CAVCOE

A monthly update on the CAV ecosystem

August 2023

From the Editors

The **Ottawa Citizen** recently published an op-ed by **Barrie Kirk** titled *When Are Robotaxis Coming to Ottawa?*

The background is – as readers of this newsletter know – the **California Public Utilities Commission** (CPUC) has approved proposals permitting **Cruise** (owned by **GM**) and **Waymo** (owned by **Alphabet/Google**) to provide commercial passenger service using robotaxis. The approval allows both companies to operate throughout the entire city of **San Francisco**, to charge fares, to operate at any time of the day or night, all without a human safety driver.

The benefits of robotaxis are their ability to provide lower-cost, flexible, point-to-point transportation. Microtransit services will benefit all transit users, especially those on low-density routes, outside of peak periods, vision-impaired people, those who have mobility issues but are not in wheelchairs, and those who for whatever reason cannot drive themselves.

Turning to **Ottawa**, my 2021 op-ed in the Ottawa Citizen said that I had not heard of any group planning the deployment of microtransit – and that is still true today. I also said that we have an excellent, world-class technology ecosystem, especially in research, development and testing of connected and automated vehicles. Given the current problems in Ottawa with transportation, the public is willing to consider other modes, and the time is right to plan for deploying robotaxis.

I also pointed out that the future of transit in Ottawa is a blend of mass transit and microtransit. These are complementary and microtransit will not compete with mass transit for high-volume routes in peak periods.

The California announcement shows that the technology is moving quickly. We will soon see a range of microtransit options, including robotaxis, and Ottawa needs a strategy.

In San Francisco, the robotaxi expansion was supported by state and local chambers of commerce, proponents of economic growth, merchants' associations, and advocates for the disabled and blind people.

It is clear that robotaxis are coming soon – probably sooner than many people realize.

In the words of **Invest Ottawa's** Strategic Plan, we in Ottawa can equip more entrepreneurs and companies for success, help create more high-value jobs, attract new investment, and drive the growth of Ottawa's economy. There is the highest concentration of top tech talent per capita in North America.

With the right commitment, we can leverage this and make Ottawa a showcase city and a Canadian leader in the deployment of robotaxis. This will benefit a wide range of Ottawa's citizens. We can also help other Canadian cities reap similar benefits.

The full op-ed is here.

Canadian CAV News

Two interesting CAV-related conferences are taking place in September – both in Ottawa.

First, the **Transportation Association of Canada** (TAC) is holding its annual conference on September 24-27. This is the largest national gathering of transportation professionals working in road and highway infrastructure and urban transportation in Canada. The event is expected to draw nearly 1,400 professionals from businesses, municipalities, government transportation departments, associations and academia. Barrie Kirk is presenting on *The Changing Future of AVs* – and the future is very different to what was predicted just a few short years ago.

More information is here.

Later that week, on September 28, there is **CAV Canada 2023**, a free hybrid event, hosted by **Area X.O**, **Invest Ottawa** and the **Kanata North Business Association** (KNBA). There are multiple sessions focused on a future that is connected, autonomous, electrified, and shared. The opening keynote is on the *Future of Smart Mobility.* Another session is on *Pioneering the Future of Intelligent Vehicle Communication.* More information is here.

The **Government of Ontario** has pledged $2.5 million to support an initiative by the **Ontario Vehicle Innovation Network** (OVIN) to set up demonstration zones in a couple of Ontario cities. These will provide a real-world environment for small and medium-sized companies engaged in the development of automated vehicles, delivery and street cleaning robots, electric vehicles, and other transportation innovations. The cities of **Markham** and **Vaughan** will be hosting these demonstration zones which will enable testing these technologies. The project will also provide an opportunity for Markham and Vaughan to explore the new technologies for any specific mobility challenge that they would like to tackle. The plan calls for residents in the neighbourhoods to be informed and consulted about these projects. The project has attracted $3.4 million in private-sector funding, $2.5 million in support from the Ontario government through OVIN, and $1.4 million from the host municipalities to bring the project's total capitalization to $7.3 million. Calls for applications from Ontario companies to submit their automotive and smart mobility technologies and solutions for testing in Markham and Vaughan will begin by October. More information is at this link.

Mobility as a Service (MaaS) was a concept first introduced in Europe a few years ago. MaaS envisions a transportation system where users of public transit, conventional taxis and robotaxis, ride-hailing, scooter, bike and car sharing, and sometimes even parking fees and road tolls can access all these services in an easy-to-use app for planning a journey and paying for it. A 35-page report titled *Mobility as a Service (MaaS): A Feasibility Study on Implementing MaaS in the Greater Toronto Area* (GTA)

was published by **AECOM** in July 2023. The report was prepared in collaboration with the **Canadian Urban Institute** (CUI). This study looks into strategies needed to meet the region's specific transportation needs and provide a framework for achieving MaaS acceptance and implementation in the GTA, particularly with respect to addressing equity challenges. More information is at this link. Copy of the report can be viewed/downloaded at AECOM's site at this link.

