Connected Safety Birds of a Feather Working Group

Working Session
February 8, 2024

COVESA

Accelerating the future of connected vehicles

Hosted by:

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LiDAR Saving Lives Public Safety Coalition

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Today's Agenda

- Welcome and Introductions (Tim & Scott)
- BoF and Journey Map Recap (Tim)
- Submerged Vehicle Stakeholder Journey (Sabrina)
- Public Safety Stakeholder Journey (Scott)
- Next Steps and Close

Connected Safety BoF Recap

Connected Safety BoaF Goal & Strategies

Bring together public safety, automotive, commercial transportation, and government to make our roadways safer for everyone:

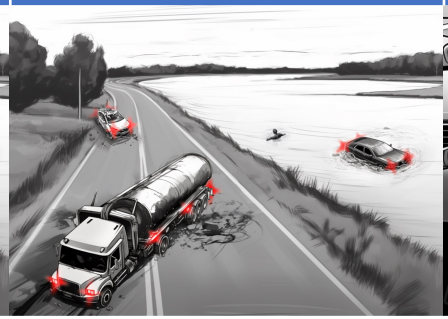
- Define comprehensive stakeholder-based safety-related scenarios and value propositions
- Collaborate with COVESA members and others safety-related organizations to develop safety expertise and community within COVESA
- Develop integrated safety system prototypes and references implementations
- Publish white papers on key findings, best practices, and implementation recommendations

Connected Safety BoaF Result

Accelerate delivery of connected technologies to benefit everyone that shares, protects, and maintains our roadways. Examples:

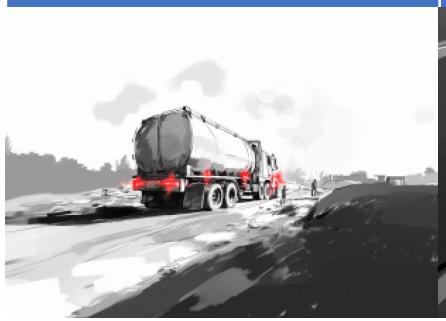
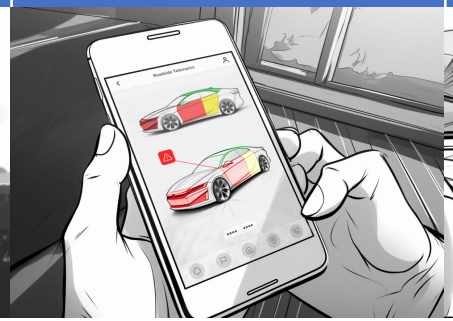
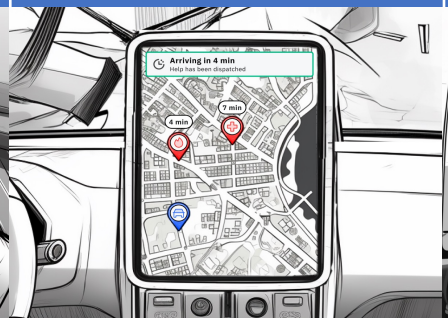
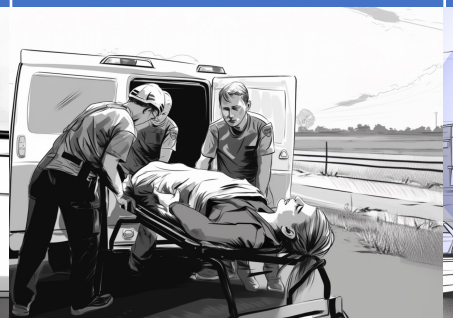
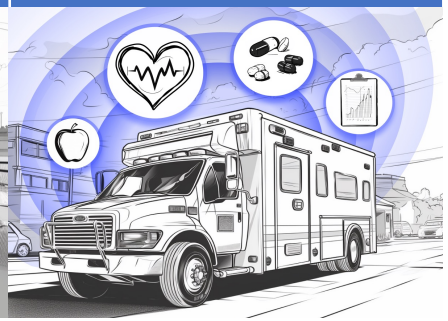
- Protect and give aid to vulnerable vehicles and occupants stranded along roadways
- Reduce response time and secondary collision risk for motorists involved in a crash
- Provide 911 Public Safety organizations with critical information so that they dispatch the right personnel and equipment to the scene
- Mitigate liability and lost productivity for commercial vehicles involved in roadway crashes

