



Commonwealth of Kentucky

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Category: Information Communications Technology (ICT) Innovations

Kentucky Wireless Information Network Service (Ky-WINS)

Kentucky State Police

Kentucky has implemented a statewide 800 MHz wireless data communications infrastructure referred to as the Kentucky Wireless Information Network Service (Ky-WINS). The project was a collaborative effort by many state agencies including the Kentucky State Police, Commonwealth Office of Technology (COT), and the Center for Rural Development. Regardless of their locations in the state, instant wireless data communications is now available between all agencies for emergency as well as daily operations.



Executive Summary

Kentucky has implemented a statewide 800 MHz wireless data communications infrastructure referred to as the Kentucky Wireless Information Network Service (Ky-WINS). The project was a collaborative effort by many state agencies including the Kentucky State Police, Commonwealth Office of Technology (COT), and the Center for Rural Development. Regardless of their locations in the state, instant data communications is now available between all agencies for emergency as well as daily operations.

The Ky-WINS system consists of 150 tower locations, 165 base stations, a triple-fault tolerant Internet Protocol Network Controller (IPNC), and a central mobile message switch. The wireless mobile system is made available to all Kentucky law enforcement agencies for their use free of charge. The local agencies only need to purchase the mobile computers, modems, antennas, and mobile software. The connection to the wireless system and all air time is free to them. This allows small agencies to have the same mobile communications capabilities that are normally affordable only to large departments. This project is unique in that it was designed as a statewide system rather than a merging of separate existing systems. The entire system was installed in 2 years.

The innovative Ky-WINS system is already providing significant benefits and improving the lives and security of Kentucky citizens. For example, the system supports the Kentucky Office of Homeland Security's new E-Intel system which facilitates and aggregates the submission of intelligence reports from law enforcement agencies across the Commonwealth.

The 800 MHz wireless data communications system is allowing officers to perform criminal data checks from their vehicles without having to wait for dispatch personnel to do it for them. The system also allows officers from different agencies to communicate with each other via e-mail and instant messaging.

Project Description

Ky-WINS provides a statewide, collaborative network, facilitating wireless data communication and interoperability among agencies, large and small, across Kentucky.

Problem – Increase safety of law enforcement officers by supplying data communications tools to allow them to quickly access crime data from their vehicles and to communicate with one another across agency and jurisdictional lines.

Kentucky State Police and local Law Enforcement officers across the Kentucky have traditionally been limited to radio communication with their local dispatch center for everyday business transactions. From receiving calls for service, to conducting "Driver's License", "Wanted Person" and "Stolen Vehicle" checks through the Law Information Network of Kentucky (LINK) and the National Crime Information Center (NCIC), officers relied upon dispatch to provide critical information to them as quickly as possible. The process for dispatch personnel to receive requests via radio, submit them to LINK/NCIC, and return the information to the officer in the field, was a time consuming activity which depended upon the availability and work load of the dispatcher. Large Kentucky cities like Lexington and Louisville had implemented wireless mobile data systems to allow officers the opportunity to initiate their own queries from the patrol vehicles. These systems require hardware, software, and base station infrastructure which is typically too expensive for midsize and smaller agencies to afford on their own. If left to themselves, each individual agency would have to mount antennas on existing or new towers as well as install base stations, network controllers, and mobile message switches. In addition to being very expensive, the duplication of effort and assets would be wasteful and prohibitive, resulting in numerous "stove-pipe" solutions that only served one small area of the state, and a small number of agencies. With many of these disparate systems across the state, data interoperability would be limited at best.

Kentucky has 439 law enforcement agencies in addition to the Kentucky State Police which has 16 Posts distributed across the state. A common method of communications was needed in order to enable these agencies to work together in everyday operations as well as times of emergency.

Solution – Implement a single statewide wireless data infrastructure and make it available at no cost to local agencies for wireless communications capabilities. Supply officers with common software which will allow them to access crime data and to communicate with any other officer in the state.

The Ky-WINS wireless infrastructure is made up of 150 base station sites located across the state. The antennas associated with these base stations are mounted on towers owned by the State, Kentucky Educational Television (KET), Federal

Aviation Authority (FAA), local agencies, and various commercial tower owners. This widespread coverage allows wireless access for all law enforcement agencies with only minor financial investment in computers and modems. Local users simply connect to the network through towers located in or near their geographic areas. The Kentucky State Police (KSP) has constructed a high capacity mobile message switch. Procedures have been put in place to allow all law enforcement agencies to share in the use of the KSP mobile message at no cost to the agency. This saves the need to have hundreds of individual switches across the state and saves many thousands of dollars. After each agency has purchased the necessary vehicle hardware and mobile software, the agencies request access to the KSP Shared Message Switch and schedule training for their officers. Once officers have been trained, and all documentation/agreements have been completed, they are granted mobile access to the LINK/NCIC data bases directly from their vehicles. The safety of the officer is greatly enhanced by being able to initiate his own LINK/NCIC checks without having to interact with dispatch personnel for each transaction. Officers are able to access more information in a more timely manner, and have a better opportunity to obtain critical information on potentially dangerous individuals they come across in their routine patrol.

