



MEETING SUMMARY

Meeting: Safety Subcommittee

Location: WTSC | Large Conference Room, Suite 409 | 621 8th Ave SE, Olympia, WA 98504

Date: February 27, 2020

Attendees:

First Name	Last Name	Organization
Wade	Alonzo	Washington Traffic Safety Commission (WTSC)
Logan	Bahr	Association of Washington Cities
Ted	Bailey	Washington State Department of Transportation (WSDOT)
Shelly	Baldwin	WTSC
Debi	Besser	WTSC
Daniela	Bremmer	WSDOT
Kenton	Brine	NW Insurance Council
Sheri	Call	Washington Trucking Association
Brian	Chandler	DKS Associates
Chris	Childs	Assistant Chief, California Highway Patrol
Tim	Coley	Washington State Patrol
Jennifer	Cook	AAA Washington
Steven	Crown	Microsoft Corporation
Doug	Dahl	TransitLab Consulting – TARGET ZERO
Mandie	Dell	WTSC
Daniel	Fernandez	Jaguar Land Rover
Katharine	Flug	Washington Department of Health
Mi Ae	Lipe	Driving in the Real World
Steve	Marshall	City of Bellevue
Kyle	Miller	WSDOT
John	Milton	WSDOT
Markell	Moffett	WSP USA
Paula	Reeves	Washington Department of Health
Derek	Viita	Strategy Analytics, In-Vehicle UX service

WELCOME AND INTRODUCTIONS

Debi Besser

- Introductions
- Review agenda
- Private Co-Chair, Michael Transue, is stepping away as co-chair as he is no longer the lobbyist for the Association of Global Automakers

Topic closed.

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AV TESTING LESSONS LEARNED IN CALIFORNIA

Chris Childs, Assistant Chief, California Highway Patrol

- California has many technology companies, jumping into the AV industry as it evolves
 - California Highway Patrol (CHP) approached AVs at the state level, working with California Department of Motor Vehicles (DMV) to develop regulation package and framework for safe rollout of AVs
 - CA vehicle code section 38750 focuses on AVs – DMV as regulatory agency over AVs, collaborating with CHP for traffic safety
 - Types of AV permitting in CA
 - If a company wants to test AVs on CA roadways, must obtain permit from DMV, completing a package of forms and a voluntary safety self-assessment
 - What company would do in an emergency
 - Must always have a safety driver
 - Define safety program
 - Identify licensed operators
 - AVs are on roadways with human drivers behind the wheel
 - Testing and refining systems, infrastructure, algorithms, etc.
 - Using detection mechanisms such as LiDAR, RADAR, Cameras
 - If a company thinks AV is ready to operate with a human driver, can apply for a driverless permit
 - Requires AV enforcement interaction plan
 - CHP evaluates for regulatory requirements, safety plan
 - CHP documents evaluation for Commissioner, sends to DMV, DMV makes ultimate decision
 - Waymo currently the only company with driverless permit – No notification that driverless testing has occurred on CA public roadways
 - 65 companies permitted for testing with human driver
 - 1000 vehicles
 - 2000 certified testing drivers
 - CHP acts as a resource, helping companies through the process
 - Governor Newsome encourages innovation, as long as it is done safely
 - DMV and CHP has visit AV companies on-site, gives opportunity to ask the agencies questions, agencies gain understanding of operations and plans
 - Can help demonstrate to regulators that agency representatives feel comfortable (or not) riding in the AVs
 - Note: One company's (unnamed) ride was jerky and felt unsafe
 - Teleoperations
 - No current CA (or federal) law prohibits vehicle operations from a distance (outside vehicle)
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- A vehicle being operated from a distance (teleoperations) is not technically considered an AV
