Road Weather Alerts and Warnings

PURPOSE

Road weather alert and warning systems will notify drivers about unsafe conditions and roadway closures due to weather-related events through Vehicle to Vehicle (V2V) and Vehicle to Infrastructure (V2I) transmitted messages.

BENEFIT

Reducing the risk of collisions due to vehicles losing control or operating in impeded/inhibited sight situations due to weather will result in life safety, economic, and operational readiness improvements for the responder community and general public.

Strategic Decision Support: According to the FHWA, roadway weather warnings will not only provide critical information to emergency responders to adjust driving in response to potentially hazardous roadway conditions, but can also provide strategic decision making support for best routes to incidents for the responders, avoiding unsafe areas or roadways that may become congested or experience slower traffic due to roadway conditions.

(FHWA. "The Vision for Use of Connected Vehicle Data in Practical Road Weather Applications." (April, 2012).)

USE CASE

Under moderate traffic conditions, the public, commercial vehicles, and connected responders are travelling on a mountainous rural interstate in late October. The risks of black ice are evaluated and updated based on Connected Vehicle technology transmitting from passing vehicles. Connected Vehicles broadcast real-time alerts and warnings that cause other motorists to adjust their speed and expand their following distances. These alerts reduce the risks of single vehicle and chain reaction collision on the foggy mountain pass.

USDOT, ITS JPO, 2016

Roadway Weather Warnings would incorporate the use of a Vehicle Data Translator (VDT) which would gather data from a variety of internal and external sources and sensors in and on a vehicle to derive roadway and weather conditions. Examples of potential sources include: headlight and windshield wiper usage, ambient external temperature, activation of stability and traction control, differential wheel speed, etc.

FHWA. "Roadway Weather and the Connected Vehicles." (2011)

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

Players: All Responders and Public

Priority: High

Integration: Technology leverages V2I and V2V communications and standalone weather systems to warn drivers about inclement weather conditions that may impact travel conditions (e.g. black ice, standing water, snow, etc.). Real-time weather information is collected and transmitted using vehicle and roadway-based sensor systems.

Almost **19%** of law enforcement motor vehicle crash related fatalities from 1980 to 2008 occurred on wet, snowy, slushy, or ice covered roadways.

(Characteristics of Law Enforcement Officer's Fatalities in Motor Vehicle Crashes, National Highway Traffic Safety Administration, January 2011)

1,258,978 weather related crashes (22% of vehicle crashes) with **445,303** persons injured (19% of crash injuries) and **5897** persons killed (16% of crash fatalities) from 2005-2014

FHWA. "How Do Weather Events Impact Roads?" (2016)

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Promoting Technology for Public Safety

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