

CAV Update

A monthly newsletter
on the CAV ecosystem

July 2022

From the Editors

CAVCOE is involved in two webinars this Fall that will be of interest to readers of **CAV Update**. Here is a save-the-date announcement for one of these. We will announce the other one in the August issue.

CAVs Today, Emerging Trends and Getting to Market

As connected and autonomous vehicle (CAV) technologies evolve, these vehicles will become increasingly common in our communities, and the public will have an opportunity to experience the technology first-hand. And Canada is getting ready: all levels of government, industry and the public are evaluating the pros and cons and planning for this transportation future.

But the introduction of this new technology raises many questions: What autonomous vehicles will we see first? Who is liable if things go wrong? And what does the public think?

We've assembled CAV experts from industry and government across Canada to address these questions and share their insights into the CAV evolution.

We hope you can join us on November 2 for this free, all-star webinar, sponsored by **PAVE Canada**, CAVCOE, **Gatik**, **Liberty Mutual**, and **Marsh**. Please RSVP at <https://pavecampaign.org/event/webinar-cavs-today/>



**CAVs Today, Emerging Trends
and Getting to Market**

A FREE WEBINAR

Wednesday, November 2, 2022
2:00 - 4:00 pm ET

RSVP:
<https://pavecampaign.org/event/webinar-cavs-today/>



Canadian CAV News

The **Province of Ontario** is Canada's premier region for automotive industry production, planning and R&D activity. Its future is tied to the large number of people employed in that sector. This workforce needs to have the right skillset for the transformative changes such as the switch to electric vehicles as well as future connected and autonomous technologies under development. The need for such a skilled workforce is recognized by the industry and the **Ontario Vehicle Innovation**



Network (OVIN) whose remit is to keep a close eye on technological developments in the automotive and mobility sectors. Accordingly, OVIN has recently issued a 17-page *Request for Proposals* (RFP) to help with this *upskilling* task for the current and future workforce. More information is at OVIN's site at [this link](#). A copy of the RFP can be viewed/downloaded at [this link](#). The deadline for submissions is August 8, 2022.

As almost everybody knows, on July 8, 2022, **Rogers Communications Inc.** had a nationwide network failure disrupting wired and wireless services as well as Internet service. On July 12, 2022, the **Globe & Mail** published an article titled *How an event like the Rogers outage would impact driverless cars of the future* in which a couple of Canadian CAV experts from **University of Toronto** and the **University of Waterloo** were interviewed about the adverse effects of this type of network outage on CAVs. According to these experts, critical systems in CAVs and vehicles equipped with Advanced Driver Assistance Systems (ADAS) have multiple built-in redundancies for just such an event. In almost all cases, the automated vehicle will pull over and stop in case of the loss of connectivity or the failure of a critical system. The article can be viewed at [this link](#) or [this one](#).



The healthcare sector is making increased use of autonomous drones for rapid transport of medical supplies, organs for transplant, blood and tissue samples, Covid test kits and other applications. One of the latest is the partnership struck between **Drone Delivery Canada** (DDC), **DSV**



Canada, McMaster University and **Oakville's Trafalgar Hospital** by deploying DDC's drones for transporting materials used in the nuclear isotope supply chain. The route for



this pilot project will be between Milton, Ontario where DSV Canada's head office is located and Oakville, Ontario where Oakville Trafalgar Memorial Hospital is (a distance of approx. 12 Km as the crow flies). DSV's existing takeoff and landing infrastructure will be used as well as additional infrastructure at the hospital. The project is expected to commence in Q3 2022 for a duration of 6 months. More information is on DDC's site at [this link](#).


On July 11, 2022, an article titled *Is your city ready for Public Mobile Robots?* was published by the Canadian organization **Urban Robotics Foundation** (URF). The mandate of URF is to develop procedures for loading and unloading of passengers and goods with automated motor vehicles at the curbside, and the movement of robotic service vehicles within pedestrian spaces (sidewalks, crosswalks, bikeways, etc.) within cities, towns and suburbs. In this article, the author (Bern Grush, Executive Director of URF) gives a high level overview of how the cities can prepare for deployment of *Public Mobile Robots* (PMRs) over the next decade. The two basic steps are the introduction of unmanned, commercial motorized devices/machines intermixed among pedestrians in public spaces, and how to orchestrate operation of many such devices from many different vendors and providers. The article can be viewed at [this link](#) or [this one](#).