Sidewalk delivery robots have been around for a while and get media attention from time to time. Some developers of delivery robots, such as **Nuro** have been able to raise over US$2 billion in venture capital funding. At present, there are no accepted international standards for such devices, which more accurately are known as *Public-Area Mobile Robots* (PMRs). Happily, Canada has a major role in developing standards for PMRs through an approved project by the **International Standards Organization** (ISO). Known as the *TS4448 Intelligent transport systems - Public-area mobile robots (PMRs) and automated pathway devices,* Toronto-based **Urban Robotics Foundation** (URF) and its Executive Director - Bern Grush, are playing a major role in the development of this standard. In a recent interview with **OttOmate**, Bern explained the need for this standard and the challenges that need to be addressed once there is wide deployment of PMRs in cities and towns. The interview can be viewed at this link. Bern also suggests that if your city is thinking about robots for security, maintenance or delivery, he invites you to investigate membership in URF; details are here.

Staying with PMRs, on August 4, 2023, **CBC Radio**'s popular *As it Happens* (AIH) program had a segment on a research project on small robotic garbage collectors deployed at a public area in Brooklyn, NY. The research was conducted by the **Cornell University**. Research team members operated the robots remotely from a nearby location and monitored their interactions with people from a camera that was fixed to each bin. There were two bins, one for waste and the other for recycling, both perched on top of robotic wheeled disks. They rolled between tables and collected waste and recyclables dropped in them by people. The interesting part observed by researchers was the interaction of people with these robots. While the majority of people were delighted by their presence and usefulness, a few people took their anger on them by kicking them. The researchers attribute this to people attaching human traits to robotic devices (called *anthropomorphizing objects*). More information is at CBC's site at this link. The AIH audio report can also be heard at the same link. It is 6 minutes long.

We had reported previously how Dubai had deployed an electrically-powered marine vehicle for collecting plastic waste, debris and algae in marinas, lakes, ponds and canals, and coastal areas. The product called *WasteShark* weighs 60 Kg and is made from composite fibre. Now **PortsToronto** has deployed a couple of *WasteSharks* to do the same tasks in Toronto's Outer Harbour Marina. A short report and video showing *WasteShark* in action can be viewed at this link.

International CAV News

For a few years now, city of **San Francisco** has been a major test-bed for **Waymo** and **Cruise** for developing their automated driving systems in a complex urban environment. And, it has not been without controversy and complaints from City officials, transit authorities, fire departments, taxi drivers and the public. In an interesting development, 14 advocacy groups based in the Bay Area have signed a letter to the **California Public Utility Commission** (CPUC) in support of expanding robotaxi services by Waymo and Cruise. Some of these groups advocate for people with disabilities, the elderly or children e.g., *LightHouse for the Blind and Visually Impaired*, *Self-Help for the Elderly* and *Safe Kids Worldwide*. CPUC is responsible for regulating and issuing permits for robotaxi services in California. Copy of the support letter from the advocacy groups can be viewed at this link. More information is at this link.

CALIFORNIA
Public Utilities Commission

Subsequently, on August 10, 2023, CPUC voted 3-to-1 in favour of allowing Waymo and Cruise to operate their vehicles at any hour of the day throughout the city of San Francisco. More details are at this link.

A recent report in **The Guardian** highlights one of the challenges in the autonomous vehicle (AV) ecosystem - the protection of privacy of the passengers in an AV and the general public. AVs are packed with sensors. Many of them are in the form of high-resolution cameras, both inside and outside the vehicle. Images from these cameras are recorded for operational reasons. People working in law enforcement are aware of this. It has been reported that the companies behind the self-driving cars that are operating in San Francisco - Google-owned **Waymo** and GM-owned **Cruise**, have been subject to law enforcement requests for video footage that was captured while driving around. Reports indicate that in Francisco and Arizona, Waymo had been issued at least nine search warrants for footage from their vehicles, and Cruise had received at least one. These types of legal requests often come with gag orders – or mandates to not disclose the existence of the warrant, which complicates the privacy matter further. More information is at this link.

The Guardian

Over the past several years, the **UK Government** has invested heavily in the development of autonomous vehicles through grants, partnership, pilot projects and creating organizations such as the *Centre for Connected and Autonomous Vehicles* which are wholly dedicated to the subject matter. Sensing that commercialization of some forms of self-drive technology may be imminent, the UK Government through its national transportation arm – the **Department for Transport** (DfT), has sponsored research into the perceptions and attitudes of the general public towards this emerging technology. In June 2023, the DfT published two reports detailing the findings of this study. One report is 187 pages long and is titled *The Great Self-Driving Exploration: A citizen view of self-driving technology*. The second report is 89 pages long and is titled *The Great Self-Driving Exploration: Understanding emotional responses to self-driving vehicles: Findings from the EEG study*. More details about the study are at this link. Copy of the first DfT report can be viewed/downloaded at this link, and copy of the second DfT report can be viewed/downloaded at this link.

