

Intersection Collision Avoidance



USDOT, ITS JPO, 2016

Players: All Responders and Public
Priority: High
Integration: Telemetry and in-vehicle sensors can be leveraged with Vehicle to Vehicle (V2V), Vehicle to Infrastructure (V2I), and Vehicle to Pedestrian (V2P) alert and warning systems to mitigate the risk of responder vs. responder and responder vs. non-responder vehicle collisions.

NHTSA estimates that a connected vehicle safety application that helps drivers safely negotiate intersections could help prevent

41 to 55
 percent of intersection crashes.
(USDOT, ITS JPO, 2016)

Intersection crashes represent
26% of all crashes and
50% of all crash related injuries.

NHTSA, "Vehicle-to-Vehicle Communications: Readiness of V2V Technology for Application" (August 2014) and FHWA, "Intersection Safety" (2016)

Intersection collisions were the second leading cause for law enforcement motor vehicle crash related deaths from 1982 – 2012 killing

187 officers.
(Emergency Vehicle Safety Initiative, FEMA, US Fire Administration, February 2014)

PURPOSE

Intersection movement assistance and collision warning systems are designed to detect and warn responders of approaching traffic at high-speed intersections using Vehicle to Vehicle (V2V) and Vehicle to Infrastructure (V2I) sensors.

CV Technologies which may help prevent intersection collisions:

- Signalized Left Turn Assist
- Red Light Violation Warning
- Stop Sign Violation Warning
- Vehicle to Vehicle Communication
- Signal Preemption

BENEFIT

Reducing the risk of collisions at intersections, especially ones which are blind, will result in life safety, economic, and operational readiness improvements for the responder community and general public.

USE CASE

A law enforcement officer on routine patrol receives a collision alert message while approaching a busy intersection with a partially obstructed view. Despite having the right of way, the officer is warned of an approaching vehicle that is likely to run the red light due to its speed, direction of travel, and observed driving behaviors. The officer reacts by slowing down to avoid the potential catastrophic broadside collision.

Research Finding: The timing of warnings/alerts to drivers is the lynchpin in this technology. A May 2016 NHTSA Report, *Commercial Connected Vehicle Test Procedure Development and Test Results – Intersection Movement Assist*, showed the feasibility of the technology, but that more work needs to be done, especially to modify warning messages after corrective action is taken by a driver.

FOR MORE INFORMATION

Transportation Safety Advancement Group (TSAG): www.tsag-its.org; Intelligent Transportation Systems Joint Program Office: www.its.dot.gov; ITS America: itsamerica.org