International CAV News

In a first of its kind, the **Government of Switzerland** has approved the construction of a massive project known as *Cargo Sous Terrain*. Estimated to cost US\$30-35 billion, this innovative project will see 500+ Km of underground tunnels constructed for the transport of goods via automated pods. The Swiss consider this innovation an alternative to building new roads and railway lines or expanding the existing road and rail networks. It is anticipated that when fully built, it will reduce the current volume of goods transported by roads by up to 30%. More information is at [this link](#). A short YouTube video of this cargo tunnel concept can be viewed at [this link](#).






In a recent interview, Ola Kallenius, the CEO of **Mercedes-Benz**, was skeptical that fully autonomous vehicles will be on the roads anytime soon. His prediction for fully autonomous cars going mainstream is in the late 2030s. All the same, Mr. Kallenius stated that Mercedes-Benz will continue its R&D work on AVs and has partnered with Nvidia to work on the next generation of automated drive systems. Among challenges named by the CEO are the requirements for enormous computing power, a lot of sensing, a lot of backend systems and infrastructure to make autonomy happen. More information is at [this link](#).



Companies developing autonomous drone delivery systems have been lobbying the **Federal Aviation Administration (FAA)** for sometime to allow their drones to operate *Beyond the Visual Line of Sight (BVLOS)*. At present, the FAA allows BVLOS operation on a case-by-case basis requiring waivers to operate the drone in such mode. There has been high demand for these drones by electric power companies, railroad companies, seaport authorities, environmental groups, law enforcement, online retailers such as Amazon and others. Accordingly, aviation authorities in the U.S. and elsewhere are preparing to relax some of the safeguards they imposed to regulate a boom in off-the-shelf consumer drones over the past decade. FAA's focus is on commercial drone applications rather than the hobbyist. Among the new proposed rules, drones will be required to carry remote identification; something akin to an electronic license plate to track their whereabouts. More information is at [this link](#).





Waymo Via is the automated trucking arm of Google's Waymo business unit. Waymo Via has been testing its automated trucks in Arizona and Texas since 2017. On May 5, 2022, one of its Class 8 automated trucks (an 18 wheeler) had a serious incident on a Texas highway. The truck was driving in its automated mode at the time with a safety driver behind the wheel and a technician in the passenger seat. It is alleged that the Waymo Via truck was driven off the road by another truck resulting in a *moderate* injury to the driver (requiring a hospital visit) and damage to the LiDAR sensor on the truck's exterior. According to the local police department investigating the incident, Waymo has not been terribly cooperative in disclosing exactly how the incident happened or to provide access to the safety driver. More information is at [this link](#).



Staying with the crash theme, the **National Highway Traffic Safety Administration**

(NHTSA) recently published data on the number of crashes involving automated vehicles and those equipped with Advanced Driver Assistance Systems (ADAS). The published data covers



period July 1, 2021 to May 15, 2022. During this period, nearly 400 incidents were reported to the NHTSA. Six of these resulted in a fatality and five caused serious injury. **Tesla** vehicles at 273 were by far the most numerous in the published crash data. This is not that surprising given that about 830,000 Teslas are registered in the United States and many are equipped with Tesla's *Autopilot* or other driver assist systems. In second place was **Honda** with 90 incident reports. Under NHTSA's current regulations, automakers are allowed to redact descriptions of what happened during the accidents, an option that Tesla as well as Ford and others use routinely. This makes it harder to interpret the data or to put it in context. More information is at [this link](#). The raw data in .csv format can be viewed/downloaded at NHTSA's website at [this link](#).

One of the main challenges for AVs is dealing with the so-called *Edge Cases*. These are situations that are rarely encountered. Examples can be various animals crossing a road or different types of debris scattered on a roadway. UK-based AV developer **Oxbotica** has developed advanced simulation technology leveraging the *Metaverse* to

train its AI on Edge Cases. The product called *MetaDriver* is designed to help AVs answer three core questions: 'Do I see it right?', 'Am I doing it right?', and 'Can I trust myself right now? The company claims that its system can create *Edge Cases* and learn from it 1,000 times faster than would be achievable by actual driving. Furthermore, each 'meta-mile' can be tested in all conditions, including rain, snow, fog and at night or in the day, eliminating the need to wait for various weather conditions to appear during real-world testing. More information is at [this link](#).