Journey Map Example (1 of 2)

	Set-up	Scene 1	Scene 2	Scene 3	Scene 4
Imagery Cartoons, animated presentations, or demonstrations that bring storyline to life					
Storyline Overall story that we're bring to life	Sophia is a 24-year-old professional that is commuting to work in her new EV.	A tanker truck abruptly changes lanes, collides into Sophia's car, and forces the driver of a rental car to swerve into a nearby lake. The embedded vehicular emergency sensor triggers the submersion escape system in the rental car and instantaneous IP notification for emergency services in all vehicles. [1]	Recognizing that a collision has occurred, all three vehicles automatically flash hazard and other vehicle lights at a faster rate so that other drivers have more time to react, and Emergency Responders can see them. .	In parallel, on-coming drivers receive an alert in their in-dash system so that they have even more time to react to the upcoming crash scene.	The nearby E911 center is notified and dispatches a police car, fire truck, and ambulance to the scene.
Value Proposition The value that each company and technology brings to this story		• Automated submersion system enables rental car occupants to escape quickly. • Instantaneous IP notification enables accurate and prompt implementation of rescue services and start of emergency response.	• Conspicuous lighting protects scene, gives other motorists time to slow down and move over, and helps locate vehicles that has left the roadway.	• Digital alerts work in tandem with lighting alerts to protect the scene and give motorists time to slow down and move over.	• Timely notification of vulnerable vehicle location reduces response time and further collision risk.

1. Separate Journey Maps can be used to capture the stories for the tanker truck and rental car occupants since they unlock different solutions and value propositions. The following scenes will focus on Sophia.

Journey Map Example (1 of 2)

	Scene 5	Scene 6	Scene 7	Scene 8	Scene 9
Imagery Cartoons, animated presentations, or demonstrations that bring storyline to life					
Storyline Overall story that we're bring to life	The E911 Dispatcher sees that the tanker truck has leaked potentially hazardous materials onto the road.	Fire responders are provided a VIN-specific extrication guide for Sophia's EV.	Sophia see a map indicating her location with icons for the responding vehicle location and their projected ETA. In parallel, family/emergency contacts are notified and provided the same map. .	Responders arrive on scene and safely remove Sophia from her vehicle.	Sophia seems OK but is taken to the hospital for further medical evaluation. Vital health parameters are transmitted to the hospital while in transit. Family/emergency contacts are updated.
Value Proposition The value that each company and technology brings to this story	•LiDAR/radar/camera 3D point cloud let's E911 Dispatcher assess scene and better inform emergency & incident responders what to expect •Point Cloud image protects privacy since no identifying information is visible.	•Emergency Responders can safely extract victims without compromising the vehicle's power wiring or battery system that may lead to fire or hazardous materials being spilled into environment.	•Piece of mind that someone is on their way and when they will arrive. •Awareness that a loved one is in danger, but help is on the way.	•Reduced response time decreases risk of secondary collision. •Proper on-scene care minimizes complications.	•Sophia is safe and can focus on recovery. •Sophia's family knows that she's OK and where to meet her.

Global Problem:
Thousands Die Every Year from Vehicle Submersion

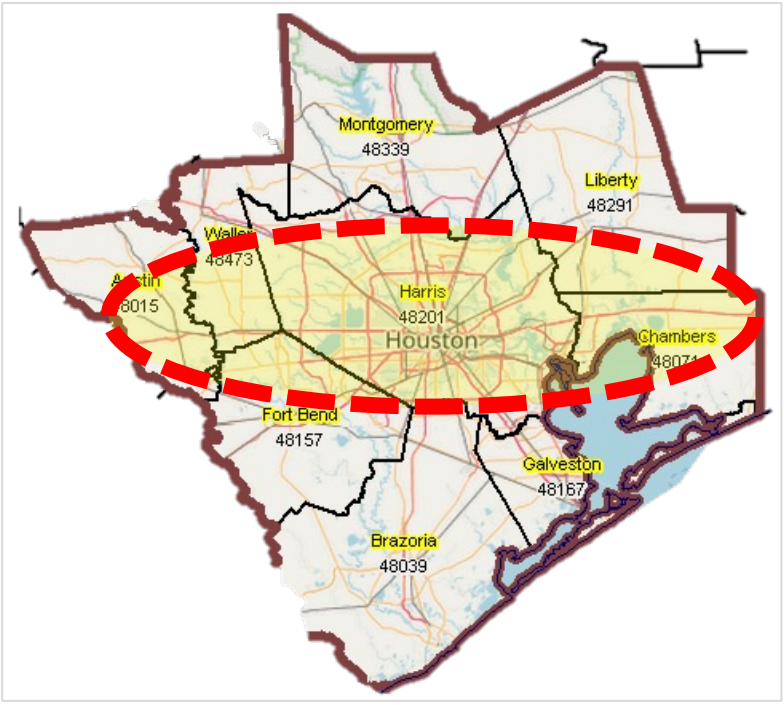
In the US: **500** fatalities due to submersion

