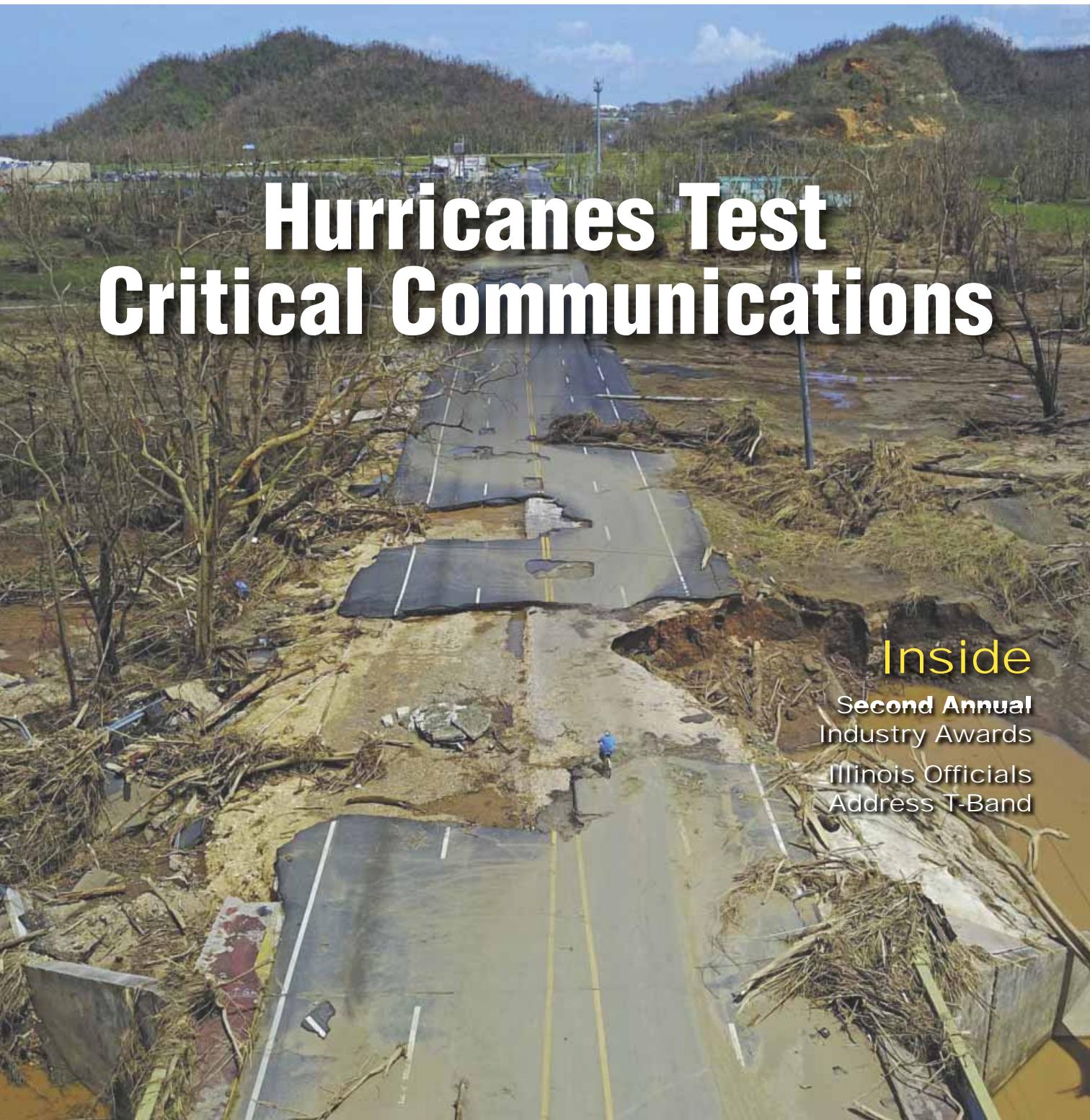


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C O M M U N I C A T I O N S



Hurricanes Test Critical Communications

Inside

**Second Annual
Industry Awards**

**Illinois Officials
Address T-Band**

Most Innovative Communications Networks



Photo courtesy Greater Houston Convention and Visitors Bureau

City of Houston — Public-Safety LMR

Only one LMR site in Houston's Project 25 (P25) Phase 2 network went down completely during Hurricane Harvey, said Tom Sorley, deputy chief information officer (CIO) – public safety for the city of Houston Information Technology Services (HITS).

Sorley said the site was flooded over the roof so all equipment must be replaced. The city also lost main electrical service in one site, but otherwise, the 57-site network, initially deployed in stages beginning in 2012, held up well. He is responsible for direct oversight of radio communications and IT services for the Houston Emergency Center, the city's combined dispatch and emergency operations center.

Houston turned on generators in advance of the storm to avoid generator over cranks. "One thing I learned is they used about a quart of oil a day, which isn't good when they hold five quarts of oil," Sorley said. "By the fourth day, we were in high water vehicles going to sites to add oil. We had plenty of fuel, but oil became the issue. ... We learn something new every time."

