



Connected and Automated Vehicles

Preparing a Strategic Plan for London



CAVs in the Province of Ontario

- **Pilot Project – Automated Vehicles** ([Ontario Regulation 306/15](#))
 - Originally took effect January 1, 2016
 - Last consolidation January 1, 2019 (O.Reg. 517/18)
 - Pilot regulation is due to be revoked on January 1, 2026
- Ontario was **first province in Canada** to establish on-road pilot test program for CAVs.
- Ontario Pilot Project applies to **SAE Automation Levels 3, 4, and 5**.



Other Key Initiatives and Resources

- [Autonomous Vehicle innovation Network \(AVIN\) in Ontario](#)
- City of Toronto [Automated Vehicle Tactical Plan](#)
- SAE International [J3016 Levels of Driving Automation](#)
- Transportation Association of Canada (TAC) [Lexicon of Terms for CAVs](#)

SAE INTERNATIONAL SAE J3016™ LEVELS OF DRIVING AUTOMATION

	SAE LEVEL 0	SAE LEVEL 1	SAE LEVEL 2	SAE LEVEL 3	SAE LEVEL 4	SAE LEVEL 5
What does the human in the driver's seat have to do?	You are driving whenever these driver support features are engaged – even if your feet are off the pedals and you are not steering.			You are not driving when these automated driving features are engaged – even if you are seated in "the driver's seat".		
What do these features do?	These features are limited to providing warnings and momentary assistance.			These features can drive the vehicle under limited conditions and will not operate unless all required conditions are met.		
Example Features	<ul style="list-style-type: none"> • automatic emergency braking • blind spot warning • lane departure warning 	<ul style="list-style-type: none"> • lane centering OR • adaptive cruise control 	<ul style="list-style-type: none"> • lane centering AND • adaptive cruise control at the same time 	<ul style="list-style-type: none"> • traffic jam chauffeur 	<ul style="list-style-type: none"> • local driverless taxi • pedals/steering wheel may or may not be installed 	<ul style="list-style-type: none"> • same as level 4, but feature can drive everywhere in all conditions



City of London's CAV Progress

- Staff began **monitoring and researching CAV developments** in 2016 in response to the Ontario Pilot Project.
- Developed a **CAV Staff Report and Technical Background** (CWC, May 28, 2018)
- Received **Municipal Council resolutions and direction** on June 12, 2018
- RTIWG **CAV Expert Panel** on February 21, 2019

Appendix A
Connected and Autonomous Vehicles:
Technical Background

Prepared for the Corporation of the City of London
Civic Works Committee Meeting
May 28, 2018



Council's Strategic Plan 2019-2023

BUILDING a Sustainable City

Londoners can move around the city safely and easily in a manner that meets their needs.

EXPECTED RESULT

Increase access to transportation options.

STRATEGY

- Build more infrastructure for walking and bicycling.
- Continue to expand options and programs to increase mobility.
- **Develop a strategic plan for a future with connected and autonomous vehicles.**
- Support Londoners to access affordable public transit where they live and work.
- Implement the London Transit Commission (LTC) 5 Year Specialized Service Plan.
- Implement the LTC Ridership Growth Strategy.
- Implement a rapid transit system to improve the reliability and capacity of existing transit service and support London Plan city building.
- Implement the LTC 5 Year Conventional Service Plan.



Automated Vehicles

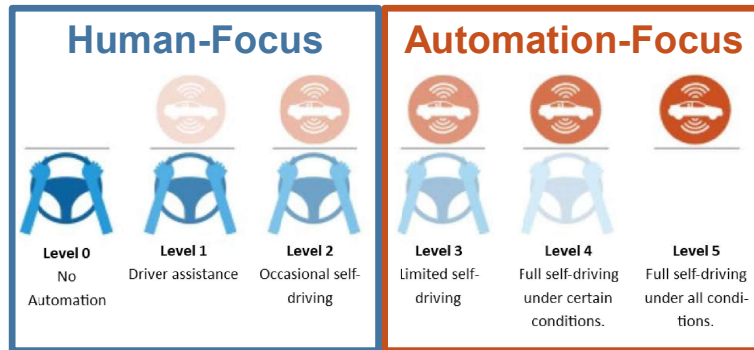
- Ideally, **Automated Vehicles (AVs)**:
 - Are capable of “**sensing**” the **surrounding environment**;
 - Use AI, sensors, and GPS to **successfully and safely navigate a transportation system**;
 - Provide **major improvements to road safety** by eliminating human driver error and distraction; and
 - Will likely be widely available and market-ready between **now and 2040 (i.e. 10-20 years)**.





Automation Levels Defined

- The **Society of Automotive Engineers (SAE)** international standard that classifies vehicles automated driving systems from:
 - **Level 0 = No Automation to Level 5 = Full Automation**



Connected Vehicles

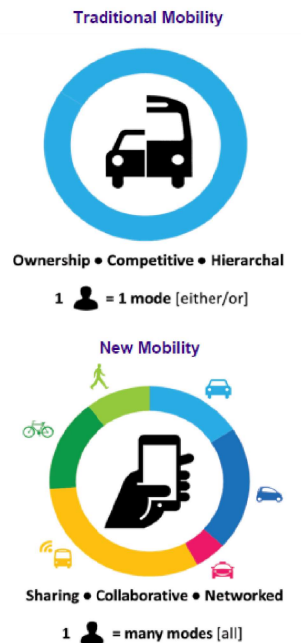
- Interrelated with AVs, **Connected Vehicle (CV)** technology provides up-to-date information to vehicles through a **variety of communications channels**.
- Types of CV technology include:
 - **Vehicle-to-Vehicle (V2V)**
 - **Vehicle-to-Infrastructure (V2I)**
 - **Vehicle-to-Everything (V2X)**





New Mobility and Potential

- AVs have the potential to **benefit the environment, society, and safety**.
- Two primary **ownership models** are anticipated:
 - **Individual Ownership** of widespread vehicles, similar to today; or
 - **Shared Ownership** similar to car-sharing, ride-sharing, or Mobility-as-a-Service (MaaS).



CAV Strategic Plan – Purpose

To better understand and prepare for the introduction of connected and automated vehicles in our community in order to improve the lives of our citizens and minimize the environmental impact of this impactful technology as it becomes more commonplace.



CAV Strategic Plan – Vision

A sustainable community that integrates connected and automated vehicles into city-building and daily activities by pursuing improved safety, environmental stewardship, and travel mobility options.



CAV Strategic Plan – Mission

To engage internal and external stakeholders, identify potential implications of connected and automated vehicles, and provide a strategic plan and actions that will proactively prepare for the introduction of connected and automated vehicles.



CAV Strategic Plan – Values

- Alignment with the London Plan
- Driven by community
- Environmental and climate sustainability
- Responsible governance
- Human health and community safety
- Information security and privacy
- Integrated mobility
- Supporting innovation
- Proactive leadership
- Stakeholder collaboration



Strategic Areas of Focus

1. Social Equity and Health
2. Environmental Sustainability
3. Economic Sustainability
4. Data Privacy, Security, and Governance
5. Urban Form
6. Road Safety and Security
7. Integrated Mobility
8. Transportation System Efficiency
9. City Fleet and Services



CAV Strategic Plan Timeline



Initial Engagement

Gather initial public feedback for development of the upcoming Connected and Automated Vehicles Strategic Plan for London until **February 21**.

<https://getinvolved.london.ca/automated-vehicles>

Advisory committee initial feedback/resolutions provide by **April 28**.