

# Wireless Technology Provides Innovative Opportunities for Cost Reduction and Revenue Generation



The facts are unavoidable. From Washington State to Washington, D.C. and from Austin to Bismarck, state and local governments across the nation are struggling to balance slashed budgets and staff cutbacks with the ongoing need to continue providing much needed services to constituents.

According to the 77th Annual Conference of Mayors held in Providence, Rhode Island in June 2009, cuts in state aid, reduced property tax revenue, declining sales tax and income tax revenue, and lower interest rates are just some of the recession-driven conditions creating budget shortfalls. Adding to the dilemma, hiring freezes, layoffs, early retirement programs, and cuts in administrative and support costs increase the difficulty of an already challenging situation. Case in point—a county in California was forced to decrease its staff by ten percent in order to reduce budgeted expenditures by \$6.5 million. Also

facing a budget deficit, a county in New York had to cut expenses by ten percent, forcing staff reductions and the closing of one of the city's six fire stations .

The Center on Budget and Policy Priorities reports that at least 47 states are facing shortfalls in their own budgets, causing spending to be slashed and revenues to be raised in order to avoid serious deficits. Throughout the country, the same story plays out in City Halls and Senate sessions on a daily basis.

## The case for wireless

Finding ways to do more with less, increasing the efficiency of remaining staff members, and keeping operations moving forward have become some of today's most challenging governmental directives. While this dilemma has reached unprecedented levels in the worst economic crisis since the Great Depression, investment in the right solutions must still focus on the long-term. Wireless technology provides fiscal responsibility today and continues to serve into the future.

For more than 80 years, Motorola has designed, manufactured, deployed, and supported flexible, expandable, integrated wireless communications solutions that have been proven to help governments significantly improve operational efficiencies while reducing costs.

Wireless technologies help municipalities and other government organizations overcome challenges ranging from natural disasters to high crime rates to shrinking budgets, by:

- Providing public safety personnel with instant access to critical information while en route to a scene, which improves situational awareness, speeds response, and increases safety.
- Enabling municipalities to leverage cost-saving eGovernment initiatives that increase revenues, reduce costs, and improve operational efficiencies.
- Giving hospitals, educational facilities, businesses, and residents cost-effective high-speed wireless broadband that extends access and connectivity through both urban and rural areas.



## Cost reduction comes in many forms

Cost reduction doesn't just mean slashing services and laying off staff. Cost reduction can be achieved by partnering with other cities and counties on secure, shared services; improving the efficiency of existing staff; and reducing or even avoiding operational cost through wireless technology. And, as any taxpayer will tell you, investment is easier to justify when you can quantify your cost reduction measures and even prove a rapid return on investment.

Following are examples of how cities, counties, states and even hospitals, universities, and airports have used wireless technology to improve operations while reducing cost.

### **CONSOLIDATION AND SHARED SERVICES**

#### **Integrated Voice and Data**

*Deliver rapid mobile intelligence and mission critical communications wherever needed with greater speed over a wide area for seamless interoperability across multiple agencies.*

- **City of Miami, FL and Miami-Dade County, FL: 3-1-1 Service Request System** — When residents, visitors or businesses required County services or information, they had to negotiate a maze of over 1,000 different phone numbers for various departments. County officials organized a coalition of state, county, and municipal agencies and began building the foundation for what would become the nation's first multi-jurisdictional 3-1-1 Customer Service Request (CSR) system. Designed to offload non-emergency calls from 9-1-1, CSR manages calls from initial request to call close-out, issuing work orders to workers' wireless devices and tracking performance. One month after 3-1-1 became fully operational, workers handled more than 140,000 hurricane-related 3-1-1 calls over 13 days. "The technology that is used at 3-1-1 enables County leadership to make real-time decisions based on real-time events. County resources can be deployed to address urgent community needs," says Becky Jo Glover, 3-1-1 Manager.
- **Harris County, TX: Regional Radio System** — Over a decade ago, Harris County's patchwork of more than 15 different independent radio networks had become costly and prevented interoperability with neighboring counties. The County built a SmartZone™ network to consolidate and centralize the independent networks, enabling smaller agencies to cost-effectively join the larger system. When Hurricane Allison struck the County a few years ago, leaving 22 people dead, forcing thousands from their homes, and causing \$5 billion in damages, the network enabled a successful joint response effort. As Harris County Judge Robert Eckels said, "We had dozens of agencies coming together to respond to the largest urban flood in the history of the county. We brought together tremendous resources and the system really proved itself."
- **State of Michigan: Public Safety Communications System** — Joint communications had historically been difficult for the State, with limited interoperable capabilities from a radio system first deployed in the 1940s. The State deployed a Motorola 800 MHz voice and data network that covers the state with alarm, control, and perimeter security at all sites. Today, the network's 230 towers cover the state's 96,800 square miles with over 52,000 users and more than 1,400 agencies enjoying full interoperability, while local cities and counties have achieved cost savings nearing \$100M in shared infrastructure investment. Some local agencies and counties have also implemented Simulcast sub-system additions to the core network bringing enhanced portable coverage to their communities at a reduced investment expense versus procuring a stand-alone public safety network. Joining a statewide, multi-agency, Project 25 system has also allowed the local communities to leverage Federal grants, saving them tens of millions of dollars over the last several years.

