



# **Automated Vehicles: The Role of Government**

**Barrie Kirk, P.Eng.**

**Executive Director**

**Canadian Automated Vehicles Centre of Excellence**

**Chair, ITS Canada's Autonomous Vehicles Task Force**

**Presentation to CCMTA's Transportation Tomorrow!  
Conference, May 25, 2014**



# Agenda

- AV status
- AV trends
- AV Summit
- Proposed Government actions



## AV Status #1

- Semi-autonomous cars, e.g. the Mercedes S-Class, are already commercially available
- Advanced development and testing of fully-autonomous cars has already started
- Virtually all the major car manufacturers are working in this space



## AV Status #2

- Ontario:
  - MTO developing regulations for testing of AVs on public roads in Ontario
  - CVAV Research Program via Ontario Centres of Excellence, MTO and Ministry of Research and Innovation
- Google's cars have already logged over 1 million Km
  - Now focusing on city driving

## AV Trends #1



- Trial of fully-automated taxis planned for Milton Keynes, UK, in 2015

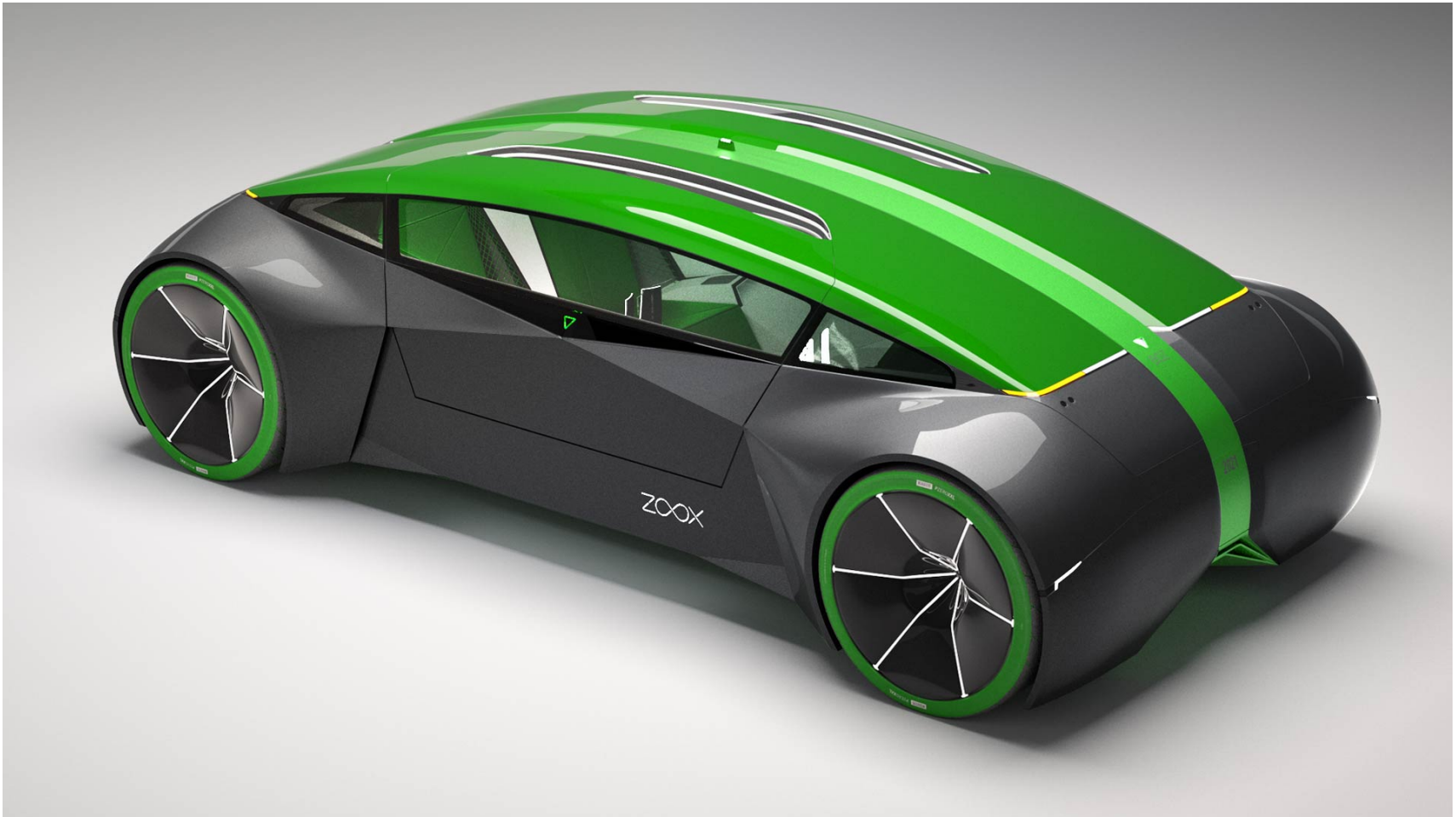


## AV Trends #2

- First commercial fully-autonomous cars are expected by 2020
- 2020-2030 will see a major penetration of AVs in Canada and around the world based on their numerous benefits.



