

# QuickRoute – Mobile Emergency Routing Services for First Responder Vehicles



Homeland Security

Science and Technology

## OPTIMIZING NAVIGATION FOR EMERGENCY VEHICLES

Every second counts when first responders are called to an incident, and they should not have to worry about whether the path they travel to get there will cause a significant delay in service. Getting to the scene fast—and safely—is the primary goal, and the Department of Homeland Security (DHS) Science and Technology Directorate (S&T) is developing a new tool to help guide the way.

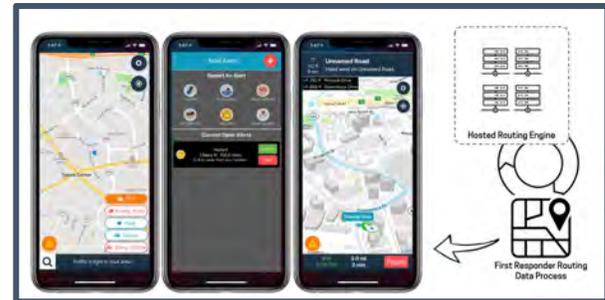
Responders face unique challenges when navigating roadways. Routing and directions provided in vehicle terminals can be out-of-date, and civilian mapping apps do not take into account the emergency routing rules afforded to law enforcement, fire, and emergency medical services vehicles, which can significantly change the most efficient route. Civilian apps also do not factor in specific emergency vehicle requirements for turn radius, tunnel and bridge clearance, and highway exiting. Weather, traffic, and blocked roads all impact emergency vehicles traveling to a scene and transporting patients to hospital care.

## LEVERAGING DATA TO DELIVER REAL-TIME ROUTING

During the development phase, S&T and Azimuth1 worked with first responders to make sure the technology met their needs. The team developed a custom routing app that gets emergency vehicles to and from incidents faster and with fewer interruptions. By measuring anticipated routes against real-world routes and responses, they trained the system to look for opportunities based on real-time, updated data on traffic, weather, hazards, and construction provided by other emergency vehicle operators. The end product resulted in a 'smart' routing system that understands the options and constraints emergency vehicle operators have and uses that information to respond to incidents more efficiently.

## SYSTEMS COME TOGETHER IN AN EMERGENCY RESPONSE MOBILE APP

QuickRoute is a system of components, each of which plays an important part in its overall success. The diagram shows how these components fit together:



- Responders use a mobile app to view maps and routes on portable devices, such as smartphones and tablets.
- Behind the scenes, the app receives custom route information from a hosted routing engine configured to use first responder routing data. This augments typical civilian data to suit emergency vehicle needs.
- Dispatchers can send remote notifications to vehicle operators via the app, providing a destination address and coordinates, and getting the vehicle under way with minimal delays.

## The Road Ahead for QuickRoute

Development of the system began in March 2018. An operational field assessment was conducted in Spring 2019 to obtain feedback and gauge readiness for commercial distribution. Based on the responder input, S&T and Azimuth1 are refining and improving the QuickRoute system to ensure it successfully meets first responder routing and navigation needs. Azimuth1 is currently working on improvements to the mobile app to streamline the user interactions, provide hands-free operation, automatic routing from a dispatcher, and more specific vehicle customization. The latest app will access the QuickRoute hosted navigation service, which calculates routes based on a set of flexible rules representing both advantages and constraints when operating an emergency vehicle. The mobile app, which runs on GPS-enabled phones and tablets, will be available in early 2020.

## IDENTIFY PERFORMERS/PARTNERS

S&T is working with Azimuth1, LLC located in Fairfax, VA.