*"The benefits are tremendous. In these times of tight budgets, it's critical that local governments have an opportunity to enhance technology in a cost efficient manner. The local agencies have relayed to us not only their surprise, but their overall satisfaction with the level of coverage they get."*

— Former Lt. Col. Thomas Miller,  
Deputy Director, Administrative and Information Services Bureau, Michigan State Police

## COST AVOIDANCE

### Reliable broadband coverage

High-speed mobile connectivity under virtually any conditions whether low, medium, or high-density settings; open, obstructed and non-line-of-sight situations; indoor, perimeter and outdoor locations.

- **City of Baltimore, MD: Customer Request System (CSR)** — Baltimore's Bureau of Solid Waste accounted for 55 percent of the city's call volume. The City deployed a Motorola CSR solution, known in Baltimore as CitiTrack, to streamline the processing and resolution of citizen requests. CSR helped the Bureau avoid more than 13,100 hours of overtime over 12 months with a savings of over \$306,000. In addition, the Sanitation Department nearly doubled the number of illegal dumping citations, resulting in an extra \$850,000 in revenue over a 36 month period.

*"CSR is helping our field crews work more efficiently and that has two big benefits. We pay less overtime and citizens get their complaints resolved more quickly."*

— Joe Kolodziejki, *Bureau Head, City of Baltimore Bureau of Solid Waste*

- **NC State Board of Elections: RFID Scanner** — With up to 100 different types of ballots, election day was chaotic, sometimes resulting in the wrong ballot going to the voter and risking the potential call for a re-election, which could incur significant expense for the State. The Board of Elections implemented a flexible, customizable and rugged Motorola wireless P460 bar code scanner with programmable architecture. The units were easy for volunteers to learn,

*"The Motorola Wireless Broadband system gives us a direct, secure, stable high-speed broadband connection which not only improves productivity, it also reduces payroll expense."*

— Lt. Bill Bongle, *Green Bay Police Department*

designed to prevent user fatigue, and prevented mistakes by verifying that each voter received the appropriate ballot. The solution helped the State avoid the millions of dollars it would have cost to rerun an election.

- **Green Bay, WI Police Department: Video Surveillance** — Green Bay PD wanted to increase security at the Port of Green Bay as well as throughout the city. At \$75,000 per mile, fiber optics was cost prohibitive and T1 lines would incur steep monthly fees. The Department installed a Motorola Wireless Broadband Point-to-Multipoint system to establish a platform for an expandable, citywide fixed and mobile video surveillance solution. The cameras enable faster response, enhanced situational awareness, improved productivity, and provide cost avoidance by eliminating the need for additional manpower and overtime. The solution also allows the Green Bay PD to easily and cost-effectively deploy additional cameras as the need arises and funding becomes available.





## REDUCED OPERATIONAL COSTS

### Point-to-Point solutions

*Cost-effective high throughput wireless Ethernet bridges and extensions transmit data with maximum reliability even under the harshest conditions and in non-line-of-sight situations.*

### Point-to-Multipoint solutions

*Proven, scalable and interference-resistant connectivity can be delivered to multiple business, institutional, municipal or residential locations.*

