



STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
 800 BAY ROAD
 P.O. BOX 778
 DOVER, DELAWARE 19903

JENNIFER COHAN
 SECRETARY

**Advisory Council on Connected and Autonomous Vehicles Meeting
 (Executive Order 14)**

Thursday, March 15, 2018
 11:00am – 12:30pm
 DelDOT Administration Building, 800 Bay Road, Dover, DE
 Farmington/Felton Conference Room

MINUTES

1. Welcome and Introductions

- a. The meeting commenced at 11:05 AM. N. Majeski introduced herself and indicated she would be representing Secretary Cohan until she arrived. She then directed Advisory Council members and attendees to introduce themselves.

Present Voting Council Members

Barzilai Axelrod	Attorney General’s Office
Brian Pettyjohn	State Senate
Cathy Rossi	AAA Mid-Atlantic
Elayne Starkey	Delaware Department of Technology and Information (DTI)
Glenn Dixon	Delaware Department of Safety and Homeland Security (DSP)
Jennifer Cohan	Delaware Department of Transportation (DelDOT)
Jerome Lewis	University of Delaware (UD) Institute of Public Administration
John Sisson	WILMAPCO
Lee Derrickson	Delaware Motor Transport Association (DMTA)
Patty Cannon	Division of Small Business, Development and Tourism (DOS)
Reed Macmillan	Dover/Kent Metropolitan Planning Organization
Ruth Briggs King	House of Representatives
Shari Shapiro	Uber
Terry Megee	DE Automobile and Truck Dealers Association
William Pfaff	Sussex County

Members Present by Proxy

Jenn Parrish	State Senate (Proxy for Senator Hansen)
Frank Pyle	Insurance Commissioner’s Office (Proxy for Leslie Ledogar)



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Rhett Ruggerio Alliance of Automobile Manufacturers (Proxy for Renee Gibson)

Also Present

Al McGowan	TrafficCast
Brett Swan	UD IPA
Brett Taylor	Diamond Tech
Bruce Demeter	DTC
Chris Kelly	UD IPA
Debbie Pfeil	KCI Technologies
Ed Bradley	Toyota
Erin Coombs	Jacobs
Gene Donaldson	DelDOT
George Spadafino	GPI
Jim Lardear	AAA Mid-Atlantic
John Walsh	Price Auto Group
Jonathan Derryberry	Davis, Bowen, & Friedel, Inc
Ken Feaster	DOJ/DelDOT
Ken Grant	AAA Mid-Atlantic
Li Wen Lin	DelDOT—Technology and Innovation
Lisa Goodman	Hamilton Goodman Partners, LLC
Lizzie Lewis	Hamilton Goodman Partners, LLC
Mark Eichman	WHYY
Mark Luszcz	DelDOT
Mark Thompson	WhyFly
Megan Rosica	Jacobs
Nicole Majeski	DelDOT
Pat Kennedy	FHWA
Rob McCleary	DelDOT
Shante Hastings	DelDOT
Steven Chillas	Delaware OMB – Contracting

2. Approval of the Previous Meeting Minutes

- a. B. Axelrod made a motion to accept the minutes from the previous meeting held on February 15, 2018. J. Sisson noted his name misspelling and. made a motion to approve with changes. P. Cannon seconded the motion and motion passed and minutes were approved.
- b. Sec. J. Cohan announced there was an amendment to the posted agenda and that there would be only one presentation from Toyota.



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3. Updates on Subcommittees

- a. Promoting Economic Development
 - i. P. Cannon reported that there was no quorum for 3/15 meeting.
 - ii. Al McGowan, TrafficCast International, Inc., and Mark Thompson, WhyFly, were invited to the 3/15 meeting to discuss their businesses. P. Cannon asked them to explain their companies and why they were invited to present to the subcommittee:
 1. Al Gowan CEO of TrafficCast International—company provides real-time traffic data to 49 states. Recently moved to Wilmington because of critical mass in Delaware and the ease of doing business/accessibility to Delaware legislatures. Sees Delaware as a prime state for opportunity. Believes that the Delaware’s Open Data attracts technology/businesses.
 2. Mark Thompson of WhyFly—Working in Wilmington/Philadelphia/Baltimore to provide residential Wi-Fi and Smart City retrofitting with sensors.
- b. Technology, Security, and Privacy
 - i. E. Starkey provided committee update. The fourth meeting was held on 3/15.
 - ii. Productive discussion and the committee has moved past administrative set-up and has begun to develop the research and content for report.
 - iii. Subcommittee has split into three groups, each investigating the top challenges and opportunities of technology, security, and privacy. All three subgroups spent time during meeting fleshing out issues—data ownership is going to be an important focus of council—who owns/what kinds of data.
 - iv. Sec. J. Cohan asked if there are any hurdles or foreseeable issues arising. E. Starkey responded that there are no major hurdles but it is important to note that while it is tempting to enact state standards/guidelines the recommendation is to let the federal government regulate.
 - v. S. Shapiro thanked E. Starkey for her diligence and focus in keeping the committee moving.
- c. Transportation Network Infrastructure
 - i. R. McCleary provided subcommittee update. Second meeting was held on 3/1.
 - ii. Subcommittee discussed the charter, identifying stakeholders, mission, and role of subcommittee in relation to the larger report.
 - iii. Identified key stakeholders and have developed a questionnaire that has been sent out to gauge current CAV initiatives, interest, and input—looking forward to responses.
 - iv. Have scheduled stakeholder attendance at future meetings
 1. Small cell companies



