



## City of Gillette, Wyoming Achieves Significant Cost Savings with IPWireless' LTE Evolution Platform for its Citywide, Multi-Agency Government Network (MAGNet)

### CHALLENGE

Implement a multi-agency government network while maintaining financial responsibility, quality, and a first-class city infrastructure

### SOLUTION

IPWireless LTE Evolution Platform

### RESULTS

- Fuel and vehicle maintenance savings due to reduced number of trips to the office to complete paperwork
- Enhanced productivity for public safety dispatch employees
- Cost savings for SCADA communication network
- Overtime cost savings due to enhanced productivity for mobile employees
- Cellular data plan replacement savings
- Cellular voice plan replacement savings through use of VoIP handsets.

After an exhaustive evaluation and methodical testing of all available options, the city of Gillette, Wyoming chose a LTE Evolution mobile broadband solution from IPWireless based on its high performance, standards-based technology and flexible spectrum management capabilities.

By supporting multiple government agencies on a single wireless network infrastructure, Gillette is recognizing considerable cost savings while improving services to its residents. The ongoing savings result from the creation of a mobile office environment for employees that spend their working hours in the field. The City identified these potential savings which would cost justify the capital expenditure in a period of five years during a feasibility study that was conducted in 2007-2008.


#### Identified cost savings:

- Fuel and vehicle maintenance savings due to reduced number of trips to the office to complete paperwork: permits, engineering reports, etc.
- Enhanced productivity for public safety dispatch employees
- Cost savings for SCADA communication network
- Overtime cost savings due to enhanced productivity for mobile employees
- Cellular data plan replacement savings
- Cellular voice plan replacement savings through use of VoIP handsets.

The ability to support multiple government agencies has also enabled Gillette to apply for more grants from various sources to help defray the initial capital expenditure.

#### The Need

Critical to Gillette's vision are three principles that guide local government: financial responsibility; quality, customer-friendly services; and first-class city infrastructure and facilities. The Mayor and City Council knew they could improve services with a state-of-the-art multi-agency government network, but in keeping with its principles also knew the network needed to be conscious of the costs to best serve the taxpayers and standards-based so it could be used well into the future.



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– Pamela L. Boger,  
Gillette’s  
Administrative  
Services Director

The city created a Mobile Technology Committee to review its options in a thorough evaluation of all available products and services. The first step involved defining the requirements, which were quite extensive. Although the network would be deployed initially to satisfy the most pressing needs in select departments, it would eventually need to support nearly half of the city’s other 37 departments and divisions. The network would also need to provide seamless mobility at high data rates, and support real-time VoIP, video surveillance, and Supervisory Control and Data Acquisition (SCADA) applications. Ideally, only a small number of cell sites would be required to cover all 37 square miles of the jurisdiction.

The Committee quickly determined that a private wireless network would suit the city’s needs better than a public cellular network service for a variety of reasons. The private network offered higher bandwidth, greater security, better reliability in emergency situations, and superior support for both SCADA and voice/video applications. The challenge, therefore, came down to selecting the optimal wireless network solution.

In evaluating available solutions, the Committee considered both technology and spectrum. The preference was for licensed spectrum to avoid interference, but that still left a variety of options. Believing Wi-Fi mesh was not a viable alternative, three other standards-based technologies were evaluated: 3GPP (3RD Generation Partnership Project), WiMAX and Long-Term Evolution (LTE). 3GPP emerged as the best choice in a detailed comparison based on its superior radio frequency (RF) coverage, more flexible RF use and N=1 reuse, and proven stability. Although LTE was not yet commercially available, the Committee considered it important for the project’s long-term success and, therefore, wanted a seamless upgrade path to this emerging technology to protect their investment.


The final step in the evaluation involved rigorous testing of commercially-available solutions. The Committee was particularly interested in verifying vendor claims and ensuring that the chosen solution would operate reliably in the harsh Wyoming environment.

### **The Solution**

After thorough evaluation and testing, the Committee had total confidence in its decision: a multi-agency government network from IPWireless based on their LTE Evolution Platform. The IPWireless mobile broadband solution satisfied all of the city’s requirements better than any other, especially in the areas of cell-edge performance, overall coverage and capacity, Quality of Service (QoS) provisions, RF flexibility, reliability, and software upgradability to LTE.

