

NHTSA V2V NPRM Update

Blair Anderson
National Highway Traffic
Safety Administration
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National Highway Traffic Safety
Administration's (NHTSA's) mission is:

to reduce fatalities, injuries and economic losses resulting from motor vehicle crashes.

Regulation

- NHTSA creates mandatory requirements known as FMVSS, which are performance based

Enforcement

- NHTSA investigates possible safety defects, ensures that products meet established safety standards and are not defective

Consumer Information

- NHTSA creates incentives for manufacturers to offer new safety technologies such as through the New Car Assessment Program (NCAP)

Behavioral Programs

- NHTSA studies behaviors and attitudes in highway safety, focusing on drivers, passengers, pedestrians, bicyclists and motorcyclists.

- Motor Vehicle Crashes are Costly and Increasing
 - Human Toll ~ 32,675 People Died in 2014
 - \$871 Billion Dollars a year to Society
 - Leading cause of death for 15 to 34 year olds
 - US falling behind other European countries and Japan
- Avoiding the crash has to be a priority
 - 94% of crashes caused by the driver
 - Decades spent on crash protection
 - Need to accelerate deployment of crash avoidance technologies

Connected Vehicle Technology



- **What is it?**
 - Dedicated Short Range Communications (Wi-Fi adapted for moving vehicles)
 - FCC 5.9 GHz spectrum allocation
- **How does the technology work?**
 - Basic Safety Message (BSM) transmitted at 10 times/sec by each equipped vehicle....and include position, speed, and heading.
 - Vehicles “listen” for other vehicles’ BSMs and continuously analyze possible crash threats. Warnings are issued as needed
- **What are the challenges of the technology?**
 - Both vehicles need to be equipped for benefits to be realized
 - Requires security infrastructure

Program Partners and Contractors



Vehicle Manufacturers



USDOT



Academia



Public Agencies



Industry



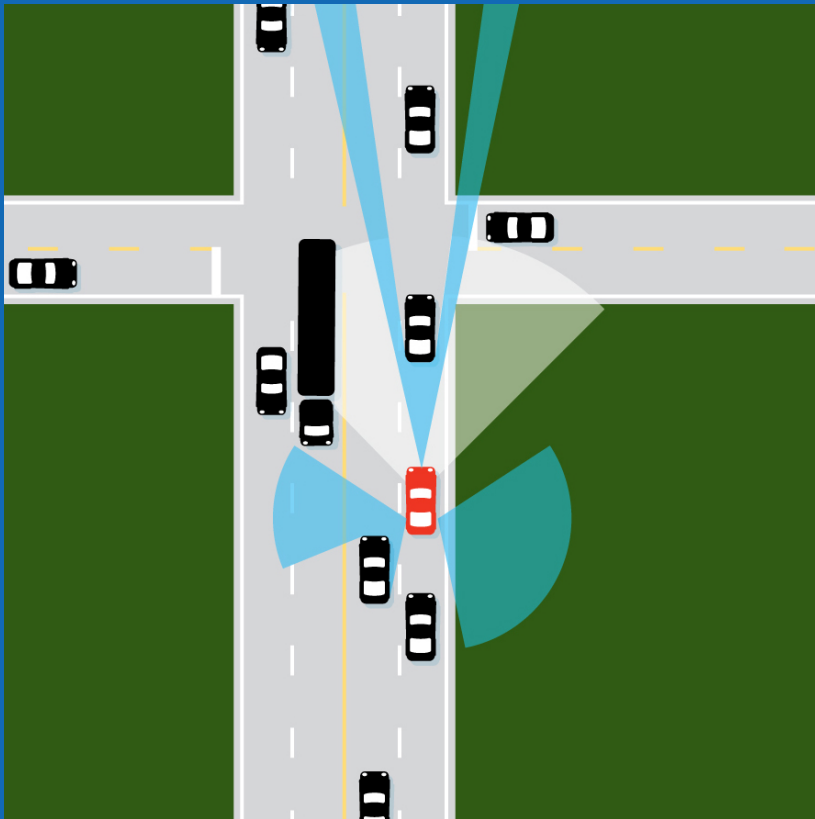
Associations/Standards Developers



Benefits of V2V communications....



Uses a single sensor (radio) to detect threats from all directions



Compared to non-cooperative detection systems (e.g., radar, camera), V2V offers more comprehensive situational awareness

V2V Research & Development

- Technology co-developed with private industry
 - Demonstrated in real world environment
- When exposed to the technology, consumer desire is present
- Market research suggests mandate needed to spur investment in infrastructure and applications
- Significant financial investment continues
 - DOT expanding pilot/early adopter sites
 - Manufacturers and States making deployment announcements

What has DOT and its partners accomplished thus far?