- Oakland County, MI Road Commission: Wireless Broadband** — Although traffic congestion was an increasing problem, the County faced budgetary constraints on building new roads or improving existing roads. The County deployed a Motorola wireless broadband solution with Point-to-Multipoint modules that enables high speed wireless connectivity to collect and transmit traffic data to regional computers. The solution connected to traffic signal assets that were geographically difficult to reach or too expensive to connect to other technologies and eliminated the ongoing cost of leased phone lines, saving the county \$650,000 per year. The result was streamlined traffic flow, real-time adjustment to factors such as time of day, weather, construction, and accidents; and according to the Traffic Improvement Association, the County now has a traffic fatality rate of less than half the statewide rate.
- Orange County, VA: Fixed Point-to-Point Wireless Bridges** — Looking for a system that would enable all branches of public service—from courthouses and police stations to public schools and emergency services—to share information quickly and efficiently (including in rural areas),
- York County, SC: High speed data network** — Rapid suburban development required York County to seek greater interoperability with the State of South Carolina and neighboring agencies in North Carolina. The sheriff's office deployed a high performance data network that integrated into the county's ASTRO® 25 communications system. Users now have access to Computer Aided Dispatch, Automatic Vehicle Location, records management (including mug shots), NCIC and state database lookups, and remote reporting.
- Orange County, VA: Fixed Point-to-Point Wireless Bridges** — Orange County tapped Motorola to deploy a cost-effective, county-wide Local Area Network (LAN), Wide Area Network (WAN), Metropolitan Area Network (MAN) and a shared infrastructure. Secure, reliable wireless connectivity is now available for 24 government entities, public schools, public safety agencies, and residents through the County's nearly 354 square miles with substantial cost savings (including the removal of analog voice lines) and proven ROI.

*"It costs us \$100,000 to put a new police officer on the street. There's 685 square miles in the county and by the time officers drive to the office and fill out a report, they've wasted a lot of time. So if we have a way to keep officers in the field, not sitting behind a desk but staying out in the community they serve, it means we can avoid having to hire a tremendous number of officers to handle the same volume of calls. HPD is going to pay off in the long run."*

— Sheriff Bruce Bryant, York County Sheriff's Department



## INCREASED STAFF EFFICIENCY AND PRODUCTIVITY

### Mesh Wide Area Network solutions

*Provides high-speed wireless connectivity for universal public access, more robust public safety systems and increased public works productivity, even in harsh environments like ports and mines.*

- Los Angeles, CA Police Department: MOTOMESH** — With one of the highest crime rates in Los Angeles, the Jordan Downs 700-unit housing development in LA's Watts neighborhood represented tough challenges to the city's police force. Motorola deployed a MOTOMESH multi-radio wireless broadband network with wireless video surveillance cameras throughout the entire development. Officers used laptop computers or handheld devices to zoom in and out on criminal activity, improving situational awareness and officer safety. In the first year, the crime rate in Jordan Downs decreased by 40% and decreased an additional 32% in the first three months of 2007—without adding additional officers and increasing the safety of its existing force.
- Alameda County, CA: Wireless RFID** — The county needed to track thousands of pieces of voting equipment from more than 800 polling places and ensure that all elements were not only delivered to the polls, but were also returned to 27 intermediate collection centers for verification at the end of the day. Looking for an efficient, secure process, Alameda County worked with Motorola partner, Global RFID, to deploy a SecureVote™ solution which uses Motorola RFID handheld readers that track the components from polling place to collection centers. The solution

has reduced the cost of labor by requiring fewer personnel to perform the collection process, potentially saving thousands of dollars in labor and overhead costs; improved security; and helping to avoid delay in the vote count process.

- McCarran International Airport, Las Vegas, NV: Wireless RFID** — Handling nearly 70,000 passengers and more than 460 flights per day, officials at McCarran International Airport wanted to improve their baggage processing procedures. Motorola deployed an RFID baggage tagging system to help increase passenger satisfaction and support the TSA objective of screening all passenger baggage. Each RFID tag printed and attached at the ticket counter carries a unique identifier read by RFID readers as the bag is transported to conveyer belts, routed to screening machines, and sent to the aircraft. With 99.5% accuracy, the solution has helped significantly reduce labor costs by avoiding the intensive manual intervention required to manage lost bags. Other operational costs are reduced by enabling improved departure time management and on-time flight performance, and reducing the cost of compliance with security regulations.

