
Case Study
IDAS™



County of Richmond

Dependable IDAS™ Solution Meets Current & Future Communication Needs



A case study prepared by Icom America Inc.
Manufacturers of high-performance, award-winning radios for over 55 years.

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Featured Products:

- IDAS F3161D Portable Radio
- IDAS F5061D Mobile Radio
 - IDAS FR5000 Repeater
- Digital IP Repeater Links
 - Digital Receiver Voting
 - Remote Dispatch

Richmond County, Va., needed to replace its outdated low-band radio system infamous for spotty coverage and audio problems. After visiting an existing IDAS™ system at a nearby electric co-op, a top-of-the-line IDAS™ system was purchased.

Low-Band System Gets the Boot

Located on Virginia's Northern Neck peninsula bordering Chesapeake Bay, Richmond County is a rural area known for its abundance of small farms and vineyards, forest land, and scenic shoreline. Approximately 9,200 residents live in the county, which has its county seat in the incorporated town of Warsaw.

The Richmond County Sheriff's Office and Emergency Services department share a two-way radio system for dispatch and wide-area communications across the county's 216 square miles. The departments depend on two-way radio comm for responding quickly and efficiently to routine and emergency incidents and communicating with neighboring public safety and government agencies during larger events.

The county's outdated low-band system was anything but reliable, however. Dead spots dotted the coverage area and the system's ongoing audio problems were so serious the Richmond County Emergency Services' rescue squad had to purchase a fleet of mobile phones to serve as backup communications. The system's coverage and audio problems posed an ongoing risk to the safety and security of the county's citizens and the first responders serving the region.

“Needing to replace the low-band system made the acquisition of a new digital radio system a logical direction to pursue.” – Bill Duncanson, Richmond County Administrator

Observing IDAS™ in Action

Prompted by its radio system's ongoing coverage and audio problems, as well as the impending FCC narrowband deadline, Richmond County in 2009 initiated a search for a new system meeting their needs. The FCC narrowband mandate requires all land mobile licensees in VHF (150-174 MHz) and UHF (421-430 MHz, 450–512 MHz) bands have to migrate to 12.5 KHz technology by Jan. 1, 2013.



A group of county officials researched available P25 and digital narrowband platforms. According to Greg Baker, chief of the county's Emergency Services department, the county placed a high priority on eliminating the system's ongoing audio problems and coverage issues. Other top priorities included digital IP repeater linking, enhanced communications privacy, and communications interoperability with surrounding agencies.

Officials quickly ruled out P25 equipment. The technology proved too costly and was not necessary for achieving interoperability with other departments and agencies. "A new digital radio system was the logical direction to pursue," explains County Administrator Bill Duncanson, who headed up the search committee.

Early on in the search, county officials visited Northern Neck Electric Cooperative (NNEC), a non-profit rural electric distribution cooperative based in Warsaw that had successfully implemented an Icom IDAS™ 6.25kHz system several months earlier. County officials were impressed by NNEC's very narrowband digital system, which provides seamless coverage across six counties in Virginia.

"We had several criteria that we considered vitally important," Baker says. "The improved audio quality and coverage we saw from the NNEC 6.25 kHz system was something we needed."

Not only would a 6.25kHz system comply with the FCC narrowband mandate, it would also ensure the county would be ready for the next step in the FCC's narrowbanding plan, which requires that all equipment manufactured after Jan. 1, 2013 be capable of operating in 6.25kHz mode.

Making it All Work

After a thorough analysis and price-performance evaluation of available digital technologies, Richmond County narrowed its choices to two finalists, one of which was an Icom 6.25kHz digital solution similar to the system in place at NNEC. Competitive bidding and demos of the two technologies convinced county officials that IDAS™ offered proven performance at a significant cost savings.



In early 2010, Richmond County purchased an Icom IDAS™ system for its county-wide operations. Designed and installed by local dealer SBS Comm, the system comprises two sites with digital IP repeater links, F5061D mobiles and F3161D portable radios. The county also installed three remote communicators in its dispatch center. Primary users of the system include the Sheriff's office and Emergency Services department, which is divided into a paid rescue squad and separate volunteer fire department. In total, the system supports approximately 150 users.