Spectral efficiency and flexibility were key reasons for Gillette’s selection of IPWireless. One of the most important aspects of any wireless network deployment is the ability to maximize available RF spectrum. The Committee was especially impressed that the IPWireless solution delivered solid coverage and capacity in licensed 2.5 GHz spectrum today, while providing a migration path that would allow users to seamlessly roam between private 700MHz networks, 2.5GHz networks and eventually onto commercially deployed LTE networks such as AT&T or Verizon in the future.

The deployment began in November 2009 with a pilot network consisting of two access sites intended to serve Gillette’s Police and Utilities departments. Based on a successful pilot, the city is now in the process of expanding the wireless network with four additional access sites covering more than 40 square miles, and is adding support for 46 SCADA sites and some additional departments, including Public Works, Planning and Engineering.



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Overseeing the deployment is VC3 ([www.vc3.com](http://www.vc3.com)), a systems integrator that provides a full range of IT services to both the private and public sectors throughout the United States. Headquartered in Columbia, South Carolina, Gillette chose VC3 based on its proven track record of implementing wireless broadband networks. VC3 is also installing a licensed, point-to-point microwave network that, along with an existing fiber optic network, will form the backbone for the IPWireless infrastructure. Gillette was assisted in the initial feasibility study effort by Excelsio Communications, a VC3 company that researched the various technology options, developed a network design and also identified EBS spectrum that the City may lease to deploy IPWireless' solution.

#### **The Results**

"This network is an incredible resource for all our city departments. Most importantly, it improves operating efficiencies by allowing our technology to be utilized in the field," claims Pamela L. Boger, Gillette's Administrative Services Director. "Performance results from the IPWireless solution have exceeded our expectations and we anticipate that the new network will pay for itself through savings from vehicle maintenance, improved productivity gains, and fuel costs alone."

The enhancements in services through improvements in operating efficiencies were precisely the results the city of Gillette expected. By being able to access centralized information and submit reports online from anywhere in the city, field personnel are experiencing reduced travel time to and from the office. This enhanced productivity also has the effect of minimizing vehicle mileage and staff overtime. In fact, being able to do more with less is anticipated to reduce future staffing requirements in some departments.

The results are also as expected for the city's Utilities Department, which can now centrally and continuously monitor SCADA devices on water pumping stations, water wells and tanks, wastewater treatment plant and lift stations, electrical substations, compressor banks and metering systems throughout the city. The ability to monitor the utility infrastructure in real-time improves uptime while eliminating truck rolls solely to check on status.

Just as importantly, of course, is the fact that Gillette's residents now enjoy better service with faster response times. The results are clear: a win/win for the government and the taxpayer.

#### **The Future**

"We are confident that the IPWireless solution was the best technology choice for our needs," says Tracy Gover, Gillette's Information Technology Manager. "Their MAGNet solution has been proven in multiple cities, provides the spectrum flexibility we require, works in a single 5 MHz channel, and protects our investment into the future by allowing us to easily upgrade to LTE when the time is right."

IPWireless will not only make it possible for Gillette to migrate to an LTE network operating at 700 MHz, but will enable interoperability and seamless mobility with the existing 2.5 GHz 3GPP network during the transition. A solid solution today and a promising vision for the future. The hard work involved in thoroughly evaluating and testing all available options is indeed paying off for Gillette, Wyoming.

## About IPWireless

IPWireless is a pioneer in developing and designing 3G and 4G wireless broadband and broadcast solutions, including chipsets, devices and complete network infrastructure solutions, based on 3GPP, the world's preeminent mobile standard. The company's high performance mobile broadband and integrated mobile broadcast (IMB) solutions enable mobile operators, consumer electronics companies, as well as government, public safety and military agencies to deliver a new generation of wireless services and develop compelling new applications using untapped global spectrum bands. The company's mobile broadband and IMB solutions have been deployed by some of the world's largest mobile operators, and government agencies including T-Mobile, Orange, New York City's Department of Information Technology and Telecommunications (DoITT) and more. In Q2 2010, IPWireless and Sony announced an initiative to jointly develop 4G and Beyond Wireless Technologies.

IPWireless is headquartered in San Francisco, California, and operates a technology development center in Chippenham, UK. For more information, visit the company's web site at [www.ipwireless.com](http://www.ipwireless.com).

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