Safety Benefits

- Developed and Demonstrated key safety applications

Robustness

- Completed Model Deployment to demonstrate operations at (early) real world deployment levels—thus helping verify safety benefits and customer acceptance

Interoperability

- Demonstrated compatibility of radio systems and from multiple vendors and OEMs
- Developed and demonstrated devices that can bring the technology to the existing vehicle fleet (VADs, ASDs, RSDs)

Practicality

- Demonstrated feasibility for utilizing automotive grade GPS receivers and other components (economic viability)
- Adapted the technology for multiple vehicle platforms (cars, trucks, buses)

- Unprecedented and Transformative Technology
 - New safety and untold mobility, and environmental features
 - Provides awareness of hazards not visible to the driver
 - Improves current systems
 - Supports vehicle automation
- Market needs
 - Everyone to “speak” same language
 - Wide deployment
 - Trust
- US will lead deployment and requirements

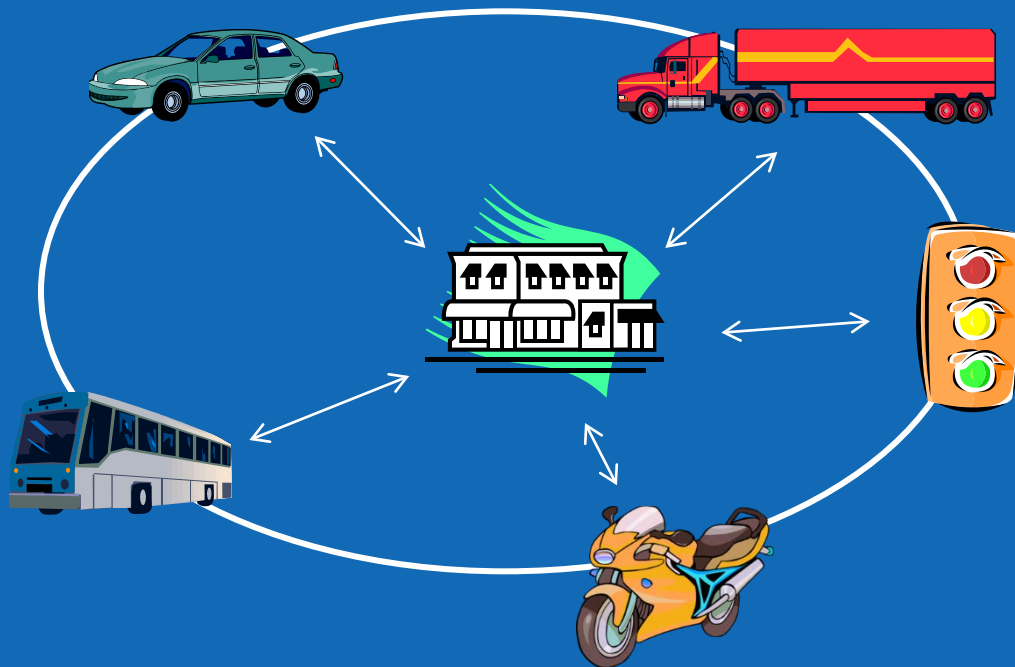
- NPRM Developed
 - Based on ANPRM Readiness Report
 - Reviewed ANPRM comments
- NPRM Delivered to OMB January 2016
 - OMB staff currently reviewing
- Stakeholders can engage directly with OMB
 - Office of Information and Regulatory Affairs (OIRA)
 - Executive Order 12866 - meetings
 - OIRA's policy is to meet with any party interested in discussing issues, whether they are from State or local governments, small business or other business or industry interests, or from the environmental, health or safety communities.

- Analysis focuses on two safety situations not addressed by any current system

	Projected, Undiscounted Annual Maximum Benefits	
	Low	High
Crashes Prevented	439,332	615,359
Lives Saved	987	1,366
Injuries Prevented	305,131	417,613
Damaged Vehicles Spared	536,869	746,357

– Monetized - \$54.7 to \$73.4 billion

Challenge-Need for Security



Messaging requirements

- Trusted source / authentication
- Message not tampered or altered
- Privacy protection



Defense Against Attacks

- Sensor spoofing
- Message replay
- Position, time or other message alterations

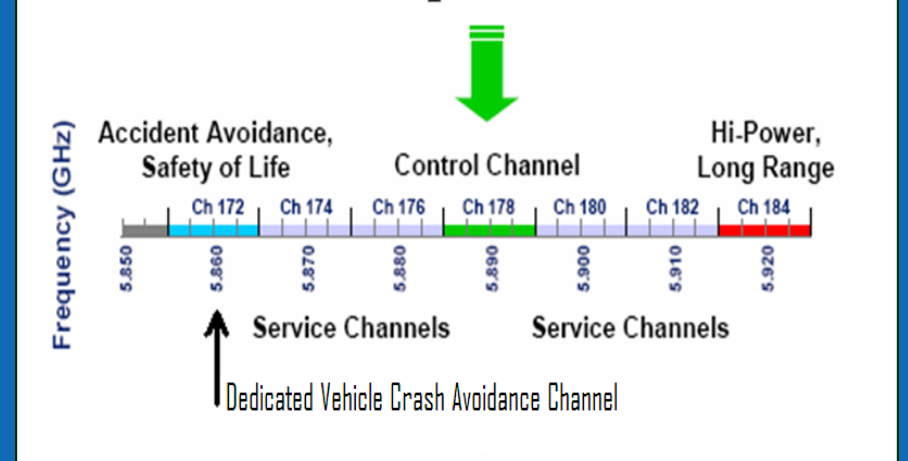
Ongoing Efforts



- **Spectrum Availability?**

- FCC NPRM Refresh June 1, 2016
 - Commission is now seeking to refresh the record of its pending 5.9 GHz rulemaking by providing stakeholders the opportunity to further comment on sharing in the band. (FCC 16-68, ET Docket No. 13-49)
- DSRC-Unlicensed Device Test Plan
 - Collaborative effort USDOT, FCC, NTIA
 - http://www.its.dot.gov/connected_vehicle/pdf/DSRC_TestPlanv3.5.3.pdf

5.9GHz DSRC Spectrum Allocation



- **Security system:**

- Proof-of-Concept Development
- Provide security for CV Pilots and Smart City





Robert Kreeb

Robert.Kreeb@dot.gov

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