

# Polk County sees many benefits with Motorola high-speed wireless broadband



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– Ben Holycross, Radio Systems Manager, Polk County Emergency Management  
Division of the Public Safety Department

## **SITUATION: Cost effective solution for high speed broadband**

Located in the center of the Florida peninsula, Polk County is roughly the size of the state of Rhode Island. Serving Polk County's 581,000 residents as cost effectively and efficiently as possible is the County's primary goal.

Over 60 percent of Polk County's residents live in unincorporated areas and many of the county's agencies are located near those populations. As demand for data transfer and applications that require high speed broadband continued to grow, the County began to look for ways to not only ensure access to agencies located in urban areas, but in the underserved rural areas as well.

“Various county agencies were coming to us asking if they could get on our microwave,” says Ben Holycross, Polk County Radio Systems Manager, Emergency Management, Division of the Public Safety Department. “We installed microwave to support our Motorola 800 MHz radio tower sites and it formed a good backbone around the county. However bandwidth was somewhat limited and it didn't go to all of the locations that people needed. We needed that last mile connectivity.”

## **County agencies jump on the broadband bandwagon**

One of the first requests came from the two county jail facilities. When prisoners were scheduled for first appearance hearings, Sheriff's Deputies had to transport prisoners back and forth, a two-hour round trip which not only took officers off the street, but also increased the possibility of escape attempts. The Sheriff's Office wanted to increase broadband capability in order to conduct remote video hearings from the jail.

Polk County's Facility Management group also requested access to increased bandwidth for the building automation program being deployed to all major county facilities that would enable cost savings via remote power management and increase security through video surveillance.

## **Polk County, FL**

- 2,010 sq. miles with population of 581,000
- Population 581,000, mix of urban and rural
- Fourth largest county in Florida

## **Situation**

- Provide cost-effective solution for high speed broadband access
- Eliminate or decrease costs of existing T1 links
- Improve connectivity for all county agencies
- Provide access to public safety data for fire and rescue stations

## **Motorola Solution**

- Wireless Broadband Point-to-Point 5.8 GHz wireless Ethernet
- Motorola 5.4 GHz Point-to-Multipoint for last mile connectivity
- Leverage existing public safety vertical assets (radio towers, buildings, etc.)

## **Results**

- Phase I and II savings over first 5 years of \$875,000
- ROI achieved within 18 months
- Reliable broadband service increases from 300 to 2,200%
- Fourteen county agencies connected to date



“With over 32 fire stations located throughout the County’s more than 2,000 square miles, wireless broadband has been vital to the ability to transmit incident reports, fire reports, and pre-fire plans back to the central server.”

– Rick Parnell, Polk County Assistant Fire Chief

Next in line was the county’s Division of Parks and Natural Resources. As a joint venture with Southwest Florida Water Management, the Division had acquired the Circle B Bar Ranch, a pristine area encompassing 1,267 acres of freshwater marsh, hardwood swamp and lakeshore and turned the property into a nature preserve and learning center. The Circle B Bar’s staff and volunteers needed the ability to transfer large data files between the main and satellite offices but DSL, fiber, and cable were clearly cost prohibitive.

#### Gathering the data

As other agencies continued to step up with requests for wireless broadband, the need became clear but the County still needed to conduct due diligence and, along with Motorola, conducted a survey of existing data circuits, current availability of capacity and bandwidth, and cost of recurring fees.

“We asked our agencies to get a quote for the service upgrade they wanted,” Holycross says. “Some of them were connected with a 56K circuit, some had T1, some had DSL, and some were using a variety of sources from phone and cable companies. It was a real mishmash.”

At the time, the County was also in the midst of building a new public safety complex that would include the County’s Emergency Operations Center, sheriff’s operations building, Emergency Communications Center, CSI facility, medical examiner’s office and utilities administration facility. The quote for 20 megabits of data for that complex alone came in at a whopping \$16,000 per month.

#### SOLUTION: County deploys Motorola Point-to-Point and Point-to-Multipoint system

With proof of need established, Polk County then needed to choose the right technology and the right vendor. Fortunately for the agencies involved and more important for the citizens they serve, Holycross had the experience and knowledge to ensure the county would be getting the best solutions when compared to the many options available. His leadership and vision proved invaluable in the process.

In 1999, the County had deployed a Motorola 800 MHz trunked radio system to provide seamless interoperability for its public safety agencies throughout the county. During that deployment, Motorola installed microwave links rather than lease T1 circuits to connect all radio towers. A few years later, the area was hit with three back-to-back hurricanes within six weeks.

“All communications failed except for the Motorola trunked system,” says Holycross. “We had established a couple of wireless point-to-point hops to various County facilities as a proof of concept and they not only survived the hurricanes, but continued to work.”

With the reliability of the Motorola equipment and its ability to withstand the test of time and weather, the County began to look at the possibility of leveraging existing public safety vertical radio tower assets to deploy a Motorola wireless broadband solution that would cover last mile connectivity to its remote agencies.

“We looked at it from the standpoint of upgrading the microwave loop (main backbone) and creating

*“We have saved countless thousands of dollars by not paying fees for leased lines. But equally as important, because we are planning to move elements of our new emergency operation center to this network, we will have direct control and can make sure any potential service issues are addressed immediately.”*

– Pete McNally, Director, Polk County Emergency Management Division of the Public Safety Department

node points as necessary using Motorola’s Point-to-Point wireless to support the node points and any end user location that required very high bandwidth,” Holycross says. “For those needing lower bandwidth, we’d support those operations from the node point using Motorola Point-to-Multipoint for last mile connectivity.