Department for Transport

The **U.S. Department of Transportation** (USDoT) through its *National Highway Traffic Safety Administration* (NHTSA) arm, has proposed a significant new policy to pave the way for faster development and deployment of autonomous vehicles. The proposed policy is known as *ADS-Equipped Vehicle Safety, Transparency, and Evaluation Program*, or AV STEP. Up to now, AV developers were required to obtain exemptions from USDoT for their self-driving fleet. The number of exemptions that can be issued annually is currently set at a maximum limit of 2,500. The proposed policy removes this limit. The new policy especially benefits autonomous vehicles without conventional controls such as steering wheels or brake pedals which will be authorized under this new national program. **General Motors** (GM), in particular, might benefit significantly from introducing AV STEP. GM asked for an exemption for its *Cruise Origin* robotaxi in February 2022. This vehicle is designed without conventional controls such as pedals or a steering wheel. However, USDoT has yet to decide on this application. More information is at this link. A copy of the proposed policy can be downloaded/viewed at this link.

U.S. Department of Transportation

In a surprise move, on July 26, 2023, **Waymo** announced that it is mothballing its autonomous truck development in order to divert its resources into its ride-hailing and robotaxi business. Waymo's trucking arm known as *Waymo Via* was launched in 2020. But now, Waymo appears to believe that the robotaxi business is a quicker way to commercialization and profitability. This is a reversal of the belief by people in the AV industry that autonomous tracking was an easier challenge to tackle because most of

the driving is done on free-flowing highways with one-way traffic, no parked cars on the side, traffic signals, pedestrians and other impediments present in an urban streetscape.
Another promising automated truck developer – **Embark** got into trouble in March 2023 and was absorbed by another company. And there are rumors that another leading developer in the field -- **TuSimple** -- is also looking for a buyer. Some of the companies still standing in this sector are **Kodiak Robotics**, **Torc Robotics** (owned by Daimler) and **Aurora**. More information is at this link.

Federal legislation for autonomous vehicles was first introduced by the **U.S. Congress** back in 2017. While the *House of Representatives* passed the draft bill, it stalled in the Senate and has been in neutral ever since. Now the AV industry and their lobby arm - **Alliance for Automotive Innovation**, are urging the Congress to revive this bill to create the required laws and regulations to provide the AV framework demanded by the industry. However, it appears that partisan politics and other lobby groups such as the **Teamsters Union** are preventing this stalled bill from getting the necessary priority. In the words of one Democratic Congressman, *Congress cannot simply dust off 6-year-old legislation and ignore the substantial issues that have emerged in recent years such as safety and liability issues*. More information is at this link.

And finally, news out of **UK** regarding a new robotic vehicle designed for removing illegally parked cars in tight spaces. The vehicle runs on tracks (like a tank) which enables it to make extremely tight maneuvers. Called the *Eastract*, it can cleanly lift all four tires off the ground for a vehicle weighing up to 5,500 pounds (approx. 2,500 Kg). The manufacturer is a French company called **Multitract** and the vehicle is remote controlled. More information and a short video of *Eastract* in action is at this link.

CAVCOE Speakers' Bureau

CAVCOE provides speakers for many different types of events across Canada, the US and overseas. 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 regulations, and almost all aspects of society. On the other hand, each presentation is customized for the audience and the time available.
To inquire about a speaker for your event, please write to speakers@cavcoe.com

Upcoming CAV-Related Events

September 20-21, 2023	ADAS & Autonomous Vehicle Technology Expo, Santa Clara CA
September 24-27, 2023	2023 Transportation Association of Canada (TAC) Conference & Exhibition, Ottawa, Ontario
September 27, 2023	TCXpo hosted by Invest Ottawa, at Area X.O, Ottawa, Canada
September 28, 2023	CAV Canada conference presented by Invest Ottawa and the Kanata North Business Association, at Area X.O, Ottawa, Canada
October 19-20, 2023	Last Mile Delivery Conference & Expo (LMD-2023), Las Vegas NV
October 24-26, 2023	Automotive Testing Expo, Novi MI
November 7-10, 2023	Aerial Evolution Association of Canada Conference & Exhibition, Ottawa, Ontario
November 15-16, 2023	AutoTech Europe, Berlin, Germany
February 1, 2024	J.D. Power Auto Summit, Las Vegas NV

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.*

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