

# **Autonomous** Vehicles and Ridesharing



Presentation to the City of London's RTIWG Barrie Kirk, P.Eng. Executive Director, CAVCOE February 21, 2019



A STUDY OF

THE IMPACT OF

'One of the problems ... is that there are too many people who are overhyping the technology," said Barrie Kirk, executive director of the Canadian Automated Vehicles Centre of Excellence near Ottawa. "All hardware, all software, fails occasionally."

Mr. Kirk said autonomous vehicle (AV) technology will be safer than drivers, but not perfect, and warned that pitching it as a way to elimit road fatalities was a mistake. If expectations were not tempered, he has repeatedly warned, "all hell will break loose" at the first fatality.



January 2019

#### **AV Update**

#### From the Editors

## New York City 1900



## New York City 1913



## **Deployment Timing**

Now: 1 <sup>st</sup> gen	<ul> <li>Advanced Driver Assistance Systems (ADAS) in commercial cars</li> <li>Commercial, low-speed, fully-automated vehicles for applications in controlled environments</li> </ul>
2020-2022: 2 <sup>nd</sup> gen	<ul> <li>First street-legal, fully-autonomous cars</li> <li>No steering wheel, pedals, etc.</li> <li>Focus: driverless taxis, urban applications, limited rollout</li> <li>In US first, then Canada</li> </ul>
2020s	<ul> <li>Ramp-up in capability and deployment</li> <li>AVs increasing part of total Vehicle Kilometres Travelled (VKTs)</li> </ul>
2030s: 3 <sup>rd</sup> gen	<ul> <li>Advanced fully-automated vehicles: go anywhere, any time in almost any weather</li> </ul>

# **Deployment Challenges**

- Extreme weather
- Work zones, detours Traffic signals AND ٠
- police officer
- Pedestrian prediction Hand gestures
- Reversing
- Regulations
- Insurance

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## **Fewer Collisions**

- Driver error a factor in 93% of collisions
- AVs expected to be much safer than human drivers
- · Hopefully we can reduce collisions by 80%



Ottawa Citizen

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#### motoring

ews Lifestyle Vehicles R

Volvo aims to make 'crash-proof' car



U.S. government pushes to end traffic deaths as fatalities sharply rise

VISION/44:CONETWORK





- Great goals but unachievable !!!
- All hardware, software fails occasionally
- 7% of collisions have nothing to do with the driver - Will happen whether a human or computer is driving
- · There will be collisions, fatalities, injuries but far fewer

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# Mobility-as-a-Service (MaaS)

- · Aka "Transportation-as-a-service", "Personalized mass transit" or "Micro-transit"
- Trend to driverless taxis
  - Call one via smartphone
  - Slightly more expensive than premium transit ticket
  - Reduced personal car ownership
- Merging of business models: regular taxi, ride sharing, car rental, transit

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# Impacts on City of London

- Charging infrastructure •
- City economy (insurance
- sector) City revenues (traffic
- tickets, parking)
- City vehicles
- Data (ownership, privacy)
- Delivery robots on sidewalks
- Electricity CAUCOE

- Policina
- Public
- Security / surveillance
- Traffic management
- · Transit (reduced ridership, infrastructure, union)
- · Transportation policies and regulations
- Urban planning, housing
- Zoning

# - Key benefit: computers will be much better drivers

· AVs will lead to huge, disruptive changes to

our personal lives and society

than humans

Conclusions

- Major municipal opportunities and challenges
- Changes to our world will start slowly in 2020 - By early 2030s, our lives, cities will be very different

# Parking

## Recommendations

- Have a vision for 2050 – Plan for the future, not the past
- Appoint full-time in-house CAV expert
- Take city-wide approach
   City-wide working group (Scope of CAVWG ?)
- Ensure that all transportation / transit master plans assess impact of CAVs

## Follow-up

- Barrie Kirk
  - bkirk@cavcoe.com
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- AV Update
  - Free monthly newsletter with AV news from Canada and around the world
  - <u>www.cavcoe.com</u> for latest issue, subscription link

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