Real-life Insight to Accurate Indoor 9-1-1 Mapping

Presenters:
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Insights

• Current situation and limitations
• Working together to overcome limitations
• Pilot Project
• Results
• Conclusions
Current situation and limitations
Limitations of mapping systems for incident response

Current wireless 9-1-1 location technology is not accurate enough:

"Why is it more important for a 99 cent app or Facebook to know where we are than the 911 operator who answers the call?" asked Shanell's mother Jacquene Curlee.

"As something as simple as locating someone in today's society when you have GPS, when you have apps that have locator services, you're telling me 9-1-1 doesn't have the capability to locate someone?"
Current situation and limitations

9-1-1 call, CAD incident, and responder tracking
Limitations of mapping systems for incident response

Current wireless 9-1-1 location technology is not accurate enough:
Working together to overcome limitations
Current Situation

Wireless 9-1-1 location technology is not accurate enough.

People are moving from landline phones to only using wireless devices, and more calls are being made while indoors. In fact, over 70% of 9-1-1 calls are from mobile phones, according to the Federal Communications Commission.

The need exists to improve indoor location accuracy in order to provide faster and more reliable 9-1-1 response to wireless callers.
NCTCOG, GeoComm, and RapidSOS Addressing the Current Situation

In January 2015, the FCC passed new rules to increase wireless location accuracy that for the first time included elevation.

9-1-1 must begin to prepare to receive elevation and indoor 9-1-1 call locations with the ultimate goal of improving emergency response.
Pilot Project
Pilot Project: NCTCOG, GeoComm, and RapidSOS
Pilot Project

Project Team

• NCTCOG
• GeoComm
• RapidSOS

Project Scope

• Conduct a pilot project in Texas for integrating mobile phone data received via RapidSOS into the NCTCOG 9-1-1 PSAP mapping applications provided by GeoComm. The project team will test mobile device enhanced location in a live 9-1-1 call testing at the Frisco Communications Center in North Central Texas.

Project Goal

• Determine if there are operational and map data requirements necessary to obtain maximum benefits from upcoming increases in 9-1-1 wireless location accuracy including indoor location.
Test Call Rules

Test calls were placed from multiple devices.

There were team members in the field and team members in the PSAP to record and capture the testing information.

A team member was responsible for taking photos of the location, as well as measuring and marking the floor plan while in the field.

GeoComm and RapidSOS team members were responsible for placing and documenting the test calls, as well as executing technical aspects of the test.

A PSAP received the test calls.
Results
Device-based hybrid is an estimation method that typically utilizes either a selection or a combination of location methods available to a device, such as a "smart phone," in a given environment – such as GPS, cell tower signals, Wi-Fi access points and Bluetooth sensors.
Test call shows dispatchable location accuracy

- Actual Caller Location
- Wireless Phase 1 Location
- Wireless Phase 2 Location
- Device-Based Hybrid Location

Dispatchable location provides the address or other critical location information for first responders such as building name, floor, unit, room & seat.

Data Source: NCTCOG and City of Frisco, TX
Video

Christy Williams
Director of 9-1-1
North Central Texas Council of Governments
Conclusions
Pilot Project Conclusions

The pilot project findings, device-based hybrid location technology can provide faster and more accurate indoor location of an emergency.

In all test scenarios, device-based hybrid caller location was available by the time traditional Wireless Phase 1 information came in, and the caller location was on average more accurate than traditional Wireless Phase 2 mapping efforts.

Use of the technology in a PSAP setting would result in a more efficient, effective, and accurate emergency response.
Thank you and questions