 - “Driver” (operator at distance) has a steering wheel, pedals, etc.
 - From a drunk driving perspective, difficult to enforce laws – unable to physically locate driver and assess intoxication level
 - Starsky (AV trucks) has driven trucks around Florida, all “drivers” located in Jacksonville
 - Could create severe legal issues
 - Some companies may take “drivers” off-shore – how do you regulate a driver/operations when they are not location in your country?
 - Driverless Deliveries
 - Nuro is currently obtaining a permit in CA to do driverless deliveries via a “DeliveryBot”
 - DeliveryBot approximately length and height of a Volkswagen Bug, but narrower
 - DeliveryBot a full AV, cannot transport humans
 - Contains compartments to store packages, deliver them on a pre-determined route
 - When DeliveryBot is at delivery location, texts person, who comes out, types a code, opens the compartment, when the compartment closes, the DeliveryBot is signaled to go to next delivery location
 - Open question on how service announcements, advertisements, etc. may be used on DeliveryBots, how to communicate with people to interact with the DeliveryBot
 - Another example of driverless deliveries are Amazon personal delivery devices “coolers on wheels”
 - Focus and funds going into this space, easy to test and advance technology to move small items
 - Governor Newsome established an AV Framework Group
 - Looking at sustainability, electric need on the grid, safe infrastructure, finance, etc.
 - CA trying to move quickly in this space, looking at AVs coming sooner rather than later
 - Group Discussion:
 - Does CA feel the minimum testing requirements enforced on AV companies is a good balance?
 - From a regulatory perspective, it is a good balance
 - CHP and DMV walk companies through the process, are assistive and interactive
 - Next stage is full AV rollouts, more collaboration and interaction will be needed
 - How does CA weigh the risk and liability if an incident occurs?
 - AV companies assume all liability when they complete self-assessments
 - Does CA coordinate with other states, such as Arizona or Nevada, who are also looking at AV testing/deployments and regulation?
 - Lots of research in the Las Vegas area
 - Arizona’s regulation is very relaxed, open. Many companies testing there as a result
 - Arizona Uber crash set the entire AV industry back
 - Have testing notification requirements been successful?
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- Companies are required to define their operational design domain (ODD), which defines the geographical areas where they are testing
- Companies testing notify that area's county, city, local first responding agencies
 - Note: If only testing on highways, only have to notify CHP
 - Do not necessarily have to notify every time a test occurs, but first time testing is planned in an area, contact the local authorities
- Companies with driverless permits are required to go through training with local law enforcement
 - Driverless permitted company presents Safety Plan to and trains CHP, CHP disseminates to appropriate entities based on defined ODD
 - Currently only Waymo, who went with CHP to notified agencies to walkthrough Safety Plan and training – not a requirement but helped as they were the first
 - When a company starts looking to test in all 65 CA counties, that would be a much larger lift, uncharted territory
 - Requirement is company trains/notifies CHP, CHP goes to local law enforcement
- **ACTION ITEM:** Chris Childs to provide links to CA AV permitting forms to Debi Besser, Debi to disseminate to Safety subcommittee

