

# CAV Update

A monthly newsletter  
on the CAV ecosystem

December 2020

## ***From the Editors***

As we enter the New Year, we look back on 2020, and we can state the obvious: it has certainly been an interesting year, from both COVID-19 and CAV perspectives. There have been many interesting developments and a lot more to come in 2021.

To you and all our readers, we wish you a very Happy New Year, with much success in all aspects of your life.

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## ***Canadian AV News***

The **Thompson Chamber of Commerce** in association with its newly developed brand, **Sub Zero North Inc.**, is exploring the feasibility of a *Winter Weather Testing Centre of Excellence* (WWTCE). This state-of-the-art winter weather facility will accommodate the testing of vehicles, machinery, heavy equipment and robots of all shapes and sizes. Located in Northern Manitoba, Thompson's climate is ideal for this venture with an average of 240 days per year with sub-zero temperatures. **CAVCOE**, which specializes in helping corporate and government clients prepare for the era of connected and automated vehicles, is leading the feasibility and concept development work in association with **KGS Group**, a Winnipeg-based engineering firm.

If you are interested in learning more, either as a potential user or for general interest, please write to [winterweather@cavcoe.com](mailto:winterweather@cavcoe.com)

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*Payments on Wheels*, aka *Wallets on Wheels*, is an article in **BLG's** final monthly publication of *The Sensor* for 2020. BLG colleagues Stephen Redican and Cindy Zhang interviewed **CAVCOE's** Barrie Kirk on the synergies between CAVs and the future of financial services in the CAV era, and the related trends. The article is available [here](#).

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On December 1, 2020, **BlackBerry** and **Amazon Web Services, Inc.** (AWS) announced a major initiative to bring vehicle connectivity to the masses. BlackBerry will do this through its *Intelligent Vehicle Data Platform* (IVY) to gather a multitude of data from the many sensors embedded in modern vehicles. The data will be used locally as well as sent to AWS's computing cloud for storage, analysis and action by automakers and vehicle owners. The owners can then receive information on preventative maintenance, intelligent diagnostics, targeted advertising, vehicle performance and safety among other things. More information is on BlackBerry's site at [this link](#).

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Toronto-based transportation and logistics company **Apple Express Courier Ltd.** has signed a *Letter of Intent* (LOI) with **Drone Delivery Canada** (DDC) to use its delivery drone technology to widen the options for goods delivery. Details are at the DDC site at [this link](#).



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Staying with drones, on November 9, 2020, **Air Canada Cargo** announced that it intends to get into the lucrative e-commerce sector by making drone deliveries on up to 150,000 exclusive routes in Canada. Previously, Air Canada Cargo had signed an agreement with DDC to act as its sales agent and using its drones for making deliveries. As part of this agreement, **Edmonton International Airport** was signed up as a customer and a future drone delivery hub. Other airlines such as Japan Airlines are also experimenting with drones for delivery of medicines and food in Tokyo. More information is at [this link](#).

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## **CASPI News**

CASPI is pleased to announce that the **Ontario Good Roads Association** (OGRA) has become the most recent addition to the CASPI membership. Welcome OGRA!


CASPI and OGRA signed an MOU in May and have been working collaboratively ever since. CASPI has participated in the Managing Winter Operations Workshop and was a sponsor of this event. OGRA advances the infrastructure and transportation interests of its members through training, advocacy and services.

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The future of automated technologies on sidewalks will disrupt everything from snow removal, ride hailing and sidewalk deliveries using robotic device. CASPI recognizes the importance of establishing standards for integrating non-passenger technologies on public sidewalks and is part of the team established by **Bern Grush** to develop *ISO Standard 4448*. To keep the stakeholders informed, there have been a series of webinars addressing various factors associated with this project.

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Recent outreach efforts by CASPI have snowballed. While initial outreach, as part of the membership drive in October, introduced CASPI to potential stakeholders, recent meetings with potential members, funders, and a broad range of stakeholders, have spread the word that CASPI is becoming a key organization that will bring together this diversity of stakeholders into the snow and ice management ecosystem in Canada.



CASPI was approached by an equipment manufacturer that expressed interest in showcasing its products as a sponsor of the 2021 CASPI Student Competition. CASPI also caught the attention of a global engineering firm that delivers technical services in a broad range of industries. The appeal of utilizing automated snow plows in their transportation and environmental services piqued their interest in meeting with CASPI.

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As the sector grows, the need for liability protection will become a necessary component of automated winter operations. CASPI has held discussions with an insurance broker to build membership, to provide members a source of information into the complexities of this industry, and to ensure that future decision-making will be based on sound knowledge.

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Plans for CASPI's 2021 *Virtual Student Competition* remain on track. Technical papers are due January 25th. Sponsorship opportunities are available; please contact CASPI for details at [competition@caspi-icda.com](mailto:competition@caspi-icda.com).

