

CAV Update

A monthly newsletter
on the CAV ecosystem

December 2021

From the Editors

2021 was, by any measure, eventful in the CAV ecosystem. It reminds us of the quote by Harold Macmillan, the Prime Minister of the UK in 1957-1963. He was once asked about the most troubling problem of his time as Prime Minister. The condensed version of his reply was “Events”. Fast forward to 2021 and the same is true. COVID, of course, has been the dominant event and will continue to do so. This month’s Whitby automated shuttle crash (see below) has some lessons for us. The collision was serious, and we wish the shuttle operator a full and speedy recovery.

We have advocated in this newsletter and on other platforms for less hype about a utopian future with zero traffic collisions and deaths. We continue to forecast traffic deaths reducing to 20% of current levels, when we have full deployment of CAVs. We knew that there would be collisions, somewhere, sometime. The Whitby collision needs to be fully investigated so we can apply the lessons learned to future CAV products, pilots and deployments. All the indications are that this will happen.

Looking ahead to 2022 and beyond into the CAV era, we forecast much safer transportation, but the technology will never be perfect.

We wish all our readers – and your families – a very happy, successful, and safer 2022.

Canadian CAV News

As part of the [Intonomous](#) project, [GoExport](#) is hosting a free virtual trade mission in the CAV space from January 31st to February 4th, 2022. Canadian and European SMEs will join to discuss various topics in this field.

Barrie Kirk is pleased to be organizing and moderating two round-table discussions as part of this trade mission. One round-table will be on CAV innovation in Canada, including research, development and testing. The other will be on CAV deployment in Canada, including government initiatives, corporate business plans, and public education.

Program details and information on how to register will be published shortly.

On December 16, 2022, an autonomous low-speed shuttle in **Whitby, Ontario** drove into a tree. The on-board attendant was seriously injured. There were no passengers on board. The pilot project was named the *Whitby Autonomous Vehicle Electric (WAVE)* and operates to/from the Whitby GO station. At this time, there is no information on the cause of the crash, and the investigation is ongoing.



Photo credit: Colin Ryan / Facebook

Because of the Whitby crash, the **City of Toronto** on December 22 paused a similar project known as the **West Rouge Automated Shuttle Trial**. It operates to/from the Rouge Hill GO station.

More information is [here](#). There is no information on when the two pilot projects will resume operation.

On December 2, 2021, The **Ontario Government** announced the creation of **Ontario Vehicle Innovation Network (OVIN)** to provide increased support for innovation and investment for Ontario's electric, connected and autonomous vehicle sectors. This \$56.4 million new investment is part of the provincial government's program called *Driving Prosperity: The Future of Ontario's Automotive Sector*.



The purpose of this program is to provide incentives and secure production of hybrid and electric vehicles, create a domestic battery ecosystem, and strengthen Ontario's position as a North American automotive and electric vehicle (EV) innovation hub. Combined with the province's \$85 million investment in the previous **Autonomous Vehicle Innovation Network (AVIN)**, Ontario's total investment in this sector is about \$142 million. More information is at [this link](#).

Staying with **OVIN**, one of its first actions was to issue a proposal call for the establishment of a new *Regional Technology Development Site (RTDS)* in Northern Ontario. The purpose of this is to focus on battery and technologies related to electric vehicles (EVs) such as critical minerals (nickel, cobalt, lithium, etc.), and to serve as a location to test, pilot and support the commercialization of electrification technologies. More information on OVIN's site at [this link](#). Deadline for submission of proposals is January 25, 2022.

Here is an update on *Manitoba's Vehicle Technology Testing Act* (Bill 20) that we last reported on in the August 2021 issue of *CAV Update*. The purpose of this bill is to introduce new regulations and/or amend existing ones to facilitate the testing of CAVs on Manitoba's public roads. This includes truck platooning testing. One of the components of this initiative was a public engagement exercise to obtain feedback from the public and other interested parties. To this end, a survey consisting of 15 questions was published by the **Manitoba Government** and feedback gathered. A total of 276 people completed the survey. More information is at [this link](#). Copy of the public engagement document can be viewed/downloaded at [this link](#).




Delivery robots have been active in Toronto for some time. According to their developer – **Tiny Miles**, there are currently 19 in operation in Toronto. Plans are to increase that number to 200 by early 2023. Named *Geoffrey*, the robots deliver food, drinks and groceries from local businesses as well as make deliveries for *Uber Eats*. The company claims delivery costs of robots is 10 times less than the same delivery made by a person. The company has struck a deal to integrate its delivery service with **Shopify** and is in talks with **Tim Hortons**, **Indigo** and others to expand its delivery services. So far, *Geoffrey* has made several thousand successful deliveries. The robot is stable enough to carry beverages without spilling them and can operate in cold weather. More information is at [this link](#). A short YouTube video of the *Geoffrey* in action can be viewed at [this link](#).



