

Case Study of the Sedgwick County, Kansas Upgrade: Sedgwick County Upgrades to a 21st Century Storm Warning System For Less Than \$1 Million

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Sedgwick County, Kansas is in the process of upgrading its tornado warning system to achieve a whole new level of control over the way the county issues warnings. In addition to adding 27 new sirens, the county got new controllers on all of the 120 older sirens remaining in the system. This way, each siren in the system can now be controlled and monitored individually from one central location. Previously, when the sirens were activated, all the sirens in the county were activated. With the new system, sirens can be activated in smaller groups, so that only the communities being directly threatened by the oncoming storm will hear the siren warning. ATI Systems was able to complete the new system for less than the county had budgeted for the upgrade.

Sedgwick County chose ATI Systems to provide the equipment and expertise necessary to upgrade their storm warning system to a state-of-the-art modern system. The county originally budgeted \$1.25 million to upgrade their existing storm warning system. Their existing system consisted of various models of older sirens from a number of different manufacturers, some of which were so old that repair parts are no longer available. However, many of the sirens were still fully functional, and the county's budget precluded replacing the entire system. Competitors recommended that the county replace all their sirens, but "We will work with the community to save them money," said Dale Azuma, Regional Sales Manager for ATI Systems. Dale is currently working with county officials to complete the upgrade, which includes about 60 sirens which ATI was able to save from immediate replacement, saving the county almost a million dollars. The upgrade is expected to be finished by mid-April and cost the county under a million dollars.

ATI Systems was able to accomplish this cost effective upgrade because it manufactures a specialized [Remote Control Unit \(RTU\)](#) specifically designed to work with various types of sirens. The ATI Siren Monitoring Controller RTU has the ability to control and monitor sirens from different manufacturers, allowing them all to be activated and monitored individually from a central location. Utilizing state-of-the-art Hall-effect current sensors, which can sense AC or DC current, the RTU monitors the activation status of the siren. The sensors monitor the siren's main motor, blower, or amplifier power, as well as rotor power, chopper power, and DC monitoring of a siren's rectifier or battery subsystem. The RTU also includes 5 relays to control

activation and cancel activation of the siren, while remaining in constant communication with the central stations.

Each Siren Monitoring Controller RTU reports its status back to the [Central Control stations](#) which are running [ATI's MassAlert®](#) software. This enables Sedgwick County to keep their existing sirens by converting one-way sirens with the more modern two-way control/status capability. The Siren Monitoring Controller RTU allows Sedgwick County to continue using their investment in existing sirens and replace them over time. ATI's MassAlert® software also provides advanced features and options such as NWS polygon alerting capability, and interfaces to SMS/email alerting and reverse-911 systems.



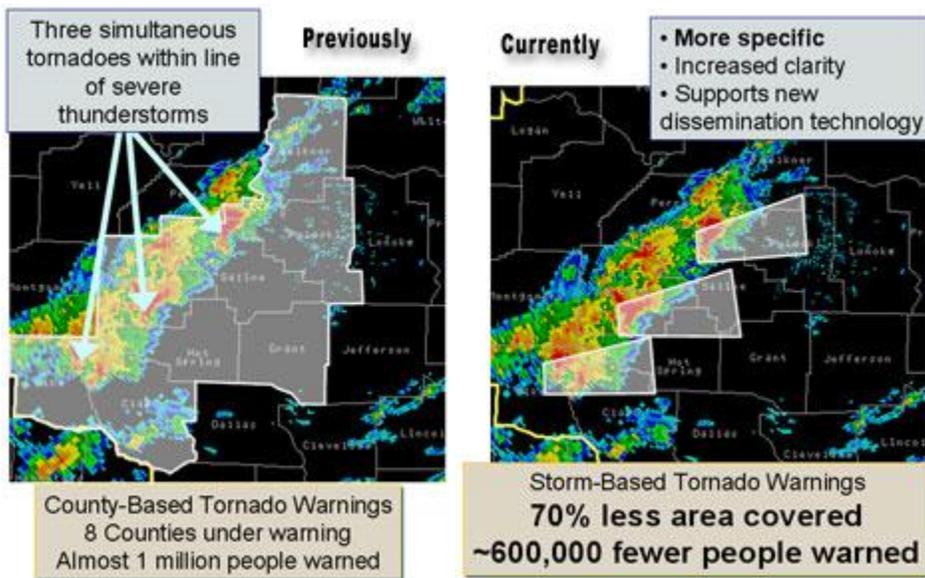
The photos above show ATI Siren Monitoring Controller RTUs on existing sirens in Sedgwick County.

The advanced features offered by the new system can be very important in improving the effectiveness of the county's storm warning system. Sociologists have found that people are more likely to take action when they know that if they hear the storm sirens sounding, they are in an area that is directly threatened by the storm. Sedgwick County's upgraded system uses

MassAlert®'s NWS polygon siren activation capability to address this issue, greatly reducing the incidence of over-alerting and citizen complacency.

The control stations at Sedgwick County have both primary and backup connections to the internet. This redundancy makes the system more secure in an emergency and allows the MassAlert® software running at the central stations to continuously monitor the NWS website for warning messages relating to Sedgwick County. The software uses Common Alerting Protocol (CAP), the industry standard, to interpret the XML-based alert postings.

Before October 1, 2007, the National Weather Service (NWS) issued tornado, severe thunderstorm, flood and marine hazard warnings based on geopolitical boundaries, like county lines. So an entire county would receive a warning, even if only a small part of that county was affected by the storm. Currently, the NWS uses a Storm-Based Warning system that creates threat-based polygon warnings, which are not restricted to geopolitical boundaries. These polygon warnings focus on the true threat area and improve NWS warning accuracy and quality. This allows emergency managers to improve the level of compliance to evacuation orders in their communities, and helps save lives.



Graphics are from the NWS web site at: <http://www.nws.noaa.gov/sbwarnings/>



The photos above show two of the existing sirens that are now being controlled by ATI Siren Monitoring Controller RTUs .