Completed

Chicago Long Term Evolution (LTE): Pilot Testing Performance of Integrated Video Technology on Public Safety Broadband

Integrating Chicago's Next-Gen Public Safety Technology in a High-Density, Active Urban Area

Chicago is a leader in the use of law enforcement technologies. Their world-class physical video surveillance system ties in video streams from more than 25,000 municipal and partnering organization cameras—as well as from crime mapping, analytic and sensor-based technologies, like automatic gunshot detection. This information simultaneously feeds into the operation center via wireless broadband where services and emergency response coordination efforts occur.

With support from the U.S. Department of Homeland Security (DHS) Science & Technology Directorate (S&T) First Responders Group, Chicago explored the potential benefits of broadband-enabled technologies through a Chicago LTE pilot project. The project integrated technologies deployed across different areas of the city into a single high-density, high-activity urban police district in order to:

- Evaluate, document and analyze video quality and broadband network impacts of pilot integration and to baseline broadband capabilities and
- Demonstrate how technology integration over public safety broadband can deliver police and emergency management personnel more information—faster, and with more reliability than before.

Streaming Video Surveillance Technologies Over the 700MHz Public Safety Broadband Spectrum

The Chicago LTE pilot was a joint effort between S&T, the City of Chicago Office of Emergency Management and Communications (OEMC), the Chicago Police Department (CPD), Purdue University's center for Visual Analytics for Command, Control and Interoperability Environments (VACCINE)—a DHS center of excellence—and the Motorola Corporation. In November 2014, the city gained temporary access to the 700MHz public safety broadband spectrum from the Federal Communications Commission to support the effort.

Approximately 15 mobile police units outfitted so officers could receive and send video and data from these surveillance, sensor-based and analytics technologies using mobile Portable Data Terminals and Smart Phones. VACCINE worked with OEMC, CPD and S&T to test and document video and network capabilities, transmission quality and network saturation levels over several months, using real-world use cases.

Formal pilot testing was conducted over 12 weeks, concluding in the spring of 2015. OEMC, CPD and S&T worked with VACCINE to develop a final lessons learned document sharing pilot methodology, test results and insights gleaned about the potential benefits public safety broadband can bring to Chicago and similar jurisdictions. The final lessons learned document is available here: https://www.dhs.gov/publication/chicago-lte-video-pilot-report.

Benefits of the Chicago LTE Pilot

The Chicago LTE pilot leveraged the city's existing investments and infrastructure to allow first responders to see what happens if they are in an urban area with high-speed, real-time access to a variety of law enforcement video information all at once over public safety broadband.

Mobile Portable Data Terminal

"DHS S&T is committed to giving first responders the best tools to do their jobs," said Under Secretary for Science and Technology Dr. Reginald Brothers. "By focusing on how to transmit real-time video to their cars, trucks, etc., we can make their jobs easier and potentially save a lot of lives."

From national, regional and jurisdictional perspectives, this effort yielded a lessons learned document that informs efforts of other, interested jurisdictions. For Chicago, this pilot serves as a proof of concept for the design and implementation of a permanent solution for the city.

To learn more about Chicago LTE, contact first.responder@hq.dhs.gov.

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