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## **International AV News**


U.S. based **Raven Industries Inc.** which has a presence in Canada, is a high-tech firm specializing in automated farming machinery. Raven has announced the availability of its new *AutoCart* system for the 2021 harvest season. *AutoCart* lets farmers set a field plan, stage locations, adjust speeds, monitor



location activity, and command the tractor pulling a grain cart to sync with the combine as it offloads on the go. The driverless tractor can then be returned to a predetermined unloading area. Raven states that a single grain cart driver typically spends up to 340 hours in the tractor cab during harvest. By incorporating an autonomous grain cart tractor into their operation, farmers can use those hours to complete other fall maintenance and tillage tasks. More information is at Raven's site at [this link](#).

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China-based **AutoX** says it has won approval from the **City of Shenzhen** (population 12.5 million) to operate up to 25 driverless robotaxis in that city. AutoX states that its robotaxis do not have a safety driver onboard or someone monitoring them via teleoperation and can operate anywhere in the city, i.e., not geofenced. The company released a video of its Fiat Chrysler Pacifica minivan navigating on its own through the city's downtown area, showing passengers getting in, loading a package into the backseat, and letting a dog hop in for a spin. It also depicts the car navigating around



loading trucks, veering past pedestrians, and performing a U-turn. More information is at [this link](#). The video can be viewed on YouTube at [this link](#).

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On November 19, 2020, the **National Highway Traffic Safety Administration** (NHTSA) published a 64-page document titled *Framework for Automated Driving System Safety*. The main purpose of this document is to create a regulatory regime for future deployment of autonomous vehicles and to address the related safety, cybersecurity, and privacy issues. It uses a mechanism known as *Advance notice of proposed rulemaking* (ANPRM) to solicit input from the industry and the public before forming proposed legislation for submission to the U.S. Congress for approval. More information is at [this link](#). A copy of NHTSA document can be viewed or downloaded at [this link](#).

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In another sign of CAV industry consolidation, on December 7, 2020, **Uber** announced it will no longer pursue development of a self-driving car by itself. One of its rivals in the self-driving car industry, **Aurora Innovations Inc.**, will acquire Uber's self-driving car business. To maintain a position in this ecosystem, Uber will take a 26% ownership stake in Aurora. Uber has left the door open for licensing Aurora's technology when it goes mainstream. Back in 2016, Uber's previous CEO (Travis Kalanick) identified self-driving cars as critical to Uber's survival. More information is at [this link](#).

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Staying with **Uber**, it announced on December 8, 2020 that it is also getting out of the passenger drone business. California-based **Joby Aviation** will take over Uber's *Elevate* business unit to continue with its work of developing passenger drones. Uber will invest US\$75 million in Joby Aviation to add to its previous investment of US\$50 million in this company. More information is at [this link](#).



Companies developing CAVs have invested billions of dollars in R&D. Naturally, they hope to recoup some of these expenditures by establishing commercial services utilizing driverless vehicles. To this end, companies such as **Google** and **Cruise** have approached the **California Public Utilities Commission** (CPUC) to seek approval for offering driverless rides to paying customers. To do this, CPUC needs to create new rules and regulations. The companies are concerned that this process can take up to two years. More information is at [this link](#).

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The consumer advocacy group, **Consumer Reports**, realizes that more and more vehicles are being equipped with *Advanced Driver Assistance Systems* (ADAS) such as *Adaptive Cruise Control* (ACC), *Lane Keeping Assistance* (LKA) and other systems. Therefore, in November 2020, Consumer Reports published a 27-page report titled *Active Driving Assistance Systems: Test Results and Recommendations*. The report assesses some of the current ADAS-equipped vehicles and ranks them on several criteria such as capabilities and performance, ease of use, keeping the driver engaged, etc. The top three systems are **Cadillac's Super Cruise**, **Tesla's Autopilot** and **Ford's Co-Pilot 360**. A copy of the Consumer Report on ADAS can be downloaded at [this link](#).

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In a setback for the advocates of *Dedicated Short-Range Communication* (DSRC), on November 18, 2020, the **Federal Communications Commission** (FCC) voted to take away half the spectrum allocated to DSRC and put it to use for other purposes such as Wi-Fi. This is despite the strong lobbying mounted by the U.S. Department of Transportation (USDOT), ITS America, and other parties to maintain the DSRC spectrum as is. It is estimated that up to US\$2.7 billion has been invested in DSRC systems so far. If the FCC decision goes into effect, many of the installed DSRC system become unusable. The FCC appears to favour the C-V2X technology over DSRC. More information is at [this link](#).

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And in a step forward for the rival communication technology, C-V2X, the **5G Automotive Association** (5GAA) in partnership with the **European Telecommunications Standards Institute** (ETSI) organized a *plugfest* among seven manufacturers of C-V2X equipment and eight companies active in *Public Key Infrastructure* (PKI) business. The purpose was to test interoperability between different hardware and software developed by these companies. The current communication system is known as LTE-V2X. This system will evolve into 5G's *New Radio V2X* (NR-V2X) as the technology is further developed while keeping backward compatibility with LTE-V2X. This will allow longer life cycles, which are essential for automotive products. More details are at ETSI's site at [this link](#).

