroit, Oakland County, Michigan, is the second most populous county in the state and is continuing to grow. Serving a mix of suburban and rural environments, the Road Commission for Oakland County (RCOC) is facing a challenge many counties and municipalities share: financial and social restraints on building new roads or improving existing ones to keep up with growth. As a result, traffic congestion has become a consistently growing problem. Worse, when congestion increases, safety issues tend to increase as well.

THE CHALLENGE: use technology to help provide real-time management of traffic flow.

To combat this increase in traffic congestion, RCOC turned to technology for help by installing adaptive traffic signal systems at many major intersections. This technology uses cameras to sense vehicular traffic and relays information to a roadside computer. The computer then sends the data over leased telephone lines to regional computers, which automatically adjust the traffic signal timing to match the traffic flow. Although the system has been successful, RCOC has found the annual operational and maintenance costs of the leased lines to be problematic. With leased line costs of \$1,000 per year for each intersection, and connectivity required at 650 intersections, this equates to a \$650,000 per year expense. Due to this large expense and poor phone service, the organization decided to explore new network technology options.

THE SOLUTION: a wireless broadband network that increases speed and eliminates the expense of maintaining wired lines.

RCOC decided to conduct a pilot program that uses high-speed wireless connectivity to collect and transmit traffic data to its regional computers, eliminating leased telephone lines.

The pilot program, covering four miles of roadway and more than 15 signalized intersections, uses a Motorola wi4 Fixed solution that features 10 and 20 Mbps backhaul modules and point-to-multipoint technology capable of delivering high-speed connectivity in Line-of-Sight (LOS) and non-Line-of-Sight (NLOS) environments.

Traffic signal controllers operating in adaptive traffic systems typically don’t require a lot of bandwidth, but they do require low latencies: less than 100 milliseconds. If the delay between a traffic signal controller and the regional computer is too long, the computer thinks it has lost connection and the traffic signal automatically reverts to a default timing mode in which all dynamic traffic

CUSTOMER PROFILE

Enterprise

Road Commission for Oakland County (RCOC)
Oakland County,
Michigan
USA

Industry

Traffic Management

MOTOwi4 solution

- wi4 Fixed Solution
- Point-to-Multipoint modules
- Backhaul equipment
- Digital video cameras

Solution features

- High-speed wireless broadband connectivity
- Real-time response
- Increased traffic signal control
- Remote monitoring

Benefits

- Streamlined traffic flow
- Increased road safety
- Improved productivity
- Decreased operational costs



“For years we have been seeking a solution to the challenges we have faced with traditional phone lines. Motorola has provided that solution through its wireless technology.”

Gary Piotrowicz
Traffic-Safety Department
Director, RCOC

pattern data programmed into the controller is lost. The wi4 solution provides RCOC with end-to-end latencies in the 30-millisecond range, well within the performance needed by the controllers.

In addition to these performance characteristics, the wi4 product suite provides RCOC with the flexibility required to connect to traffic signal assets that are geographically difficult to reach or too expensive to connect to with other technologies. The trial includes ten signal controllers that had never been part of the regional system before due to an inability to obtain phone lines. This combination of point-to-point and point-to-multipoint products operating in a wide range of frequency bands provides RCOC with the confidence that a full-scale rollout across their entire service area is achievable.

THE BENEFITS: lower operational costs, increased traffic flow, reduced emissions, improved safety.

RCOC considers the pilot wireless broadband program a resounding success on two levels. First, it has substantially reduced operational costs compared to older leased telephone line systems. Second, it is delivering on its promise of reducing

traffic congestion, streamlining traffic flow and enabling real-time adjustment to factors such as time of day, weather, construction, accidents and other traffic challenges.

These efficiencies are also helping to reduce emissions on county roadways and in communities, as well as helping to improve safety. The fact is, Oakland County roads are now among the safest in the world for areas with comparable populations. The Traffic Improvement Association (TIA), which supplies traffic accident statistics, recently announced that the county has a traffic fatality rate of less than half the statewide rate.

The new wireless broadband system also enables the traffic engineers, who used to spend a majority of their time dealing with phone line issues, to focus on operational and timing efforts that improve the driving conditions for residents and visitors to Oakland County.



MOTOROLA

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