Topic closed.

HIGHLIGHTS FROM CES 2020

Mi Ae Lipe

- Attended CES 2020 conference Jan. 7-10 in Las Vegas, on behalf of BMW Roundel magazine
 - 4 days, 4,400 exhibitors, 175,000 attendees, 65,000 international attendees
 - Autoshow, product releases, exhibits, press events, etc. – A place to debut new technologies
 - Takeaways:
 - Skepticism and reality are settling in with AVs
 - Not coming in as fast as industry promised
 - Decades away from private consumers having their own AVs
 - Shifting focus to ADAS – technology that can save lives now
 - Focus on 5G
 - Slower to rollout as promised, hitting technological issues
 - Many companies are hesitant to use 5G products until 5G is actually out
 - Exponentially faster, less latency – essential for AVs
 - LiDAR
 - Less limited than RADAR, sensing proximity of objects
 - Many Immersive passenger experiences
 - Help people envision space inside the vehicle
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- Audio emanating from material car is made from
 - Human interactions with technologies
 - AVs
 - Rideshares
 - How do we take advantage and make vehicles a friendly space
 - Experiences / Exhibits
 - Uber Elevate and Hyundai – Air Taxis, aerial ridesharing
 - Can hold up to 4 passengers
 - Bypass traffic, congestion, and areas where helicopters unable to travel
 - AVTR – Mercedes’ future “Vision” car
 - Sony’s Vision-S – An EV car concept with advanced interfaces
 - Toyota’s Woven City
 - Community built to research Toyota AVs, robotics, and smart technologies
 - In shadow on Mt. Fuji
 - Approximately 2,000 residents, mainly researchers and partners
 - PACCAR battery electric Kenworth K270E & Level 4 autonomous truck T680
 - LiDAR exhibit
 - Accurately detects obstacle size, distance from vehicle
 - Can detect other critical information more advanced than today’s ADAS RADAR
 - Maps surroundings at high resolution
 - BMW I Interaction
 - Assuming AVs are commonplace
 - Multiple modes – “Boost” for those who want to drive, “Ease” for AV mode
 - No steering wheel or regular dashboard, windshield becomes the display
 - Windshield tracks eye movement to interact with media, objects to select
 - Can hook in to phone, contacts, to-do list, calendar, etc.
 - Faurecia’s Trailer Assist
 - Automates un-intuitive steering – driver uses finger to move needle on touch screen display to indicate desired direction of travel
 - Drive must still accelerate and brake vehicle
 - Automates some of the steering for trailer
 - Steer Tech
 - Driverless parking automation, add-on technology
 - Piggybacks on existing ADAS in car to park itself, or be summoned from a parking spot using a smartphone app
 - Works best in known, geofenced areas
 - Partnering with Chamberlain, garage door manufacturer, to create a system
 - Cost around \$1,000 – initially needs to be in a place the car has already mapped out
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- BMW i3 Urban Suite
 - Most popular EV in the world
 - Offers human interactive experience, interior built for relaxing
 - Several running around CES in AV mode, some had to stop and be rebooted
 - U.S. Secretary Elaine Chao talked about USDOT AV Guidance version 4.0
 - Info sharing, collaboration across state and federal agencies and private sector
 - Light touch approach
 - US leadership in this industry is at stake
 - Conference Sessions and Overall CES Takeaways
 - Many companies rushing AV technology to market, not fully thinking through and testing, not looking at how users relate to or use the technology
 - Trust in mobility and technologies are at stake, e.g. ADAS terminology is confusing and cannot be trusted blindly
 - Vehicles are a future marketplace – can order food, book a hotel, integrate with phones, etc.
 - Captive audience
 - Security is key, and a risk
 - (per Panasonic) “Our creepy is the next generation’s comfort”
 - Safety issues, distraction
 - AVs – Evolution vs Revolution
 - AVs cannot make eye contact with pedestrians, monitors being developed to indicate to pedestrians that the vehicle has detected them as extra safety measure
 - Do AVs mean fewer vehicles? Or more vehicles?
 - Technology companies and cities need to work together to understand cities’ unique needs
 - Group Discussion:
 - Were there conversations on improvements for LiDAR and 5G and how they relate to equity and where AVs operate most efficiently?
 - Did not hear direct correlation of LiDAR to equity
 - Anticipate 5G to be mostly in densely populated areas, likely where most AVs will be too
 - Steer Tech Parking Assist
 - How does the operator control it, and override it?
 - Via a smartphone app
 - Legally speaking who is the operator?
 - Unknown at this time
 - Know if there are any Steer Tech production units deployed?
 - Startup now, taking orders
 - Was there a theme that the technology in vehicles is far ahead of infrastructure technology?
 - Yes, vehicle technology is much further ahead
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- A British company has developed discs that can be embedded in roadways and used as sensors, picking up conditions such as ice
 - Can be used to communicate with vehicles
 - Could be used to communicate congestion
 - Rolling out now in limited testing/pilot
- Was ground penetrating RADAR highlighted at CES?
 - Did not see/hear about it
 - Does not rely heavily on road paint, can use when roads covered in ice or snow
 - Note that an AV podcast discussed it recently
 - Two AV podcasts to note:
 - Autonomous Vehicles with Marc Hoag
 - SmartDrivingCar with Alain Kornhauser
- Vehicles as a marketplace may encourage more vehicles on roadways, are we planning for that?
 - Need to plan for both futures – higher or lower vehicle miles traveled (VMT)
 - Some desire a shared experience, bringing down VMT. Focusing on price point and experience
 - Others desire personal experience, their own vehicle
 - Need to identify ways to regulate either scenario

Topic closed.

