



Vehicle-to-Everything (V2X) Technology for Roadway Safety

V2X is an ITS (Intelligent Transportation Systems) technology that can save lives and enhance roadway safety by enabling wireless communications among vehicles, roadside infrastructure, and mobile devices.¹ By utilizing dedicated short-range communications (DSRC) and/or cellular (C)-V2X communications technologies, V2X facilitates real-time exchange of vital information like speed, location, and status, greatly enhancing situational awareness.

Benefits

- **Mobile Accessible Pedestrian Signal System (PED-SIG) in New York**
Field testing of a mobile application for pedestrians with vision disabilities showed that 83% of participants felt safer when using the app compared to not using it.
- **V2X Technology on School Buses in Georgia**
Test deployments of signal priority on connected school buses resulted in a 40.4% decrease in stops at intersections and a 13.3% reduction in travel time.
- **V2X-Equipped Snowplows in Utah**
Corridors equipped with V2X systems had a greater reduction in crashes per million vehicle miles travelled (-3.87) than non-equipped corridors (-1.82).

Costs

- **V2X PED-SIG Roadside Unit (RSU) in Maryland: \$26,000**
- **Prototype V2X Dual-Mode (DSRC & C-V2X) Node RSU in Maryland: \$84,000 per intersection**
- **RSU Network with One Kilometer (Km) RSU Spacing: \$20,000-\$52,000 per Km (depending on communication technology options)**
- **V2X (DSRC radio or C-V2X) In-Vehicle Module Configurations: \$50-\$222 per vehicle**

Lessons Learned

Dual Mode RSU with DSRC and C-V2X in Maryland

When deploying connected vehicle technology, anticipate additional deployment time for registering on-board units with the state's Security Credential Management System (SCMS) for cybersecurity.

The featured benefits, costs, and lessons learned are based on ITS project evaluations contained in the ITS Databases at: www.itsknowledgeresources.its.dot.gov. **Click on each example to learn more.**