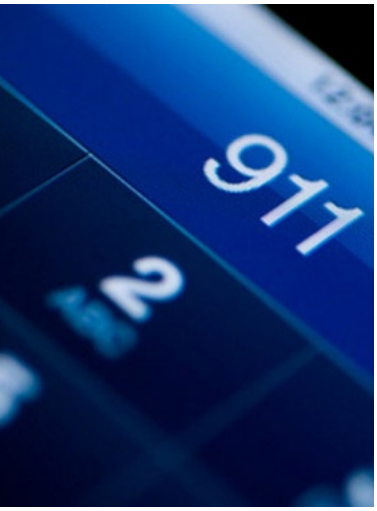


# FE/Kimball helps the Indiana Wireless Board pioneer the statewide wireless-only E9-1-1 network

## Project Overview

**CLIENT**

Indiana Wireless Enhanced 911 Board

**GOAL**

Simplify and upgrade its E9-1-1 network

**FE/Kimball SERVICES**

- Network requirements development
- Network implementation and oversight
- Regulatory assistance

## THE SITUATION

In 2001, the State of Indiana, like other states across the country, operated with an enhanced 9-1-1 (E9-1-1) network that was functional, but expensive to operate, and unable to support future applications being developed. Wireless carriers typically connected callers to E9-1-1 through the local exchange carrier (LEC) wireline service and selective routers, which meant that the calls must use analog CAMA trunks. The system employed a series of mobile switches. Each wireless carrier had a mobile switch in the communities it served that linked its calls to PSAPs through an array of selective routers.

By 2005, Indiana's E9-1-1 service was operating with 162 PSAPs, three local exchange carriers providing 9-1-1 service, 10 wireless carriers, 17 selective routers and a multitude of PSAP network and hardware configurations. This many-to-many system presented a number of issues, including:

- Multiple potential points of failure
- Difficulty in isolating issues and assigning responsibility for their correction
- The expense involved in the need for wireless carriers to connect to all 17 selective routers
- The use of slow, analog CAMA technology for transmitting the calls

### *An Increase in Wireless 9-1-1 Calls*

At the same time, more residents were adding or switching to wireless phones, increasing the demand for managing wireless emergency calls. Members of the Indiana Wireless Enhanced 911 Board sought a way to simplify and significantly upgrade its E9-1-1 network and, through an RFP process, selected FE/Kimball to develop a network specification RFP solely for handling wireless calls into PSAPs across the state. The new system, using an IP backbone, would provide direct connections between the wireless carriers and PSAPs without the extra step of going through LEC wirelines. It also would provide the capability, for the first time, of completing calls in digital form. Such a system would improve call-delivery time dramatically and reduce the time required for dispatchers to rebid calls to pinpoint locations.

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## THE CHALLENGES

A wireless-only E9-1-1 network had never been built before on a statewide basis, nor on an IP backbone. The Indiana Wireless Board would be breaking new ground, combining systems, processes, standards and software that did not yet even exist. Furthermore, policies and procedures in the telephone industry were not highly amenable to this type of radical change, since the old system was a funding source for the incumbent LECs that managed the selective routing for wireless carriers.

## THE SOLUTION

FE/Kimball understood the functionalities that the state board wanted. In the firm's process for selecting vendors, it specified the parameters of only those functionalities, rather than specific hardware or software, to allow vendors to come up with groundbreaking solutions. The objective was to move Indiana toward an IP structure and a digital network. FE/Kimball also assisted the state board as it made its way through regulatory hearings and legal issues that needed to be resolved to develop the processes for the wireless carriers to "cut the cord" with the wireline selective routers.

The network requirements developed by FE/Kimball, in association with INdigital, enabled wireless carriers to connect directly into the IP network and to perform wireless-only selective routing on the network. In place of the 17 selective routers deployed in the old system, the new wireless network used only two selective routers—a primary and a backup—which had the capability of delivering calls to and interconnecting all the PSAPs in the state through a secure, private, diverse and redundant IP network. Several vendors presented their designs for the network. Indigital's design was thought to best meet these criteria and requirements and their solution / proposal was selected.

## THE RESULTS

FE/Kimball oversaw the installation of the network and systems and ensured adherence to the state board's requirements for functionality. Now FE/Kimball is helping the state consider a number of new digital opportunities:

- With digital transmission to the PSAPs, calls can be received more swiftly, and the shift toward wireless phones among residents can be accommodated more readily.
- New applications can be incorporated into the IP backbone, such as video and Web pages.
- The network allows some adjacent counties in neighboring states to transfer calls to and from Indiana PSAPs directly, so that incidents occurring just over the border can be handled by the proper jurisdictions.
- The network is situated to accept text messages once standards become adopted, permitting another form of emergency notification from callers, including deaf and hard-of-hearing residents who today use texting in place of teletype.
- Where legal determinations permit, the IP network allows counties to transport wireline calls across the same IP network through session initiated protocol (SIP). Several counties are progressing toward complete elimination of the analog CAMA links into the PSAPs, making them entirely digital.
- The digital network allows for collection of much more detailed statistics than ever before. Among other things, the state can map the origination point of E9-1-1 calls to determine how to tailor services better to the community.

Throughout the selection process and the network installation, the State of Indiana found that FE/Kimball's experience in telecommunications, its understanding of the technology nuances of the 9-1-1 process and its expertise in the evolution of 9-1-1 networks served as a solid foundation for its promise of targeted results, expertly managed.