UPDATES FROM SUBGROUPS

AV Safety Data Project – Debi Besser

- Group met in December 2019 and January 2020
- Have gathered the questions we want to answer through this effort
- Now drafting Request for Proposals (RFP), expect to issue the RFP in the next month to hire a consultant to figure out what data we need to understand the safety benefit of AVs/ADAS

Education – Debi Besser

- Group met in December 2019, looking to meet again soon to continue development
 - Consumer Reports, National Safety Council, AAA, and J.D. Power published a Recommended Naming Convention endorsement letter
 - Suggested common naming conventions / terminology for ADAS functionality, to be used by all original equipment manufacturers (OEMs)
 - There are some ADAS features that have multiple names within the same vehicle brand
 - Request that Safety subcommittee refer to this list of recommended ADAS system names when referencing in subcommittee documentation
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- ULC model bill hardcoded terminology, suggest moving forward that bill language refer to dynamic resources such as this instead of hardcoding legislation that must be adjusted later

Legislative Bills – Kenton Brine

- HB 2470 – Uniform Law Commission (ULC) model bill language, modified to align with WA statutes
 - AV Work Group provided brief review period in late 2019, before bill was introduced
 - Bill ultimately did not pass
 - AV Work Group asked to review HB 2470 language in more depth through 2020
 - Safety subcommittee focusing on safety implications and standardized naming conventions
 - Technology companies testified against HB 2470, stating it is too early in the AV development lifecycle, and the language needs refinement
 - Main arguments against HB 2470
 - Too early, why introduce this now? There is so much we do not know
 - Ancillary efforts need to align – University of Washington School of Law research scan and review, subcommittee efforts, etc.
 - Regulations in HB 2470 address deployments, not testing which is bulk of activity now
 - Noted that ULC intended this to initiate discussion at the state level, did not intend for this to move forward as legislation
 - WSTC spoke on behalf of the AV Work Group during testimonies
 - HB 2676 - \$5 million umbrella insurance policy, and testing and reporting requirements
 - Bill originally contained Liability subcommittee’s recommendation for insurance requirement
 - Amendments
 - Define that \$5 million requirement is per company, not per vehicle
 - Request to reduce insurance requirement to \$1 million, amendment did not pass
 - Add certification, testing and reporting requirements
 - Entity self-certified under DOL testing program, operating on public roadways, must report testing locations, VINs, proof of insurance and carry \$5 million umbrella insurance
 - Allows DOL to charge a fee for self-certification processing
 - Collision/incident reporting to Washington State Patrol
 - Passed House, heard by Senate this week
 - Broad support for the bill
 - Generally, testing companies are OK with the bill
 - PEMCO testified in favor of bill, requested chair move bill out by deadline
 - HB 2644 Prohibiting Artificial Intelligence-Enabled Profiling
 - Did not pass of out committee
 - Some companies require this technology to test AVs on public roadways
 - Insurers testified against this bill, interferes with existing technology such as Progressive Snapshot that drivers voluntarily put in vehicles
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- Good to be mindful of the focus on safety and privacy concerns as technology advances
- AV Work Group subcommittees were asked to review the original ULC model bill in more detail, and review HB 2470 which came out of the ULC model bill

Draft CAT Policy Framework – WSDOT

- Infrastructure & Systems (I&S) subcommittee hosting Cooperative Automated Transportation (CAT) Policy Framework development workshop on April 1st
- A representative from each of the 6 other subcommittees – Debi Besser to represent Safety subcommittee
- Overview of CAT Policy Framework efforts to date
 - I&S subcommittee efforts started early 2019, continues today
 - Reviewed national policies and practices, existing frameworks and documentation nationally
 - Used WSDOT Policy Framework as starting point to draft a Statewide CAT Policy Framework
 - Worked with a subgroup of the I&S subcommittee to refine policy goals for the framework
 - 8 policy goals were defined and endorsed by subcommittee, AV Work Group Executive Committee and WSTC in late 2019
- Now looking at potential gaps in policy goals, strategies and actions to support the goals
 - Want feedback from other subcommittees to get a well-rounded statewide framework
 - What should stay, be removed, what’s missing
- Safety subcommittee to provide feedback to Debi to represent during workshop
- Group discussion:
 - What is the purpose of the policy framework – Regulatory? Guidance?
 - Framework lays out policy goals for State to focus on
 - Support or progress policy goals through strategies and tangible actions
 - Workshop to rank strategies and actions to identify priorities
 - Another activity in I&S subcommittee is to identify potential funding mechanisms to implement priority actions
 - Suggestion for action – Collision reporting
 - Need better definitions on what technology is in vehicles
 - Action likely covered in Target Zero, an action under the “Safety” policy goal
 - Recommend providing feedback to Debi for workshop on what Safety subcommittee would like out of collision reporting action
 - **ACTION ITEM: Debi Besser sending out survey to Safety subcommittee members to gather feedback in preparation for April 1 workshop**

Topic Closed.