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2. 3M
3. Military organizations—Defense Advanced Research Project Administration referred us to the ARMY for more information. Trying to figure out the logistics.
- v. The subcommittee intends to meet the first Thursday of the month, next meeting April 5th at 10AM, all who are interested are invited.
- d. Impacts on Public and Highway Safety
 - i. G. Dixon provided the subcommittee report.
 - ii. Discussed how police agencies will have to change and the changes to DE Code based on level 5 automation.
 - iii. Members providing input to matrix looking at recommendations, actions, impacts to various topics based on automation level.
 - iv. M. Luszczyk and G. Dixon working on the final proposal for report.
 - v. P. Cannon asked L. Derrickson to explain about truck platooning.
 1. Germany and Florida are currently running truck platooning pilot projects
 - a. German project spent extensive time on driver training.
 2. Kentucky—requiring trucks to be demarcated that they are participating in platooning.
 3. Platooning can occur at level 1—drivers have control of all functions except following distance. Shifting from standard of 300ft to 50-60ft. Lead truck controls the breaking, minimal lag between vehicles reacting together.
 4. Virginia Tech has two projects beginning with vehicle cut ins and developing driver reaction models when platooning fails.
 5. Auburn is developing cooperative adaptive cruise control and engagement.
 6. California PATH projects
 - vi. R. McCleary—TARDEC is a platooning technology and the committee wants to explore if any road technology is needed to expand the data that they are collecting. Hoping to have them on the April agenda, if not May.
 - vii. P. Cannon—committee discussed at last meeting that education is needed to understand what platooning is, how to recognize on the roadway and how to respond.
 - viii. S. Shapiro—this is important to the comprehensive nature of the CAV technology and the different types of vehicles interpretation
4. Update from Delaware Department of Insurance
 - a. F. Pyle provided the update on behalf of L. Ledogar.



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- b. He explained that L. Ledogar met with Insurance Commissioner and developed a draft mission statement for the research to be conducted for report:
 - i. The mission of the Insurance Subcommittee of the Advisory Council on Connected and Autonomous Vehicles is to identify ways for the Department to ensure that, as insurance products evolve in response to the invention and deployment of connected and autonomous vehicles, those products provide consumers with appropriate and adequate insurance coverage.
- c. Preliminary areas of focus
 - i. Track and report on the National Association of Insurance Commissioners
 - ii. Include the federal and state legislation as it impacts insurance products
 - iii. Understand the budgetary impact to department of insurance if there are any shifts to the premium tax
 - iv. Assess insurance products that are designed to deal with the phase in period— from level 1-level 5
 - v. Assess the development of new insurance products and liability
 - vi. Report on existing legal constraints to the insurance market and their potential evolution
- d. Meeting with other insurance regulatory bodies to garner understanding of what they are working on

5. Presentation by Toyota

- a. Ed Bradley—Program Manager Toyota Motor North America
 - i. Provide high level overview from Toyota perspective
- b. Why do connected and automated vehicles matter
 - i. Improved safety
 - ii. Enhanced mobility
 - iii. Reduced environmental impact
- c. Toyota approach
 - i. Collision avoidance
 - ii. Risk mitigation
 - iii. Risk avoidance
 - iv. DSRC enables expansion of the safety horizon
 - v. Tested in Japan
 - 1. Sold over 100K vehicles with optional DSRC connectivity
 - a. Toyota Prius, Lexus RS and Toyota Crown vehicles
 - 2. V2I technology—left hand turn detection
 - 3. “Intersection Turn Assist App”
 - 4. “Red Light Caution App”—Audio alerts/messages on display