Editor's note: Despite the upbeat report above, on December 17, 2021, **Toronto City Council** voted to ban all sidewalk robotic devices until further notice. The background and reason for this decision can be viewed at [this link](#).

In another step forward towards full commercialization, the **Edmonton International Airport** (EIA) in collaboration with **Drone Delivery Canada** (DDC) has allowed drone deliveries from the airport site over a busy highway to a nearby town about 2 Km away. This is significant as current **Transport Canada** regulations prohibit drone flights within a 5.6 Km radius of an airport. Given the recent vulnerabilities





of the supply chain, EIA views this type of goods delivery as a step in the right direction. DDC's drone weighs about 10 pounds / 4.5 Kg and is capable of flying for about 45 minutes covering a distance of 20 to 25 kilometres along a pre-programmed route. The reported flight was approved by **Nav Canada**. More information is at [this link](#).

As part of a research project, the **University of British Columbia (UBC)** in Vancouver is planning to deploy an automated electric shuttle vehicle on its campus in 2022. The 12-month pilot project is led by the **British Columbia Automobile Association (BCAA)** in collaboration with **Rogers Telecommunications** and UBC. **Transport Canada** is providing funding for the pilot. The vehicle is an *EasyMile EZ10* automated shuttle which can seat up to six people. It will run Mondays to Fridays, between 8 am and 6 pm. The estimated frequency is every 12 to 18 minutes. Similar autonomous shuttle demonstrations took place in 2018-2019 in Calgary, Edmonton, Vancouver, Ottawa and Montreal. More information is at [this link](#).



Winter Weather Testing

As the **Thompson (Manitoba) Winter Weather Testing (WWT) Campus** ramps up its activities, we want to better understand the big-picture ecosystem. On the one hand, we obviously know many of the WWT initiatives, but there are probably a few we do not know about. If you are a stakeholder in the WWT ecosystem, I would appreciate it if you could send me a paragraph describing your activities.

The scope is:

- Canadian, US and overseas organizations
- Organizations that conduct WW testing
- Academic and other research organizations in this space
- Government organizations involved in WWT
- All types of equipment, including cars, trucks, service vehicles, passenger CAVs, non-passenger CAVs, drones, etc.

To be clear: this information will not be included in an article or report and published. However, it will help to inform us as we move forward. One example is developing the program for the North American WWT Conference to be held on November 16, 2022. If we propose to publish any part of your reply -- such as the conference program -- we will of course circle back to you first.

Please send the information to Barrie Kirk at winterweather@cavcoe.com. I look forward to your replies.

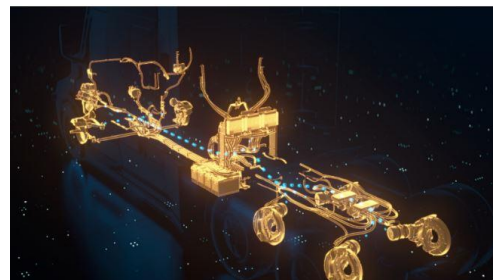
As mentioned in previous issues of *CAV Update* and mentioned above, we are now planning the North American Winter Weather Testing Conference scheduled for November 16, 2022. An early activity is to convene a Conference Advisory Board. The vision is to have representatives from both the Thompson area and the larger WWT ecosystem. If you are interested in being on the Advisory Board and helping to plan the conference, please write to Barrie Kirk at winterweather@cavcoe.com.

International CAV News

It is not a secret that many unions and groups see the advent of AVs as a real threat to jobs and their viability. In one of its latest manifestations, the **San Francisco Municipal Transportation Agency** (SFMTA) is opposing Cruise's proposal to start an automated robotaxi service in San Francisco and charge customers. To support its argument, SFMTA submitted a 24-page letter to the **California Public Utilities Commission** (CPUC) asking it to deny Cruise's application. SFMTA claims that promotional videos by Cruise (and its parent company GM) for the proposed robotaxi service show passengers get on and get off the vehicle in the middle of street as opposed to the curbside as transit vehicles do. It is claimed that is a violation of San Francisco's *Vehicle Code and Transportation Code*. Furthermore, SFMTA alleges that Cruise vehicles do not accommodate wheelchairs and the robotaxi service is not provided in less affluent areas of the city. More information is at [this link](#).



In a collaborative effort between **Waymo Via, Freightliner, Torc Robotics and Daimler Trucks North America** (DTNA), a Level 4 autonomous truck platform is under development by DTNA for Waymo Via and other customers. Waymo Via is the autonomous truck arm of Waymo who itself is a business unit of Google. For this project, Waymo Via had specified 1,500 new or unique requirements for the platform under development by DTNA. Once the truck is built, it will be integrated with the *Waymo Driver* software system. According to DTNA, the autonomous truck platform can also be used by other autonomous truck developers for their own products. The new design has many redundant systems to elevate the safety and reliability of these vehicles. More details at [this link](#).