Offering aggregate throughput up to 300 Mbps, the Motorola PTP 600 Series provides greater speed with less RF interference and enables bundled connectivity to deliver IP voice, video and data. Point-to- Multipoint is then quickly, easily, and cost effectively deployed to extend networks wirelessly to virtually any environment.

**RESULTS: County agencies weigh in on the value of wireless broadband**

Today, Polk County operates the countywide data network, providing high speed wireless connectivity for its public safety agencies, including fire, EMS, emergency management, and law enforcement as well as public works and other county agencies. The deployment is the first coordinated county-wide wireless broadband network in the state of Florida.

“Motorola Point-to-Point and Point-to-Multipoint was the perfect solution,” says Holycross. “We found that it was far more cost effective to deploy than T1s, cable, or DSL because once you hit that magic payoff, you’re done. ROI has been achieved and now it’s a free ride.”

Daily operations are now much more efficient for agencies throughout the County, whether they are located in urban or rural areas.

**County Sheriff’s Office:** Access to high speed wireless broadband has enabled all areas of the agency to perform their jobs more efficiently and effectively. Using wireless video for prisoners’ first appearance hearings, officers no longer have to transport the prisoners from the far ends of the

County to court, which reduces fuel costs, lessens security risk, and keeps those officers on patrol.

“Motorola Wireless Broadband lets us cover more land mass and do it much faster.” says Bill Ward, Director, IT Division, Polk County Sheriff’s Office. “We can get more information into the hands of users more quickly, more reliably, and it helps save our county taxpayers up to a quarter of a million dollars annually in recurring costs.”

**Division of Parks and Natural Resources:** The Division’s Circle B Bar’s staff can conduct business more effectively. Staff can share large files, volunteers can update and share spreadsheets, and hikers can research the latest weather bulletins before they set out onto the trails.

“Motorola wireless broadband was really the only cost effective option for us,” says Gaye Sharp, Natural Areas Manager, Polk County Division of Parks and Natural Resources. “High speed access lets us share data both on-site and off-site and also gives us greater mobility, which allows our staff to take their laptops when they facilitate workshops. Overall the wireless service has been very reliable.”

**Fire Rescue:** With over 32 fire stations located throughout the County’s more than 2,000 square miles, wireless broadband has been vital to the ability to transmit incident reports, fire reports, and pre-fire plans back to the central server. Rick Parnell, Polk County Assistant Fire Chief, estimates that connectivity for those transactions alone has saved taxpayers over \$100 per month per station; approximately \$38,400 per year.

“The county has had a good track record with Motorola equipment,” says Parnell. “Whether it was the VHF radios we had in the past, the 800 system we have now, or other Motorola equipment we’ve used, it has always been built to the highest standards. When it comes to public safety application, it has to be reliable and that’s Motorola.”



*“When a Public Safety mission critical communications system fails, lives are at risk. Those of us in the business of providing and operating those types of systems understand the necessity of partnering with a vendor who both understands that concept and will be with us for the long haul.”*

– Ben Holycross, Radio Systems Manager, Polk County Emergency Management Division of the Public Safety Department



#### Other benefits include:

- **Increased bandwidth:** Polk County has more than doubled the amount of bandwidth its agencies were getting with the leased arrangements, achieving average data speeds of up to 200+ Mbps.
- **No monthly fees:** Wireless broadband eliminates the recurring lease fees for T1 lines, cable, or DSL. “The first two phases of our wireless deployment will save Polk County roughly a quarter of a million dollars a year in recurring fees,” says Holycross. “With a payoff of less than 18 months and a minimum of five year service life, the savings will be \$875,000.”
- **Reduced up-front cost:** With wireless deployment, the County was able to avoid expensive up-front installation costs of \$5K to \$100K for higher speed fiber and carrier-based solutions. “Tying all the various agencies together at the same time helped us avoid duplicating effort,” says Holycross. “It’s a lot cheaper to do it right the first time.”
- **Rapid ROI:** Depending on the location, the county has achieved ROI within 18 months, with one large facility achieving ROI within 10 months.
- **Consistent reliability and excellent support:** “Central Florida is the lightning capital of the U.S.,” says Holycross. “If you just throw equipment up

there and it’s not properly installed or grounded, it won’t last a week. Motorola understands both sides of this technology—the IT side and the radio side. From personal experience I know that if there’s a disaster, Motorola will be around to help us recover whatever was damaged.”

#### Looking at the big picture

With public safety technology growing by leaps and bounds, and applications becoming more sophisticated and requiring greater amounts of bandwidth, counties need to carefully plan for the future. According to Holycross, it’s critical that system managers understand early on what the big picture will look like down the road and build the network to meet that design. “It’s absolutely imperative to have a partner who will be there with you for the long run,” he says. “When you deploy new technology, there is always a learning curve involved. One of the criteria for selecting your partner is to make sure they have the staff that can assist you in overcoming the knowledge-base deficit early on in the project. Motorola went above and beyond to make this initiative a success.”



**MOTOROLA**

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