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5. “Signal Timing App”—Icons on instrument panel with vehicle approaches DSRC intersection
6. “Eco Approach App”—Supports economical driving and driver notified of signal timing (not V2I technology)
7. V2V
 - a. Cooperative Adaptive Cruise Control—icon illuminated to alert that vehicle ahead has V2V technology
 - b. Emergency Vehicle Notification—notifies driver of the location/direction of emergency vehicle
8. Toyota supports V2V federal regulation
 - a. DSRC
 - b. Future regulations for apps
 - c. SAE& IEEE standards
 - d. 5.9GHz spectrum
 - e. Support aftermarket devices as long as they meet same standards
- vi. Mobility Teammate Concept
 1. Driving Intelligence
 2. Connected Intelligence
- vii. Toyota sensors
 1. Camera
 2. Millimeter-wave radar
 - a. Vehicle pre collision system
 - b. Cruise control
 - c. Lane assist
 3. Cooperative automated vehicle technology for greatest benefits
 4. GPS, laser, cameras, radar, orientation via sensors, odometer, computing power
- viii. Precision Mapping
 1. 3D maps—expect the expected and reason what is different
 2. Access to 3D maps make traffic signal detection highly reliable
- ix. Challenges (via J. Leonard MIT)
 1. Adoption/technical
 2. Left turn across traffic
 3. Changes to surface markings
 4. All weather driving
 5. Traffic cops, crossing guards, police, fire
- x. NTSB Investigation of Tesla Model S Crash
 1. 13 factors contributing to crash of level 2 vehicle



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2. Safety recommendation to limit minimum performance standards for CAV
 3. Once developed—require these standards on all vehicles
- d. Current state
- i. AASHTO SPaT challenge
 1. 20 intersections in 50 states by 2020
- e. Current technology not ready for CAVs
- f. Many factors play a critical role in how the technology is brought to market
- g. Questions
- i. C. Rossi—can you share with us what Toyota has in terms of planned vehicles and levels of automation
 1. Toyota does not disclose future product plans. Important to question in regards to preparing for new technology but Toyota has level 2 technology in the US market in the Lexus LS sedan and can expect to see that in other Lexus models and eventually throughout all Toyota models. Doing tremendous amount of work, research and development in levels 3-5. Made the announcement that Toyota will introduce high levels of automation in 2020—will have a demonstration in Tokyo at 2020 Olympics will transport athletes/spectators in Toyota owned vehicles.
 - ii. C. Rossi—Toyota has been very forward facing in educating the public. What features are in the LS sedan and what is the price point?
 1. Not standard features but included in the technology packages—adaptive cruise control and lane centering. Other models have lane keep assist to keep drivers from driving—lane centering keeps driver in the center of the lane.
 - iii. A. McGowan—as you see other technologies like 5G where do you see that in comparison to DSRC
 1. There are questions about DSRC vs 5G. 5G is not ready yet for device deployment and not quite ready as an LTE cellular technology. For consideration for device-to-device it needs to advance—not able to compare with DSRC at this point, similar to VHS to DVD. DSRC allows for development now. 5G is many years away from a Toyota vehicle. Must be fully developed, confident of interoperability and then testing on vehicles to be able to roll out for consumers.
 2. J. Cohan—Delaware wants to be 5G capable sooner than way out.
 3. McGowan—TrafficCast is now deploying in 9 states after pairing with Denso.



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4. E. Bradley—see connectivity to be through two mechanisms, V2V and cellular.
 - iv. R. McCleary—we put data out through the TMC, a central hub for companies to make available to the vehicles. Has Toyota thought about that as an alternative via satellite instead of requiring separate device deployment.
 1. Yes, fits with dual method of connectivity via cellular. Critical collision mitigation/emergency situations are envisioned as being communicated through DSRC.
 - h. SPaT challenge (M. Luszcz/G. Donaldson)
 - i. Delaware is participating
 - ii. Starting in Smyrna—11 signals on US 13
 - iii. 2 locations have cellular based first step, deployed in the field—currently in beta testing, data not available
 - iv. First DSRC test is at the signal shop
 1. Expect first signal to be released in the coming weeks
 - v. Largest issue is acquiring the equipment—in conversations with Turner-Fairbanks
- 6. Public Comment**
- a. None
- 7. Adjourn**
- a. B. Axelrod made the motion to adjourn the meeting and was seconded by J. Cohan. The motion passed and meeting adjourned at 12:05 PM.