STUDY ON PEDESTRIAN DETECTION ADAS

Jennifer Cook

- Pedestrian Detection research conducted in Fall 2019
 - Tested four 2019 model year vehicles of varied types, in 20 to 30 miles per hour (mph) scenarios
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- Adult crossing road
 - 20mph – 40% collision rate
 - 30mph – Only 1 car succeed, and only 2 out of 5 times
- Child darting into traffic between two parked cars
 - 20mph – collision occurred 89% of the time
 - 30mph – 100% collision rate
- Car turning right onto an adjacent road, with adult crossing simultaneously
 - 20mph – 100% collision rate
 - 30mph – 100% collision rate
- Adult crossing road at night (only tested at 25mph)
 - 100% collision rate
- Conclusions
 - Pedestrian detection technology does not work, is not ready
 - Generally works in/at crosswalks, but other scenarios it fails
 - Can aid in lessening the likelihood and severity of a crash, but driver needs to engage
 - Pedestrians need to remain diligent about safety, obey traffic signals, make sure vehicles stop
- Group Discussion:
 - Why does it work better in a crosswalk?
 - Likely because crosswalks are the base scenario for a vehicle – straight, no hills, less strange scenario for a vehicles sensors and cameras
 - Would NHTSA put in benchmarks/requirements for pedestrian detection?
 - AAA’s place is to communicate directly with manufacturers, can speed up improvements
 - AAA does share with NHTSA and the National Safety Council, as well as other associations, unsure effect on benchmarks/requirements speeding up improvements
 - Has AAA received feedback yet from manufacturers on acknowledgements, improvements?
 - No, but generally hear from AAA national office 6-9 months later
 - Example of feedback loop from manufacturers
 - First research on Siri, Apple was not happy and took immediate action to improve
 - Technology is earlier in development, unsure of manufacturer/industry reactions
 - Did testing include results of the responses/alerts in the vehicle?
 - **ACTION ITEM: Jennifer Cook will look through test results and documentation to identify in in-vehicle alerts were reported during testing**

Topic Closed.

RECAP AND ACTION ITEMS

- Continued Policy Framework development and workshop discussion:
 - Do not see much on vulnerable road users and micromobility represented in framework
 - Suggested additional action
 - Suggest more specificity to be more tangible and able to associate resources
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- Looking for tangible, measurable, near-term implementable actions, clear on how the action could be implemented
- Suggested strategies and actions should be CAT and deployment related
- Suggest revising language to “Vision Zero” strategy under Safety policy goal to reflect “Target Zero” to align with Washington State Traffic Safety Plan
 - “Vision Zero” language common among many cities, will confirm intention of language with subgroup that developed language before changing
- I&S subcommittee pushing survey to 51 invited workshop participants to rank existing strategies and actions, and suggest new or modified strategies and/or actions
- Workshop results and recommendations from I&S subcommittee expected to be disseminated to other subcommittees in June 2020
- Gives chance to vet ideas and opinions in a non-legislative environment
- “Heaven or Hell” scenario – higher or lower VMT based on changes to transportation, AVs
 - Not every community wants shared mobility. Others have low vehicle ownership and rely on shared mobility.
 - State needs to stay neutral, keep it open and not just focus on shared mobility and reducing VMT
 - Ongoing research of travel demand modeling, different scenarios of connected, shared, automated futures
 - There is good and bad VMT – If one can work or sleep in the vehicle, could create efficiencies for travel/work
- Examples of subcommittees working together – this CAT Policy Framework discussion, the TV Screen RCW revisions
- UW School of Law AV Research Scan – Planning a webinar in March 2020
 - Looking for input and direction from subcommittees to drive UW research and focus
 - **ACTION ITEM: Debi Besser to send webinar invite to subcommittee members when it is setup**
- Next AV Work Group Executive Committee meeting scheduled for May 6th, at SeaTac Conference Center
- November Safety subcommittee meeting rescheduled to accommodate Thanksgiving holiday, revised invite went out to subcommittee members

NEXT MEETING: May 28th, 2020 | 10am – 12pm | WTSC Suite 409, 621 8th Ave SE, Olympia, WA 98504

MEETING ADJOURNED.