In a sign of increased confidence in *Automated Driving Systems* (ADS), the **United Nations Economic Commission for Europe** (UNECE) recently raised the maximum speed limit that ADS vehicles can operate under from 60 Km/h to 130 Km/h. The new rules apply only to passenger cars and light duty vehicles on motorways and allows automated lane changes, among other dispositions. There are strictly defined conditions for activating the ADS and driving at the higher speed limit. The ADS can only be activated on roads where pedestrians and cyclists are prohibited and which, by design, are equipped with a physical separation that divides the traffic moving in opposite directions. Also, the driver can override the ADS or can be requested by the system to regain control of the vehicle at any moment. The new rules will come into force in January 2023. More information is at [this link](#). A copy of UNECE's amended regulations can be viewed/downloaded at [this link](#).



In another step in commercializing robotaxis, **Cruise** - the AV arm of **General Motors** - has now been granted permission to charge fares for robotaxi services in the city of San Francisco. Cruise is not allowed to offer driverless rides to customers in daytime. These are only available at night when traffic is lighter. During the day, a *safety driver* is behind the wheel of Cruise's robotaxi. As for cost, Cruise provided an example where a customer taking a 1.3-mile trip would pay \$0.90 per mile and \$0.40 per minute, in addition to a \$5 base fee and 1.5 percent city tax, for a total of \$8.72. By comparison, an Uber ride for the same trip would cost at least \$10.41 (all figures are in U.S. dollars). More information is at [this link](#).





The role of the *Transport Committee* of **UK Parliament** is to scrutinize the activities of **Department for Transport** (DfT) and to hold the Minister of Transport and his department accountable to the Parliament and to the public. The committee has now set its sights on the DfT proposals for modifying existing laws as well as creating new ones to pave the way for the deployment of autonomous and connected



vehicles on UK's public roads. The committee is looking at the entire CAV ecosystem to determine what needs to be done to introduce CAVs in a safe and logical manner (infrastructure, regulatory framework, liability/insurance, role of government, etc.). As such, the committee is inviting individuals and organizations to submit opinions and evidence to it by August 22, 2022. More information is at [this link](#). Evidence can be submitted through the committee's website at [this link](#).

And finally, in May and June 2022, **Cruise** experienced multiple problems with its driverless fleet in San Francisco. This caused Cruise driverless cars to lose connection with Cruise servers and come to a halt at certain locations in the city causing inconvenience to other motorists trapped among the driverless Cruise vehicles. This issue highlights a major challenge in deploying driverless vehicles at scale. More information is at [this link](#).



CAVCOE Speakers' Bureau

CAVCOE provides speakers for many different types of events across Canada, the US and overseas; we are now booking for later this year and into 2023. On the one hand, our keynotes and presentations have core messaging on the status of CAVs, their deployment scenarios, and the impact on business plans, government policy, regulations, and almost all aspects of society. On the other hand, each presentation is customized for the audience and the time available. To enquire about a speaker for your event, please write to speakers@cavcoe.com



Upcoming CAV-Related Events

- Sept 5-6, 2022 [UK CAV Infrastructure Symposium](#), London's County Hall, UK
- Sept 7-8, 2022 [ADAS & Autonomous Vehicle Technology Expo](#), San Jose, California (postponed from March 2022)
- Sept 18-22, 2022 [ITS World Congress](#), Los Angeles CA
- Nov 2, 2022 [CAVs Today, Emerging Trends, and Getting to Market](#), a free webinar sponsored by PAVE Canada, CAVCOE, Gatik, Liberty Mutual, and Marsh
- Nov 13-15, 2022 [9th Tech.AD USA](#), Detroit, MI.
- Nov 15-16, 2022 [Auto Tech: Europe 2022](#), Munich, Germany
- Nov 15-17, 2022 [Sub Zero North's Winter Weather Testing Conference](#), Winnipeg and Thompson, Manitoba, Canada
- June 4-7, 2023 [UITP Global Public Transport Summit](#), Barcelona, Spain

About CAV Update

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

Chief Editor: Ahmad Radmanesh

Contributors to this issue: Barrie Kirk, Keith Fagan, and Donna Elliott

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We welcome all comments; please send them [here](#)

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

300 Earl Grey Drive, Suite 222, Ottawa ON K2T 1C1, Canada.

info@cavcoe.com

www.cavcoe.com

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