
Sonoma County , California

Connected Traffic Signal Systems Reduce Congestion and Costs for Sonoma County Taxpayers - A Sierra Wireless® Remote Monitoring Solution



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A Sierra Wireless® Remote Monitoring Solution

CUSTOMER CRITICAL CHALLENGE

- Connecting traffic signaling systems to better monitor and match traffic flows 24/7.

SOLUTION

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- AirLink® RV50 Industrial LTE Gateway wirelessly connects traffic signaling system with county operations.

BENEFITS

- Improved ability to monitor remote locations, download new software, traffic signal schedules.
- Reduced monthly communications costs.
- Reduced implementation time for new intersections which will no longer require landlines to be installed.

Business Challenge

The county manages a network of roadways throughout the county and the county IT team provides support for traffic signals and intersections.

Each of Sonoma County's traffic intersections are "connected" via a SCADA system, and a typical intersection includes signals, pavement sensors and a controller typically located in close proximity to the system. The controller is connected to county operations, and enables the operations team to remotely monitor and control traffic flow across the region. When connected, these components can be outfitted with new software and traffic signal schedules which keep traffic flowing day and night. The average cost for an intersection is approximately \$750,000.

Until recently, each intersection was "hard-wired" to county's operations using landlines. Each intersection is "always on", and the system pings and polls each system regularly to get status. This wasn't without its challenges, and proved increasingly unreliable with breakdowns every few days. In addition, when polls received information, the county's operations team wasn't notified, so a traffic signal could be out and the county would rely on law enforcement and the community to let them know.

New timing could be downloaded to each intersection but, when failures occurred, all timing information was lost, resulting in manual re-loading of software on the controller. In addition, the cost of 24/7 operations was approximately \$220,000 per year. Recently, the county's carrier partner announced they would no longer provide the hardwire solution, forcing the county to look for alternate ways to keep intersections connected.

Also, much of the equipment in the traffic control system is 20 years old, which complicated finding a communications solution that would support legacy infrastructure.

Sierra Wireless AirLink® Solution

The county evaluated several wireless gateways that they hoped would provide a replacement for their hardwire solution, and worked through USAT Corp, an experienced wireless reseller based in North Carolina. They had difficulty finding a reliable solution; one product was faulty, and others couldn't be configured to work with a 3-layer VPN and static IP's. USAT mentioned the Raven RV50 to the county when it was launched in late 2015, so the county decided to install the gateway to see how it would work with their application.

The county was able to configure the RV50 out of the box, and received some helpful support from USAT for the VPN configuration. They got the system activated in one day, and now have a solution which not only provides uninterrupted connectivity, but notifies them of problems like polling errors. The county can now download new software to the entire system at once, or select specific systems to accommodate special events, and can push signal timing on demand. What's more, the communications cost of \$240,000 has been reduced to \$16,000 per year – a 93% savings using cellular communications over landlines.

"The equipment paid for itself in 4 weeks," said Mark Wein, Civil Engineer, Sonoma County. "We're getting ready to install two new intersections, and being able to deploy a wireless solution simplifies deployment. With our savings, we're able to look at upgrading our traffic signal controllers."