When the system was implemented in 2012, it was configured with a seven-site public works simulcast layer and a larger 48-site public-

safety layer. The public-safety layer is shared by the police and fire departments and includes a combination of high-capacity simulcast cells and lower capacity individual trunked repeater sites supporting rural low-density areas. All of the infrastructure sites are networked to function as a single cohesive system.

The system includes more than 600 P25 Phase 2 TDMA repeaters, 72 hops of Ethernet microwave, 125 IP-based dispatch consoles, 20,000 multiband UHF/700/800 MHz P25 Phase 2 user radios and extensive

system redundancy for robust system reliability. It is integrated with the regional radio system to support robust radio interoperability.

The city selected P25 Phase 2 technology because there weren't enough 25-kilohertz RF channels available to meet its capacity requirements. A radio traffic analysis indicated that more than 130 RF channels were needed for long-term system operation. The region 51 700 MHz plan was originally based on 25-kilohertz channels, and there weren't enough channels available in the plan to support the new system. A consultant re-sorted the channels in the plan using a 12.5-kilohertz bandwidth to support P25 Phase 2 two-slot TDMA operation — two voice transmissions per 12.5-kilohertz channel. Re-sorting increased the number of channels in the plan, providing the foundation for the system. The city then worked with the state of Texas and Harris County, which manages the regional radio system, to hammer out a sharing agreement for the remainder of the needed 700 MHz channels. The Phase 2 technology selection also avoided a costly upgrade to Phase 2 later.

LA-RICS — Public-Safety LTE

The Los Angeles Regional Interoperable Communications System (LA-RICS) public-safety broadband network (PSBN) in California is a Long Term Evolution (LTE) system built to public safety grade standards and dedicated solely to use by public safety. The private LTE system has 76 sites that cover 95 percent of the most populated areas of the jurisdiction's 4,083 square miles. The LTE network is up and running with about 900 users on the system. Agencies with LA-RICS user equipment include Los Angeles County Sheriff, Los Angeles County Fire, UCLA Health Services, city of Claremont,



Photo courtesy LA-RICS

A deputy uses a PSBN device.

city of Bell Police Department and city of Inglewood Police Department.

LA-RICS has provided demonstration routers to interested agencies,

including the city of Signal Hill Police Department, city of El Segundo Fire Department, city of Covina Police Department, city of Azusa and city of Sierra Madre, with additional users added to the system on a daily basis.

Challenges for the LA-RICS PSBN are the uncertainties surrounding the nationwide PSBN (NPSBN) including pricing, technical compatibility, user integration, device migration, public safety grade infrastructure and interoperability between agencies that elect to stay with their existing carriers. The particular multi-frequency NPSBN implementation that the First Responder Network Authority (FirstNet) has adopted challenges device migration. This implementation requires chip-level changes to existing band 14 devices.

Users interested in the LA-RICS PSBN have been hesitant to invest resources to use a system with an uncertain future, negatively impacting the number of users on the LA-RICS system and first



Dispatchers during the Rose Parade

Photo courtesy LA-RICS

responders' access to public safety grade communications.

"During the upcoming year, it is our expectation FirstNet/AT&T will fully absorb the LA-RICS PSBN into the nationwide system, understanding the value this regional system brings to their commercial deployment, the public-safety users and the community it serves," said LA-RICS Executive Director Scott Edson. "We expect to have the LA-RICS users fully migrated to the NPSBN by July

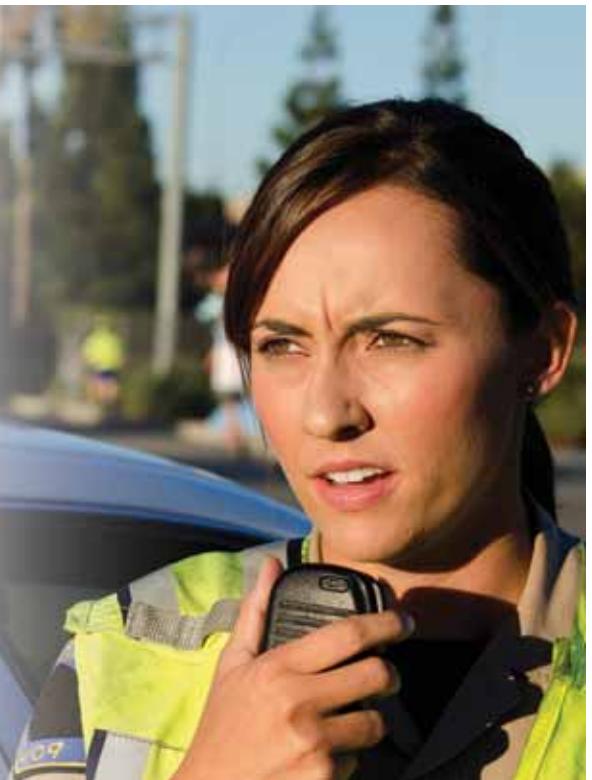
1, 2018, per AT&T's deployment timeline, with a seamless migration ensuring no degradation to the current public-safety user experience under the LA-RICS PSBN."

Edson said there is the potential to add LTE equipment to certain sites LA-RICS is building under its Project 25 (P25) LMR network, particularly in the Angeles National Forest, Santa Monica Mountains and Catalina Island where existing commercial coverage is limited or nonexistent.

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