Image: Justin Paget, Stone, Getty Images

Image source AAA: Vehicle Escape Tools

Sources: NHTSA – FARS; NWS Preliminary US Flood Fatality Statistics (weather.gov)

Houston, TX (2016): 40,000+ Flooded Vehicles



Video source: CCTV Footage Shows Woman Drowning After Driving Her SUV Into A Flooded Underpass ; Image sources: 8 confirmed deaths after flooding across Houston area (click2houston.com) Harris County, TX Houston Demographic-Economic Patterns & Trends (proximityone.com)

Stages of a Submersion

1. FLOTATION

- Before water reaches window
- **Able to exit through window ~ 1 MINUTE**
- **Do not open the door**

2. SINKING

- Vehicle tilts forward
- Water above the window
- Higher level than inside
- **Impossible to open anything**

3. SUBMERGED

- Vehicle full of water
- Doors and windows cannot be easily opened
- **Unfortunately, you are probably dead**

Time Lapse of How a Vehicle Sinks. Video Source: Dr. Gordon Giesbrecht, University of Manitoba

1 MINUTE to Exit: Time Wasted on Wrong Actions

- Try to open doors
- Cellphone call for help
- Kick out windshield
- Wait for passenger compartment to fill
- Grab attention of nearby people
- Do nothing at all

Exit Through Windows not Doors

Video Source: Dr. Gordon Giesbrecht, University of Manitoba

9-1-1 Call from Woman in a Sinking Vehicle

Video Source: CAUGHT ON CAMERA: Officers jump into river, rescue woman from sinking car in Muncie – YouTube, Fox 59 News, Nov 1, 2021

AWOS: Automatic Window Opening System
Enhances Connected Safety in Submersion

Video source: AWOS Technologies Upright Submersion

Example of ‘Network Effect’ via Connected Safety Birds of a Feather Working Group

- Increases occupant survival
- Improves safety for rescuers
- Expedite arrival of rescuers via instantaneous IP notification of 9-1-1 public safety
- Faster rescue (police, fire, EMS) with automatic emergency messaging
- Enhance visibility with automatic emergency lighting

LiDAR SAVING LIVES

AWOS TECHNOLOGIES

ROADMEDIC ROADSIDE TELEMATICS CORP.

EMERGENCY SAFETY SOLUTIONS

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More Information

- COVESA Connected Safety BoaF wiki page

https://wiki.covesa.global/display/WIK4/Connected+Safety+Birds+of+a+Feather

- Register at following link to join mailing list:

https://docs.google.com/forms/d/12jd9LGtOkQXjeiabIy2pdAli9RD1DBqJQxvGiKDSDNo/edit

LiDAR

SAVING LIVES

Public Safety Coalition

Connected Safety BoF

- Collaboration of public safety professionals, connected vehicle stakeholders, and automotive OEMs
- Dedicated to improving vehicular safety for the betterment of society
- Equip emergency services with indispensable tools to improve:
  - Response time
  - Resource Utilization
  - Situational Awareness
  - Preparedness
  - And more

Public Safety Needs

- CAD – Computer Aided Dispatch
  - Match Resources to Needs
    - Dispatcher
    - Automatic Unit Recommendations
- Law Enforcement
  - Vehicle(s) involved
  - Owner Information
- Fire
  - Extrication / Stabilization
  - Scene Safety
- EMS
  - Severity
  - Quantity
  - Occupant details

Data Examples

- Where
- When
- Vehicle Specifics – Make, Model, VIN, Owner, Capacity, Power Source
- Condition – Submerged, Severity, Orientation, Rollover, Impacts, Airbag Status
- Occupants – Quantity, seat, seatbelts, airbags

LiDAR

SAVING LIVES

Public Safety Coalition

Thank you

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