Case Study of the Dane County, Wisconsin Upgrade: A Solution For Today and For the Future

May 7, 2012

Dane County Emergency Management is transforming their existing Siren Control and Warning System into a 21st Century Mass Notification System through a cost-effective upgrade. The new system utilizes the existing sirens, which have been retrofitted with new state-of-the-art remote control and monitoring capabilities. This enables Dane County to make the most of the existing system and save the cost of replacing sirens. The upgrade also adds the ability to send alert messages through multiple channels, taking advantage of today's interconnected environment for maximum efficiency, and targeting messages more precisely. The new system provides multi-level redundancy to insure that emergency messages are understood by all who need to receive them.

ATI Systems (Acoustic Technology, Inc.) is working with Alerting Solutions, Inc. (ASI) to provide Dane County with an emergency management system that sends out messages and alerts through many different pathways. The technology utilizes industry and government standards, including Common Alerting Protocol (CAP), making it open for integration and future expansion using a "plug and play" approach. The new system uses dynamic map-based area selection tools to optimize alerts so that only those community members in direct threat from the emergency are notified.

Simultaneously with sending siren alerts, the new system can send out alerts and messages through numerous different channels:

- text messages/SMS
- emails
- computer pop-up screens
- telephone messages to landline or cellular phones
- County web site updates
- social media web site updates for Facebook and Twitter
- Emergency Alert System broadcast, Cell Broadcast and Weather Radios

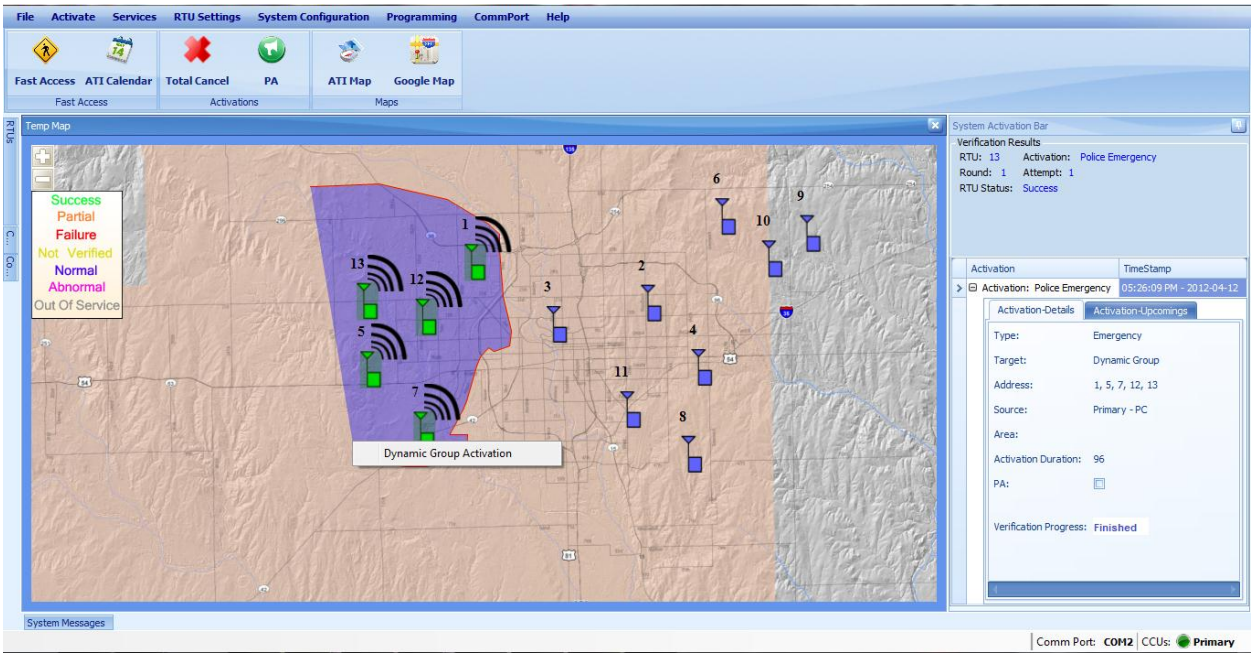
The new system includes a public sign-up web service for Dane County with user friendly menu driven screens where people can subscribe and unsubscribe for the types of messages they want to receive, and the best channels they want to receive them through. They can sign up for various types of alerts and warnings to come through as phone calls to their land line or cell phones, by email, or as text messages. In addition, ASI's CAP Server is qualified to effectively interface with the federal government's Integrated Public Alert and Warning System (IPAWS) national warning systems. IPAWS connects to various federal warning systems including: the Emergency Alert System (EAS) which transmits messages through radio, TV and cable broadcast

channels, the mass cell broadcast (CMAS) service which transmits alert messages to cell phones in the endangered area (including phones of temporary visitors), and weather radio transmitters via NOAA HAZCOLLECT service.

“The federal government has provided warning tools that can be used by the local authorities and greatly enhance their capabilities and minimal cost,” said Efraim Petel, ASI President. “Incorporating these tools in the local system provides the latest IPAWS standards.”

In addition to providing new methods for alerting, the system upgrade also made the most of the existing sirens, saving the county the cost of installing new ones. New control equipment was installed on the old sirens to bring them up to date. “Dane County had 123 existing sirens from different manufacturers, old mechanical sirens. The system was one-way with no status back,” said Abed Yassine, VP of Operations at ATI Systems. The existing sirens were outfitted with new ATI Systems Remote Terminal Units (RTUs) which, “monitor and control the old sirens. The RTUs can activate, check status and report back.”

