NSC Road to Zero Coalition
RAND Framing Workshop

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Outline

- About CTIA and wireless's role in connected car
- V2V/V2X Communications
- Smart City and Connected Infrastructure
- Public Safety

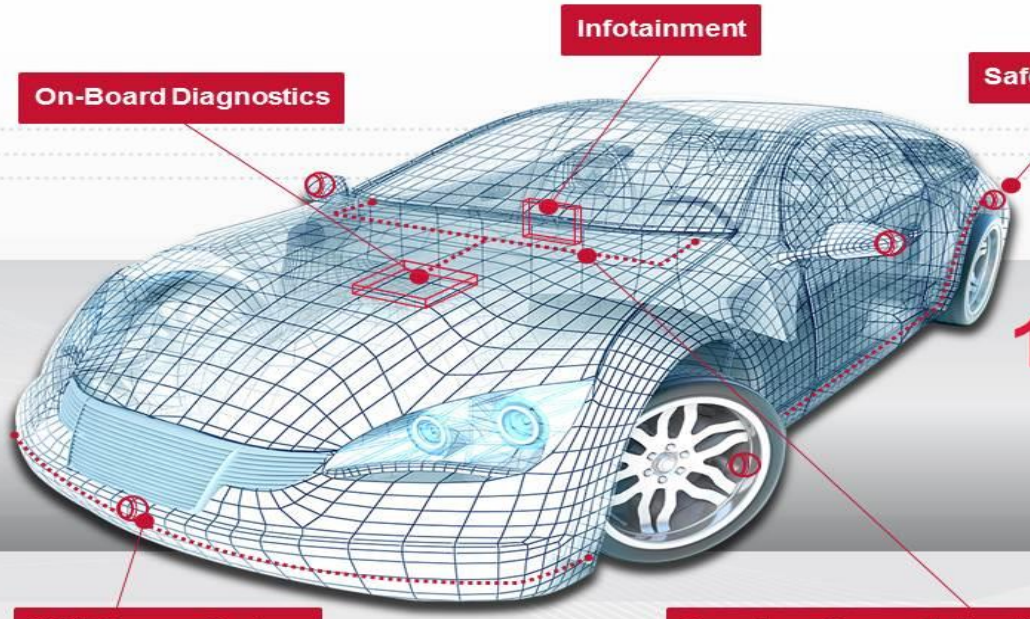
About CTIA

- Non-profit membership association
- Advocates at all levels of government
- Coordinates industry initiatives & outreach to transportation brands and entrepreneurs
- Provides industry certification program for connected sensors and devices

Connected Car (Onboard)

ctia™ Everything Wireless

THE CONNECTED CAR



100% Of cars will be connected by 2025[1]

75% Of cars on the road will be autonomous by 2035[2]

Source: [1]GSMA 2013, [2]Navigant Research 2013

5G consumer benefits

5G will be **very fast**	**5G** will be **everywhere**	**5G** will be **real-time**
		
Ultra high speed data	Powers sensors and connected devices	Lower latency/lag time

V2V/V2X

- We believe in an **"all of the above"** strategy for connected car communications (DSRC, cellular and unlicensed). Different applications will need different platforms.
- Our members are contributing to automakers' DSRC deployments(e.g., AT&T's work with Willow Run Testing Facility and Ford/Delphi pilot to extend V2V applications).
- 3GPP's release of a Cellular V2X (C-V2X) standard enhances reliability and speed of existing 4G for V2X, and supports a path to 5G. V2X powers Advanced Driver Assistance Systems (ADAS) that make monitoring/warning/braking/steering smarter.
- Cellular provides an opportunity to leverage smartphones for safety-enhancing vehicle-to-pedestrian/bicycles (e.g., Honda/Qualcomm pilot.)

Smart City (Digitized Municipal Infrastructure)

- Includes traffic lights, emergency signals, parking garage sensors, and a wider array of devices that collect real-time data and react to traffic conditions and challenges to increase safety and efficiency.
- The key attributes of 5G that will benefit Smart Cities include higher **speeds**; more **connections**; quicker, more adaptive **response times** that support time-sensitive applications, such as vehicle-to-vehicle communications; and **ultra-low-power connections**, such as sensors for leak detection in water mains, since, in many cases, the replacement cycle is directly related to battery life.
- Each year, over 60,000 emergency vehicles are involved in traffic accidents. Using mobile alerts, fire trucks and ambulances can alert nearby drivers when approaching (e.g., Haas Alert pilots in Chicago, Grand Rapids, Detroit and Palo Alto).

Public Safety

- A one-minute improvement in first responder arrival times leads to an 8% reduction in mortality. Wireless provides connectivity supporting field response efficacy, through which first responders can share data with response hubs to begin treatment sooner, and more effectively.
- In 2015, the Department of Homeland Security's Science & Technology Directorate launched a pilot project in Chicago to leverage 4G mobile broadband and sensors for law enforcement surveillance and response. https://www.dhs.gov/sites/default/files/publications/Chicago-LTE_v2-508.pdf
- Wireless empowers trained first responders to assist when an emergency occurs nearby (e.g., PulsePoint app, improving bystander CPR response rates).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