

Dear Secretariat for the CTA Review

The Canadian Automated Vehicles Centre of Excellence (CAVCOE) is pleased to make this submission to the Canada Transportation Act Review (CTAR).

CAVCOE is the only organization in Canada that is dedicated to helping private and public sector stakeholders prepare for the arrival of automated vehicles (AVs). This gives us substantial breadth and depth on the subject of AVs.

Our key messages to the CTAR are:

- It is a matter of “when” not “if” automated vehicles will be on our roads. In fact, the first generation of AVs is already with us.
- AVs will affect our transportation infrastructure needs and cause us to reorganize where we live and work. They will bring great potential benefits but as with any transformative technology, will also bring great disruptions in the process of their rollout.
- Governments and the private sector would be wise to start planning and preparing for the arrival of AVs sooner, rather than later.

CAVCOE has co-authored a report with the Conference Board of Canada and the Van Horne Institute titled ‘*Automated Vehicles: The Coming of the Next Disruptive Technology*’ which will be released in early January 2015. It expands on the above points in considerable detail and contains all of the key reasons of why we consider it essential that the CTAR incorporates AVs in the CTA review process so that Canada and Canadians can maximize the benefits as soon as possible and mitigate the downsides.

As soon as this paper is available, we will send a copy to the CTAR team. In the meantime, a draft version of the Executive Summary is attached (see below signature).

Given the recent developments in California, the UK and Singapore, we strongly recommend that Canada adopt a similarly proactive stance. A positive policy stance on AVs is vital for Canada to remain competitive both regionally and globally, and to deliver a transportation system that is safe, efficient and sustainable.

Best regards,

Paul

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"EXECUTIVE SUMMARY

At a Glance

- **Automated Vehicles (AVs) are in some forms, already here. If history is a guide their rollout may occur rapidly.**
- **AVs have the potential to bring many benefits, particularly in the form of saving us time and reducing the number of road collisions.**
- **As they rollout, they will also be disruptive in the process.**
- **Governments and business must begin to plan for the arrival of AVs sooner, rather than later.**

The arrival of automated vehicles (AVs) --- also known as autonomous vehicles, self-driving or driverless vehicles --- is imminent. Canada is beginning to lag behind in recognizing and preparing for the large impact this disruptive digital technology will have on our society. There are five key messages in this report.

First, this paper examines the current status of AV developments and the rollout during this decade and the 2020s. The first generation of AVs is already with us. Google has already --- as part of its “Chauffeur Project” --- rolled out prototype AVs in California and elsewhere. But there are numerous other developments in the UK, Singapore and elsewhere that are speeding the development of AVs.

Second, the paper addresses the economic and social impacts they may have and summarizes the benefits AVs will deliver to Canada. There is of course significant uncertainty regarding the extent and timing of an AV rollout as well as their potential benefits. As a result, our approach to measuring these impacts is an illustration of the magnitude of potential that AVs can bring. For example, AVs will likely play a significant role in reducing current annual road fatalities by perhaps 1,600 from the current 2,000 a year. Further, we estimate that the total economic benefit could be over \$65B, including collision avoidance, fuel cost savings and congestion avoidance. With any significant technological change there are winners and losers. The former typically outweigh the latter, but understanding the potential wealth-transferring impacts are as important for governments to understand as are the benefits. We speculate on some of the winners and losers in the economy here.

Third, the paper assesses the impact of AVs on transportation infrastructure and contends that no major infrastructure project should be undertaken in Canada without an “AV impact audit” which governments and the private sector should be conducting. Naturally, what such an audit or assessment looks like is subject to debate and discussion as we just begin to understand what the potential impacts are.

Fourth, the paper details the reduction in Canadian household transportation costs that will be delivered by AVs. Personal expenditures on transportation are one of the most significant expenditure items for Canadian households. We estimate that the total potential cost savings are nearly \$3,000 per household, or approximately \$2,700 after considering a 10 per cent rebound effect, in 2012 prices and activity levels. This represents close to 4 per cent of the total household budget, or over 5 per cent of total household consumption. The savings could very well be much higher if we take into

account the potential impact that AVs have on reducing freight transportation costs – which make their way into the goods that we buy on a daily basis.

Finally, the paper calls on the newly-appointed federal review of Canada's transportation policies to study the arrival of AVs in Canada and support the scholarship that is necessary for Canada to keep pace with this rapidly-evolving technology.

We see the widespread adoption of AVs as being a matter of “when” not “if”. But there will certainly be a number of obstacles along the way. Potential obstacles include pushback from labour that will initially be adversely affected; keeping regulations up-to-date with such a rapidly evolving technology; cyber security issues; and insurance and liability issues.

Governments and industry are often not prepared for the impacts of new technology due in part to the fact that the change is so rapid. In some cases, governments may even impede the adoption of new technologies due to antiquated regulations – the growing regulatory response to technologies such as ride-sharing applications (such as Uber and Lyft) perhaps being the best current example. Because of their widespread effects, AVs will require active planning on the part of all levels of government in Canada. Potential priorities for Canadian governments are:

- Political leadership at the federal level comparable to what we see in other countries, especially for the impact on vehicle standards, the technology sector, the auto industry and the economy. Provincial and local governments are largely responsible for the delivery and operation of the road infrastructure, but the federal government can play a coordinating role in order to encourage harmonization rather than fragmentation.
- Political leadership at the provincial and territorial level for transportation systems and regulations. Transportation infrastructure investments are typically planned and implemented based on forecasts of travel demand of 30 years or longer. AVs will certainly be a reality well within that timeframe.
- Political leadership at the municipal level to incorporate the impact of AVs into urban planning, transit, and the design of infrastructure projects – and for the same reasons as above.
- Encouraging the creation of a Canadian ecosystem to compete for a share of the global market for AV software, parts and components – or at least ensure that we are not erecting barriers to this happening organically.

This paper does not cover the entire gamut of the potential impacts of AVs. The potential impacts are so widespread that it can only scratch the surface. But it will hopefully stimulate the appetite to increase our understanding of what those potential impacts are, and how to prepare for them now, rather than later."