Richmond County uses a three position dispatch center. "The installation of three remote communicators in the dispatch center cleared away old analog consoles and vastly improved the desktop real estate, an important operational factor," says John Sites, owner of SBS Comm. "The county also set up several additional remote communicators on laptops to be deployed as mobile command centers when the need arises; for example, in the case of a hurricane or drug task force," Sites explains.

Funding for the project came from the U.S. Department of Agriculture Rural Development, which assists rural municipalities in improving their economy and quality of life. A USDA grant paid for 55 percent of the system. The remaining 45 percent was financed by a low-interest USDA loan.

IDAS™ Extends Coverage, Improves Audio

The new IDAS™ system successfully resolved Richmond County's longtime coverage and audio issues. Repeaters linked by digital IP networking extended the county's communications coverage and eliminated dead areas by connecting dispersed sites and allowing the system to communicate like a single site. "The advantages of a main site and a second receiver voting site enabled us to gain a much better range," says Richmond County Sheriff Doug Bryant.

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– Doug Bryant, Sheriff

The system also significantly enhanced audio quality, allowing clearer voice communications over a greater range. Digital forward error correction technology prevents the loss experienced by traditional analog communications to improve audio even in difficult areas or loud environments.

Another major benefit of the new digital system is increased communications privacy. The IDAS™ digital system offers enhanced encryption, preventing unwanted listeners from monitoring county communications. "A beneficial feature of our new IDAS™ system is the confidentiality of communications afforded by digital," Bryant

says. “Shortly after our IDAS™ system was installed we had private citizens with scanners calling us to ask what had happened,” he adds.

Finally, the system allows Richmond County’s Sheriff’s Office and Emergency Services department to maintain interoperability with surrounding agencies, including the Warsaw Police Department, Virginia Department of Transportation, the Department of Forestry, and the neighboring counties of Essex, Westmoreland, Northumberland, and Lancaster. The county provided radios to adjacent counties, the Virginia Department of Transportation, and the Town of Warsaw Police for interoperability when the need arises. Richmond County also is part of a Virginia mutual aid analog system named SIRS.

“The county is operating in 6.25kHz digital, but still able to communicate with neighboring agencies using analog or 12.5kHz digital,” explains SBS Comm’s Sites.



Flexible System Adapts to Future

Because of Richmond County’s flat terrain, proximity to water, and relatively small size, the FCC restricted the county to 50W operation. Even with the system’s power limitations, it has performed well and exceeded customer expectations, Sites says. “Richmond County is very pleased with the new IDAS™ system,” Sites says. “The system is performing well.”

Richmond County plans to add additional equipment and functionality to its system as the need and funds materialize. A major benefit of Icom’s IDAS™ technology is its flexibility, which allows users to gradually upgrade and expand their system by adding additional equipment and functionality.

For example, the fire and rescue department anticipates adding digital paging to its IDAS™ platform. “We want to build upon our IDAS™ platform by adding digital paging when it becomes available,” Baker says.

The county also is considering adding GPS functionality for location capabilities, which would allow county departments to track officer location and further increase response time and efficiency. Upgrading an IDAS™ system for location capabilities is as easy as plugging a low-cost Quicksilver GPS module plugs into the back of the F5061 mobile.

While radio performance and system coverage were primary considerations for the new radio system, Richmond County officials also took into account non-RF concerns such as IP connectivity. “My involvement during initial system planning discussions with the Icom dealer identified non-RF issues that needed to be addressed for a successful integration,” explains Christopher Jett, county technology director.

“It is necessary to be aware of the quality of IP service and connections at each site. Poor IP service can result in inconsistent RF repeater linking and other issues.”

IDAS for Systemwide Success

When Richmond County replaced its outdated low-band radio system for a new IDAS™ digital system, the county gained a lot more than seamless coverage and reliable performance. By selecting a 6.25kHz digital system, the county exceeded current FCC 12.5kHz narrowbanding guidelines and is prepared for the next phase of FCC narrowbanding specifications requiring 6.25kHz operation. The county also achieved enhanced communications privacy, digital IP repeater linking, and interoperability with neighboring counties and agencies. IDAS™ proved the ideal solution for Richmond County’s communication needs and helped the county realize systemwide success.

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