*"This is truly a win-win for everyone: the traveler, the airport, the TSA, and the airline. This new process enables travelers to be safer, while reducing the incidence of lost baggage and ensuring that screened bags are delivered at the right location at the right time. We couldn't be happier."*

— Randall Walker, Director of Aviation, McCarran International Airport

## INCREASED REVENUE AND RAPID ROI

### Wireless LAN solutions

*Resilient, secure, and high performance connectivity ensures cost effective access to any agency application—including voice over wireless LAN.*

- Greene County, NC: Wireless Broadband Access** — Looking for economic growth, Greene County was in the midst of transitioning from tobacco farming to other industries using technology. However, broadband internet access in Greene County was only available in a four-block area. County officials recognized that economic growth required high speed access throughout the county and was critical to its future. Motorola deployed a broadband network that provided affordable high-speed communications to businesses and expanded information resources to help Greene County residents adapt to a new economic reality. After years of negative business growth, the County attracted more than 200 new businesses. In addition, about 50 small businesses increased revenues by creating web sites that helped expand their customer base. Others have saved money using the Internet to source better prices on the goods they buy.
- Kilkenny Castle, Scotland: Wireless LAN** — Until recently, Kilkenny Castle was completely un-networked. Although the castle rented its conference rooms to businesses and groups, only a few staff members had Internet access through a very slow dial-up connection and conference rooms had no access at all. Motorola deployed a

secure wireless LAN with multiple access ports and point-to-point wireless Ethernet bridges to provide wireless coverage throughout the site. Today, the network systems solution enables Kilkenny's on- and off-site staff members to increase productivity by accessing email, using the Internet, and executing print and file-sharing tasks. Guests of the conference center area can also securely access the Internet via a dedicated wireless broadband connection, providing an additional revenue stream for the Castle.

- City of Torrance, CA: Point-to-Point Wireless** — The City of Torrance required e-mail and Internet access, as well as network access to two police sub-stations, Animal Control headquarters located in a remote park, and a second Animal Control facility located at a local shopping mall. Although the city strongly considered leased-line connectivity, the recurring expense and limited capacity of the T1 line made this alternative less-than-optimal. Wireless was the technology of choice. The City of Torrance has reduced costs by running VoIP between locations and estimates that in less than three years the Motorola point-to-point system would pay for itself, especially when compared to recurring T1 expenses.

### Calculating Return on Investment

If a mid-size city issues 300,000 citations per year; traffic fines in the state average \$75; and the city reduced its error rate on issued citations by 10 percentage points, additional revenue collected from 30,000 additional citations per year would amount to \$2.25 million. If the department has 350 vehicles and each vehicle is equipped with an eCitation system at the cost of \$6,000, the total spend is approximately \$2.1 million. Therefore, if the city spent \$2.1 million to gain a revenue increase of \$2.25 million, a system deployed in January would pay for itself by December, with enough revenue left over to pay the salary of one or two officers.

Use the following template to calculate your own potential ROI, substituting your city's actual data.

Number of officers:	1400
Number of vehicles:	350
Total tickets issued per year:	300,000
Number of tickets dismissed for errors/legibility:	10%
Average fine:	\$75
Revenue lost to errors/legibility:	$300,000 \times 10\% \times \$75 = \$2.25 \text{ million/year}$
Cost to deploy eCitation system:	\$6,000/vehicle
Total cost to deploy:	$\$6000 \times 350 = \$2.10 \text{ million}$
Time until system pays for itself:	less than 12 months
Net revenue gain over 4 years:	$(\$2.25 \text{ million} \times 4 \text{ years}) - \$2.10 \text{ million} = \$6.90 \text{ million}$
Return on Investment over 4 years	$\$6.90 \text{ million} \div \$2.10 \text{ million} = 329\%$

## Funding Opportunities

Even the most creative cost cutting solutions require funding and in a time of budget cuts, staff reductions, and declining revenues, finding the money to implement the solutions becomes even more challenging. Motorola has developed a tool designed to help you find the right funding opportunities for your investments in wireless technology via the latest governmental grants. At [www.motorola.com/recoveryact](http://www.motorola.com/recoveryact), you will learn how to obtain funding to get your project started, as well as find a simple summary of grant requirements, webinars, and presentations that help you understand the opportunity, application deadlines, and other resources. In addition, Motorola's team of specialists can help guide you towards the grants and solutions that will enable your organization to address unique challenges and jump-start your performance right away.

## Summary

With exceptional reliability and cost-effectiveness, wireless technologies are helping municipalities and other government organizations overcome challenges ranging from natural disasters to high crime rates in spite of shrinking budgets. Wireless communications from Motorola integrate technology that is faster and less expensive to deploy than wired solutions, yet enable more efficient, more effective use of available resources to help protect property, save lives, improve productivity, and reduce costs.



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