Back in 2017, a few eyebrows were raised when semiconductor giant **Intel** paid US\$15.3 billion to buyout **Mobileye**. Turns out it was a pretty smart investment on Intel's part. On December 6, 2021, Intel announced that it intends to spin off Mobileye through an *Initial Public Offering* (IPO) in mid-2022. The IPO is expected to raise about US\$50 billion for Intel. Mobileye is a 22-year old company based in Israel who contributed to the development of adaptive cruise control and lane-keeping assistance systems using cameras on cars. The company has 14,000 employees. In recent years, the company has begun developing its own self-driving technology with deployments in several cities including the challenging New York City. More information is at [this link](#).




Similar to Mobileye, **Robotic Research LLC** has been developing automated driving systems for over two decades. Its *AutoDrive* system has been fitted to about 150 heavy-duty transit buses, Class 8 trucks and yard trucks operating on roads across the United States, Canada, Australia and Europe. Most of its development work has been for the U.S. military. The company is now going to leverage its technology and know-how for commercial applications such as transport trucks, agricultural machinery, transit buses, etc. To this end, it recently raised US\$228 million in venture capital to finance its push into the commercial sector.



This includes working with some Canadian sawmills for moving logs. In 2020, the company won a contract with the **Connecticut Department of Transportation** to automate three 40-foot electric buses with future plans to scale that to an automated bus rapid transit line, bus platooning and precision docking. More information is at [this link](#).


Teleoperation of cars and trucks have been around for awhile. Now, a British startup called **Imperium Drive** is testing its service named *Fetch* which combines on-demand car-hailing with the flexibility and low cost of car-sharing. The company believes its technology can significantly increase revenues for car rental companies by opening up the one-way rentals for trips longer than 10 miles (16 Km).







According to the company, this can reduce the rental cost by about 50% for longer one-way trips such as airports and suburban destinations. At present, about 10% of the driving task such as first mile/last mile is done remotely by Imperium’s teleoperators using 4G and 5G networks for communication, and the other 90% by the person renting the vehicle. If all goes to plan, the service will become fully autonomous in the future. More information is at [this link](#).

On December 6, 2021, the **New Jersey Department of Transportation (NJDoT)** published a 12-page *Request for Expression of Interest (RFEI)* for an affordable, sustainable, and efficient on-demand automated vehicle systems to serve the city of Trenton and environs. This initiative is borne out of New Jersey’s *Mobility & Opportunity: Vehicles Equity System (MOVES)* project. According to NJDoT, this will be the first large-scale (initial deployment of approximately 100 AVs) urban transit system in America to be based entirely on self-driving shuttles. Each vehicle will carry four to eight passengers at a time. The AVs will be low cost to users in underserved neighborhoods. During the initial launch there will be in-vehicle attendants to demonstrate the safety and operational integrity of the service. Full deployment will occur after a detailed planning/testing phase, once the residents have acclimated to the presence of AVs on the streets of Trenton. More information is at [this link](#). A copy of the RFEI can be viewed/downloaded at [this link](#).



One of the sticky problems in the development of AVs has been the insurance issue. How does one insure an autonomous vehicle? In a recent move to address this intractable issue, **Swiss Reinsurance Company Ltd.** - commonly known as *Swiss Re*, has entered into a partnership with the Chinese technology company **Baidu** to provide risk management expertise and innovative insurance products for Baidu’s autonomous driving business. One of the first actions of this partnership was the launch of *autonomous valet parking insurance*, developed by Baidu’s AV arm Apollo and known as the *Apollo Valet Parking (AVP)*. Future collaboration between Swiss Re and Baidu will cover risk management research and insurance innovation for autonomous driving computing platforms, intelligent cockpits, robotaxis and other automated driving products. Swiss Re is the world's largest reinsurer. More information is at Swiss Re’s site at [this link](#).





And finally, **Aicha Evan**, the CEO of Amazon-owned **Zoox** did a *TED Talk* earlier this year titled *Your self-driving robotaxi is almost here*. In it, she tried to explain some of the basic elements of automated driving and how it might one day lead to widespread deployment of robotaxis. Her presentation is about 10-minutes long and can be viewed at [this link](#).

Upcoming CAV-Related Events

Jan 5-8, 2022	CES 2022 , Las Vegas NV.
Jan 31 – Feb 4, 2022	Intonomous – GoExport’s free virtual trade mission for Canadian and European SMEs. Registration information to be announced soon
Feb 27–Mar 2, 2022	Ontario Good Roads Association’s Conference , Fairmont Royal York, Toronto
Mar 1-2, 2022	Autonomous Vehicle Technology Expo , San Jose CA
Jun 20-23, 2022	HxGN LIVE Global , Las Vegas, Nevada
Nov 16, 2022	North American Winter Weather Conference, Thompson, Manitoba, Canada

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.

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