The ability for the sirens to report their status back to the central stations can save the county significant money and time in system maintenance, because they can monitor the entire system from one location. Trips to individual siren sites are needed only for repair. Using this method to update the existing sirens gave Dane County complete new warning capabilities in the most cost effective manner possible.



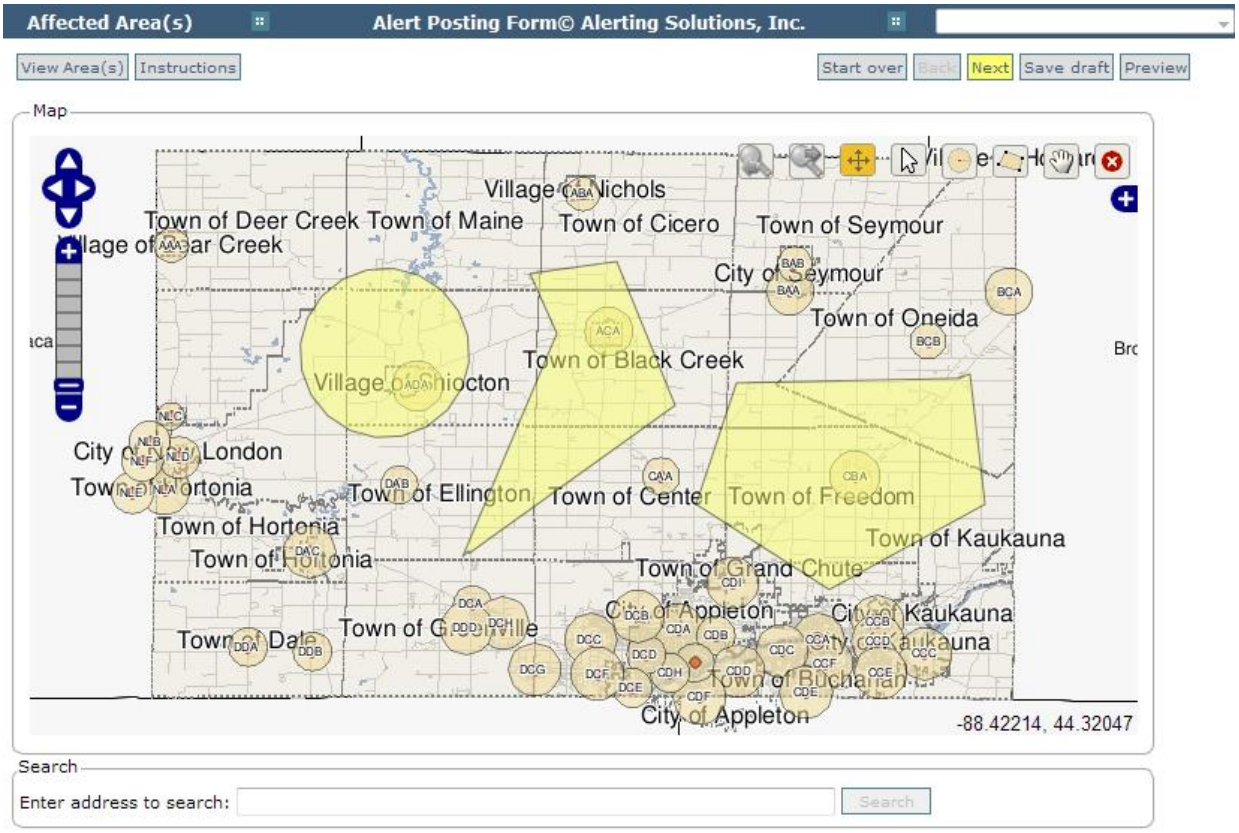
The screen shot above shows ATI Systems’ MassAlert® software’s graphical user interface during a dynamic group activation of a subset of the sirens in a system.

The new RTUs interact with two new Central Control Units (CCUs) at Dane County as well as a Mobile Control Unit. The CCUs are connected to a computer featuring ATI Systems' MassAlert® software. It has a graphical user interface that shows the status of each siren, controls activation, and connects with ASI's Next Generation CAP Alerting System through the Internet. This connection allows Dane County officials to connect to and activate any part of the system, either from ATI Systems' MassAlert® software at the central stations, or from any location with Internet access via ASI's CAP Server System web portal. Simultaneous activation of sirens, as well as the other message formats such as text messages, emails, and phone calls, is possible from wherever is most convenient.

Both ATI Systems' MassAlert® software and ASI's CAP Server System use Geographic Information Systems (GIS) to capture, store, manipulate, analyze, manage, and present emergency system status throughout the county. This user-friendly map-based system allows for area selection by a number of different methods including:

- Dynamic area selection using free-hand drawing or predefined shapes which can be manipulated by the user
- Radius around a certain point or a given address
- Automatic importation of the new storm-based polygon alerts coming from the National Weather Service (NWS) to ASI's CAP Server System. The user can add additional area to the polygon information. Also, the sirens can be set to activate automatically based on polygon alerts.

Selecting areas using the GIS interface will automatically select the sirens in that area, as well as connecting to the phones and computers of the people who live and work there, and the other warning tools provided by IPAWS.



The screen shot above shows alert area selection using ASI's web portal application. Illustrated above are: area selection as a radius around a given location, a shape drawn free-hand, and a simulation of a storm-based polygon alert from the NWS.

Acronyms Used

ASI – Alerting Solutions, Inc.
ATI – Acoustic Technology, Inc.
CAP - Common Alerting Protocol
CMAS – Commercial Mobile Alert System
EAS - Emergency Alert System
GIS – Graphic Information System
IP – Internet Protocol
IPAWS - Integrated Public Alert and Warning System
NOAA – National Oceanic and Atmospheric Administration
NWS – National Weather Service
RTU - Remote Terminal Unit
SMS – Short Message Service