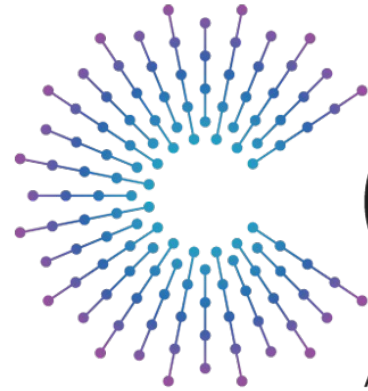


# Connected Safety Birds of a Feather Working Group

Working Session  
July 11, 2024



# COVESA

Accelerating the future of connected vehicles

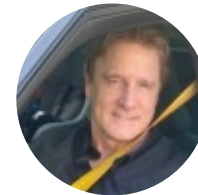
Hosted by:



**Tim VanGoethem**

Chief Product Officer

Emergency Safety Solutions



**Larry Williams**

Co-founder

LiDAR Saving Lives Public Safety Coalition

# Connected Safety Birds of a Feather Working Group

Working Session  
July 11, 2024

## Today's Agenda

- Welcome
- Connected Safety BoF & Journey Map Recap
- Proposal for Projects
- Next Steps and Close

# COVESA Connected Safety BoF catalyzing change

## 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

# COVESA Connected Safety BoF catalyzing change

## 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 - **COMPLETE**
- Collaborate with COVESA members and others safety-related organizations to develop safety expertise and community within COVESA - **COMPLETE**
- Develop integrated safety system prototypes and references implementations – **IN PROCESS**
- Publish white papers on key findings, best practices, and implementation recommendations - **TBD**

## Connected Safety BoaF Result

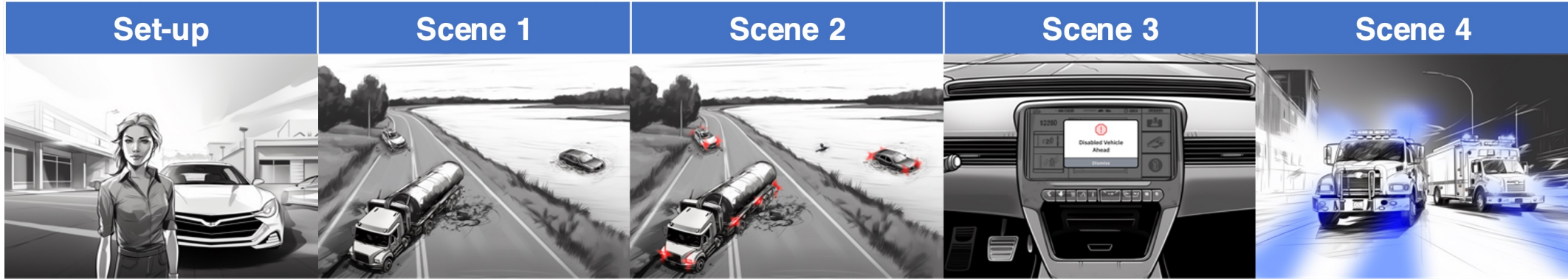
Accelerate delivery of connected technologies to benefit everyone that shares, protects, and maintains our roadways. Examples:

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# Connected Safety Journey Map (1 of 2)

## Imagery

Cartoons, animated presentations, or demonstrations that bring storyline to life



## Storyline

Overall story that we're bringing 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. <sup>1</sup>

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.



# Connected Safety Journey Map (1 of 2)

## Imagery

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The value that each company and technology brings to this story



**Scene 5**  
The E911 Dispatcher sees that the tanker truck has leaked potentially hazardous materials onto the road.

**Scene 6**  
Fire responders are provided a VIN-specific extrication guide for Sophia's EV.

**Scene 7**  
Sophia see a map indicating her location with icons for the responding vehicle location and their projected ETA.

