



The *TranLIVE Spotlight* is a bi-weekly update from the University Transportation Center research collaboration led by the University of Idaho

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## **STRATEGIES TO IMPROVE TRAVEL TIMES FOR EMERGENCY RESPONSE VEHICLES**

MOSCOW, Idaho – Recent studies point to emergency vehicle (EV) response time as a major factor in reducing patient mortality rates. With this in mind, Craig Jordan and Mecit Cetin, TranLIVE researchers at Old Dominion University, have developed two new strategies in efficient EV routing using vehicle-to-vehicle (V2V) and vehicle-to-infrastructure (V2I) communication systems. Jordan and Cetin suggest that by equipping an EV with a V2V/V2I communication system will improve response times by transmitting the location, route, and destination to vehicles and traffic-control infrastructure along its path.

The first strategy addresses the scenario of an EV caught in traffic on two-lane divided roadway without shoulders at a set of traffic signals. It involves moving and stopping traffic into one lane at a critical point to allow the EV to change lanes and travel unimpeded through the intersection. The second strategy assists EVs before they reach congested signalized intersections by changing the downstream traffic signals in a successive order to allow traffic to disperse prior to the arrival of the EV.

Both strategies were implemented using a controlled microscopic traffic simulator. Preliminary results show that the application of the two approaches to be effective. The results of the first strategy showed time saving percentages approaching the hypothesized maximum values (ranging from 16% to 34% depending on certain factors). The results of the second strategy also proved successful, with results showing an EV travel time saving of 88 seconds using a sequential signal change strategy. While initial results suggest increased patient survival rates, there are indicators that the strategies may create compounded traffic delays.

The complete report is available at: [bit.ly/tranlive022315](http://bit.ly/tranlive022315)

### **ABOUT TRANLIVE UNIVERSITY TRANSPORTATION CENTER**

TranLIVE is the Transportation for Livability by Integrating Vehicles and the Environment a research collaboration lead by the University of Idaho in partnership with Old Dominion University, Syracuse University, Texas Southern University, and Virginia Polytechnic Institute and State University. TranLIVE works to find solutions to transportation challenges that minimize environmental impacts while educating students to enter the transportation workforce and creating and transferring tools and knowledge to practicing transportation professionals. TranLIVE is sponsored by the United States Department of Transportation (USDOT) University Transportation Centers Program. For more information visit: [www.tranliveutc.org](http://www.tranliveutc.org)