## AV Trends #3





# Google's Expectations

From the Florida AV Summit in November 2013:

- Tech will deploy incrementally
- Tech will not be 100% effective
  - There will continue to be crashes
- Tech will perform better than human drivers from the start
  - System wide fixes to lessons learned
  - Tech will constantly get better over time





## AV Impacts

- Morgan Stanley estimates annual benefits of \$1.3 Trillion in the U.S. when AVs are fully deployed.
  - Approximately \$130 Billion / year in Canada
- AVs will be a true disruptive technology, upsetting many existing business models
- AVs will also impact almost department in every level of government (federal, provincial and municipal) as well as all users of the surface transportation system



## ITS Canada's AV Summit

- Objective: take the necessary first steps towards helping stakeholders prepare and begin to plan for the introduction of AVs
- Attendees included all levels of government, government agencies, industry associations, universities
- November 2013
- Transport Canada provided facilities



# AV Summit: Discussion #1

- Nobody challenged the view that AVs are coming
  - there will be significant opportunities and challenges
- The technology is moving fast
  - It will arrive faster than our ability to use it
- There will be problems
  - The first time an AV hits a child, there will be significant ramifications
- We have just started thinking about AVs



## AV Summit: Discussion #2

- Need a strong business case within government if government is to act
  - Until government sees a need for a policy, government will not see a need to move
- We may want to explore ways to look at road pricing to manage demand, especially as revenues from gas taxes drop



## AV Summit: Discussion #3

- Scope of the work ahead includes almost every department / ministry in the Federal, Provincial and Territorial Governments
- Discussion about the need for a champion that can provide national leadership
  - Who should provide that leadership?
  - Does not appear to be an existing body to take on the required role



## AV Summit: Discussion #4

- Need for a detailed study on the impact on cities in a language that politicians can understand
- Need to figure out what we want our cities and regions to look like in a world of AVs
  - We may not get it with the economic forces and regulatory environment that we have at the moment



# Proposed Government Actions #1

- Some government departments are engaged
- Transport Canada:
  - Provided facilities for AV Summit
  - Following discussions and research
- MTO:
  - Developing regulations
  - Partner in CVAV Research Program



## Proposed Government Actions #2

- Need more leadership:
  - Other Provinces / Territories
  - Interest by senior politicians (Federal and Provincial) as in other countries
- Clear, over-arching AV deployment roadmap
  - Financial benefit to Canadian economy
- Federal government funding for projects and research as in other countries





## **Proposed Government Actions #3**

- AVs will not need new infrastructure, but will benefit from modified infrastructure, planning strategies, design standards, regulations, legal framework, liability, etc.
- Identify impact of AVs on major infrastructure projects
- Assist industry and universities create an AV ecosystem



## **Proposed Government Actions #4**

- Research into the ways that taxes and revenues from vehicle licencing fees, driver licencing, tolling, gas tax, sales tax, etc. will all change as AVs become more ubiquitous



## Proposed Government Actions #5

- Need to address full range of non-transportation issues:
  - Urban planning
  - Healthcare, e.g. disruption of organ and tissue donation
  - Employment (job losses / job gains)
  - Environment
  - Hydro generation / distribution



## Conclusions

- AVs will be here sooner than most people realize
- They will change almost everything
- Some government departments are engaged – most are not
- A lot of work needs to be done



## Follow-up

- Contact for follow-up:  
Barrie Kirk  
bkirk@cavcoe.com  
613-271-1657
- CAVCOE produces ***AV Update***, a free monthly e-newsletter
  - To subscribe, give me your business card with “Newsletter” on it



## NHTSA\* Levels

- Level 0: no automation
- Level 1: one or more specific functions, e.g. standard cruise control
- Level 2: Minimum of 2 functions that work in unison, e.g. adaptive cruise control + lane centering
- Level 3: Limited self-driving; hand-off to human as required
- Level 4: Full self-driving; occupied by humans and unoccupied

\* US National Highway Traffic Safety Administration