**Scene 8**  
Responders arrive on scene and safely remove Sophia from her vehicle.

**Scene 9**  
Sophia seems OK but is taken to the hospital for further medical evaluation.

- 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.

# Insights to Date

	Submerged Vehicle Needs	Vulnerable Vehicle Needs	9-1-1 Dispatcher Needs
Issue	<ul style="list-style-type: none"> <li>• ~500 US fatalities/year due to submersion</li> <li>• Occupants have ~1 minute to exit before vehicle starts to sink</li> <li>• Time is lost trying to open door, call for help, or wait for compartment to fill</li> </ul>	<p>In US alone:</p> <ul style="list-style-type: none"> <li>• 23,000 people injured or killed annually</li> <li>• a crash occurs every 4 minutes</li> <li>• problem is compounding at 8.4%/year</li> </ul>	<ul style="list-style-type: none"> <li>• Currently, it takes 2-3 minutes after an airbag deploys that 9-1-1 Dispatchers receive automatic crash notifications and can dispatch post-crash care resources.</li> <li>• 9-1-1 Dispatchers lack real-time IP-based visual insights to accurately identify, verify and deploy resources in response to airbag deployments.</li> </ul>
Solution Opportunities	<ul style="list-style-type: none"> <li>• Use AWOS sensors to automatically roll down windows to increase occupant survival.</li> <li>• Send Instantaneous IP notification to expedite arrival of rescuers.</li> <li>• Use automatic emergency messaging to realize faster rescue (police, fire, EMS).</li> <li>• Enhance visibility with automatic emergency lighting.</li> </ul>	<ul style="list-style-type: none"> <li>• Lighting Alerts proven to compel 87% drivers to reduce speed and move over ~1/4 mile sooner verses 30% that moved over with conventional hazard lighting.</li> <li>• Digital Alerts give drivers advance warning, reducing collision risk by 90% and hard braking events by 80%.</li> </ul>	<ul style="list-style-type: none"> <li>• Leverage emerging IoT public safety networks to provide 9-1-1 Dispatchers automatic crash notifications in 2-3 seconds after an airbag deploys.</li> <li>• Integrate vision-based sensors such as lidar, radar, and cameras to provide 9-1-1 Dispatchers with incident verification and unparalleled situational awareness.</li> <li>• Determine acceptable business models and privacy policies to foster acceptance and growth.</li> </ul>

# Develop Integrated Safety System Prototypes and Reference Implementations for USDOT Safe Streets and Roads for All (SS4A) Program to Improve Post-Crash Care

## Protect the Scene

Build prototype system to showcase the following:

- Simulate having on-board sensors determine root cause of crash (e.g., submersion, collision, tire blow-out, etc.)
- Leverage conspicuous lighting to warn on-coming motorists of disabled vehicles
- Develop instantaneous IP connection to post-crash care Cloud ecosystem augmenting 9-1-1 voice call using extended VSS payload to exchange critical data
  - TSP use data to decrease 9-1-1 response time
  - Post-crash care Cloud ecosystem uses data to create in-app / in-dash warnings to approaching motorists

## 9-1-1 Dispatcher Visibility

Build prototype system to showcase the following:

- Simulate having on-board sensors determine root cause of crash (e.g., submersion, collision, etc.)
- Send vision-based sensor data (e.g., LiDAR, radar, camera) via instantaneous IP connection to post-crash care Cloud ecosystem using extended VSS payload/control
- Route vision-based data and controls to Next-Generation 9-1-1 call handling and computer-aided dispatch systems
- 9-1-1 Dispatcher uses vision-based data to accurately identify, verify and deploy the appropriate equipment and personnel



# Next Steps

- Solicit COVESA member companies to join the proposed projects
- Draft USDOT SS4A Demonstration Project proposal to present to COVESA Leadership
- Once approved, kick-off solicitation for participation in USDOT SS4A Program according to accepted definition above
- Later this year, continue Connected Safety BoF meetings to uncover other potential Demonstration Projects.