This statewide infrastructure allows an officer to maintain access to the wireless system no matter where he may be in the state. The officer's mobile data computer is automatically switched to the nearest base station for continuous connectivity.

Both Louisville and Lexington have their officers utilizing the new Ky-WINS system making this a truly statewide wireless communications solution.

In addition to the LINK/NCIC software, each officer will have the capability to send e-mail and instant messages to any other officer in the state regardless of agency or jurisdiction. They also are able to engage other officers in a conference room mode. This data communication facility will quickly be expanded to include other first response agencies such as fire and EMS.

Significance to State Government

The Kentucky legislature included money in the 2007 state budget for the maintenance of the Ky-WINS system. This will enable the state to relieve the county and city governments of costs associated with the wireless system. It allows all 439 law enforcement agencies to have access the system without incurring any user fees. By supplying an essentially free communications system to the local governments they will be able to utilize their limited funds for other projects and services.

Benefits realized by service recipients, taxpayers, agency, or state

Having a single statewide wireless data communications system affords many benefits to Kentucky and its citizens:

Emergency Response – In past major incidents, first response agencies have had difficulty in communicating amongst themselves. The Ky-WINS system allows the responders to keep the voice radio waves clear and communicate with all other responders via instant message or conference room.

Officer Safety – By being able to access LINK/NCIC data from his car an officer and citizen spend much less time stopped on the side of busy roads. The officer's safety is greatly enhanced by more quickly knowing who is in the car in front of him before he approaches. The system is extremely helpful whether the officer is performing a routine traffic stop, responding to an accident scene, or conducting a pursuit.

Efficiency – The state of Kentucky also has a statewide crime data reporting system. Kentucky State Police has developed a crime incident reporting software product that is supplied free-of-charge to all Kentucky law enforcement agencies. The Ky-WINS system supplies incentive for the local agencies to purchase mobile data computers which will increase the participation in the automated crime reporting. It is anticipated that in two (2) years Kentucky will have over 90% participation by all 439 law enforcement agencies in reporting crime data electronically. The Ky-WINS system will allow the offices to submit the reports directly from their vehicles which will get the data into the state's central database more quickly. This will allow the data to be available that much sooner on the Internet reporting system.

Cost Savings – Millions of dollars have been saved by implementing a single wireless infrastructure that is maintained centrally by the state. The cities and counties do not have to pay for their own antennas, base stations, IPNCs, message switches, or ongoing system maintenance. Specific dollar savings is detailed in the next section.

Responsible Use of Taxpayer Money – Ky-WINS is the result of a planned initiative to create a statewide system. It is not a patchwork of existing systems that has been tied together with various interfaces and extracts. Ky-WINS made efficient use of the grant money available. Most of the antenna sites used are owned by the state under the Kentucky Emergency Warning System (KEWS). The project found other sites that were offered for free such as municipal water towers, various city-owned towers, KET system towers, and one Federal Aviation Administration tower. All aspects of the project were done with maximum cost savings and effective use of funds in mind.

Realized return on investment, short-term/long-term payback

The economic benefit to having the wireless infrastructure implemented by the state is that each agency does not have to install its own tower, base station, IPNC controller and message switch.

Infrastructure Savings - \$20,000,000

Base station/antennas cost about \$35,000 each

Message Switch is about \$60,000

IPNC costs about \$80,000

If each agency or county were to do their own system, the costs would easily exceed \$24 million. By having the state consolidate systems to maximize savings, the state saved \$20 million.

By going through a single vendor for infrastructure and mobile software, the project obtained substantial discounts on all project costs.

KSP Traffic Stop Savings - \$93,330 per month

It is difficult to quantify the ROI for officer and citizen safety but an attempt may be made to estimate the return on investment on KSP traffic stops alone.

A traffic stop where officer calls dispatcher for information usually takes about 15 minutes.

Having wireless access to LINK/NCIC data and using the free KSP automated citation reporting program, an officer can cut 8 to 10 minutes off of the procedure.

Kentucky State Police has about 500 road troopers. Each one conducts about 70 traffic stops per month. Assuming an average pay of \$20 per hour the cost savings can be calculated:

500 troopers x 70 stops = 35,000 traffic stops per month
8 min saved per stop x 35,000 = 280,000 minutes (4,666 hours)
saved
4,666 x \$20 = \$93,330.00 saved per month

Traffic stops for local officers can take significantly longer because the calls to dispatch may have to be routed through to the KSP post from the local dispatcher. The wireless connection can save these officers up to **20 minutes per stop**.