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The big three U.S. automakers, **GM**, **Ford**, and **Fiat-Chrysler** are urging the Federal Government to consider creating a new class of vehicles dedicated to AVs. They have done this through one of their trade associations called **The Alliance for Automotive Innovation**. On December 2, 2020, The Alliance released a 14-point policy document titled *Policy Roadmap to Advance Automated Vehicle Innovation* to facilitate harmonizing the required federal and state laws to spur innovation and R&D spending by the major U.S. automakers over the next four years. More information is at [this link](#). A copy of the proposed policy document can be viewed or downloaded at [this link](#).

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Since **Waymo** launched its driverless taxis for rides by the public in October 2020, an Arizona college student has reportedly taken 60 rides in these driverless vehicles over a two-month period. Prior to the rides being offered to the public, passengers were required to sign a non-disclosure agreement with Waymo that they will not record a video during the ride or talk to the media about their experience. No longer. The student has posted about five-hours of video on the Web about his 60 rides. He says he is pretty impressed with the smooth quality of the rides and the overall experience. Apparently, the ride quality has become much improved over the past year or so. More details are at [this link](#).



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As a sign of its serious commitment to electric and autonomous vehicles, **General Motors** (GM) has announced a US\$27 billion capital investment from now to 2025. It is also planning to reduce the development cycle for new vehicles from 50 months to 26 months. It hopes to do this by scrapping traditional methods and adopting a less bureaucratic team-focused approach. In line with the trend for more electric vehicles, GM is aiming to bring 30 new such vehicles to a global market through 2025. More information is at [this link](#).

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**Apple Inc's** on-again off-again approach to developing its own AV appears to be on again. Recent media reports indicate that Apple's AV development group is now working under a VP in charge of Apple's artificial intelligence (AI) which includes the **Siri** voice assistant. Since 2014, Apple has bounced between making an electric autonomous car of its own, developing just the automated driving software and partnering with an established car manufacturer. Apple's CEO, Tim Cook, is on record as saying *the autonomous systems effort was the "mother of all AI projects"*. More information is at [this link](#).

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The UK's renowned **Transportation Research Lab** (TRL) has joined a consortium for conducting another autonomous vehicle trial on UK's public roads and supported by advanced simulations. One of the aims of the new initiative is to familiarize local authorities with the technology so they can include AVs in their future transportation and infrastructure plans. The **City of Oxford** is the first city where trials will be conducted. Later, trials will be conducted in **London** and other major UK cities. This project will run until Fall 2021. Other consortium partners are **Oxbotica**, **DG Cities**, **Immense**, **BSI** and **Oxfordshire County Council**. More information is on TRL's site at [this link](#).

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Most of the publicity **Waymo** generates is related to its robotaxi operations in Arizona. However, that is not the only vehicle automation area where Waymo is active. In fact, Waymo's ambition appears to be adapting its software known as *Waymo Driver* for various types of vehicles such as large trucks, micro-mobility and even delivery drones. The same core software will be common to all these products. More information is at [this link](#).

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The **Transportation Research Board** (TRB) has produced a trove of publications on many facets of automated vehicles. These include areas such as planning, deployment, land use, research, social impacts, infrastructure needs, safety and modelling just to name a few. Twenty of these publications are available for free (in PDF format) on the website of **The National Academies of Sciences, Engineering & Medicine**. The publications can be viewed/downloaded at [this link](#).

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And finally, in Shanghai, China, an autonomous vehicle has been deployed to dispense **Kentucky Fried Chicken (KFC)** to those liking this delicacy. This contactless delivery system is a collaboration between **Neolix Technologies** which makes the AVs and **Yum Brands** which own KFC. It is also reported that **Neoflex** is now working with **Pizza Hut** for a similar delivery system for pizza products. More information is at [this link](#).



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## ***Upcoming AV-Related Events***

Jan 6-9, 2021 [Consumer Electronic Shows](#) (CES), Las Vegas NV

Feb 21-24, 2021: [Ontario Good Roads Association Annual Conference](#); Toronto ON

Apr 2021: [ADAS Sensors 2021](#); Detroit MI

Apr 25-28, 2021: [IEEE Vehicular Technology Conference 2021-Spring](#), Helsinki, Finland.

May 3-6, 2021: [Association for Unmanned Vehicle Systems International \(AUVSI\) 'XPONENTIAL'](#), Atlanta GA

Jun 20-23, 2021: [ITS Canada 2021 Conference](#)



October 11-15, 2021: [ITS World Congress](#), Hamburg, Germany

Dec 14-17, 2021: [UITP Global Public Transport Summit](#); Melbourne, Australia

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## **About CAV Update**

*CAV Update is a free, monthly summary of news and analysis in the world of connected and automated vehicles and their impact on the private sector, government, and society.*

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**CAVCOE** (formerly the Canadian Automated Vehicles Centre of Excellence) advises the public and private sectors on planning for the arrival of self-driving vehicles.

**CASPI** (the Canadian Automated Snow Plow Initiative) is an association for all stakeholders involved in winter operations and maintenance of sidewalks and trails.

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