

AHEAD OF THE CURVE

ONTARIO'S AUTOMATED VEHICLE PILOT PROGRAM



MINISTRY OF TRANSPORTATION ONTARIO
SEPTEMBER 2020



Purpose

To provide an overview of Ontario's framework for testing automated vehicles on public roads.

Governmental Responsibility

Federal	Provincial/Territorial	Municipal
<ul style="list-style-type: none">• Setting and enforcing compliance with Motor Vehicle Safety Standards for new motor vehicles.• Investigating and managing the recall and remedy of non-compliances and safety-related motor vehicle defects nationwide.• Setting and enforcing compliance with technical standards related to wireless technologies integrated in vehicles and roadside infrastructure• Public education on motor vehicle safety issues.	<ul style="list-style-type: none">• Testing/licensing human drivers and registering motor vehicles.• Enacting and enforcing traffic laws and regulations (including trials).• Adapting infrastructure to support AV deployment.• Conducting safety inspections.• Regulating motor vehicle insurance and liability.• Public education on motor vehicle safety issues.	<ul style="list-style-type: none">• Enacting and enforcing bylaws.• Managing public transportation and mobility.• Advocating for and accommodating testing.• Enforcing traffic laws and regulations.• Adapting infrastructure to support AV deployment.• Public education on motor vehicle safety issues.


Context

January 1, 2016: Ontario became the first Canadian jurisdiction to regulate the testing of connected and automated vehicles (CAVs) on public roads.

January 1, 2019: Ontario introduced three enhancements to the AV pilot regulation, in order to keep pace with technological advancements.

These enhancements include:

1. Allowing the testing of driverless AVs as part of the pilot, under specific conditions to ensure safety;
2. Allowing the testing of cooperative truck platoons as part of the pilot, under specific conditions to ensure safety; and
3. Excluding from the pilot conditionally automated vehicles (Society of Automotive Engineers (SAE) Level 3), if they are originally manufactured with a driving automation system, and eligible for sale in Canada



Program Participants

Aptiv

Carleton University

Continental

EasyMile

Gatik AI

Magna

QNX

Uber

University of Toronto

University of Waterloo

X-Matik

Pilot Program Conditions

Level 0 – no automation

Level 1 – driver assistance

Level 2 – partial automation

Level 3 – conditional automation

Level 4 – high automation

Level 5 – full automation

GENERAL REQUIREMENTS	<ul style="list-style-type: none"> Effective Jan. 1, 2016; amended Jan. 1, 2019 10-year pilot program Restricted to testing purposes only Applicants must complete & submit AV application to MTO and keep an approved copy in the vehicle as this constitutes acceptance into the pilot program Vehicles with SAE level 3 technology included if retrofitted with an automated driving system 	<ul style="list-style-type: none"> Driver must remain seated in the driver's seat at all times monitoring the safe operation of the AV and be capable of taking over immediate manual control – unless approved for driverless testing Current <i>Highway Traffic Act</i> (HTA) rules of the road and penalties apply Penalties in HTA s. 228(8) also apply to violations of the pilot regulation (fine of \$250 – \$2,500)
ELIGIBILITY/ DRIVER QUALIFICATION	<ul style="list-style-type: none"> Only vehicles manufactured and equipped by recognized parties permitted: <ul style="list-style-type: none"> ✓ Original Equipment Manufacturers ✓ Technology Companies ✓ Academic/Research Institutions ✓ Component and Systems Manufacturers Driver must hold a valid licence for the class of vehicle (A, B, C, D, E, F or G), a valid licence from another jurisdiction, or a valid international driver's permit Participant must have liability insurance of at least \$5 million, or if the vehicle has a seating capacity of 8 or more passengers, \$8 million 	
VEHICLE TECHNOLOGY/ EQUIPMENT	<ul style="list-style-type: none"> Permitted: passenger, street cars and commercial vehicles Not Permitted: motorcycles, motorized bicycles and farm vehicles Must be in good working order registered and plated equipped with an alert to notify the driver when AV system disengages Must specify the actions, design choices and measures they have taken to ensure the vehicles they plan to test have accounted for cybersecurity risks, as they might impact road safety. Vehicles must comply with any requirements of the <i>Canadian Motor Vehicle Safety Act</i> that apply to AV driving systems for the vehicle's year of manufacture 	
DATA REQUIREMENTS	<ul style="list-style-type: none"> Must report collision involving an AV no later than 10 days afterward to the Registrar Must provide the Ministry with an up to date list of vehicles participating in the pilot at all times Must provide the Ministry with an annual report using template provided 	

Driverless Vehicle Conditions

GENERAL REQUIREMENTS	<ul style="list-style-type: none"><input type="checkbox"/> Effective January 1, 2019<input type="checkbox"/> Applicants (including existing pilot participants) must complete & submit AV application to MTO and keep an approved copy in the vehicle in a visible location as well as by the remote operator<input type="checkbox"/> Effective July 1, 2019, pilot participants must submit a completed annual reporting form one month after the end of the reporting year
DECLARATIONS	<ul style="list-style-type: none"><input type="checkbox"/> Applicant must declare that the technology is safe and effective based on satisfactory results from prior testing (e.g., closed course)<input type="checkbox"/> Applicant must declare the operational design parameters of the vehicle (e.g. maximum speed, weather conditions)<input type="checkbox"/> Upon request from MTO, applicant must provide tangible evidence of the vehicle's ability to effectively and lawfully interact with traffic<input type="checkbox"/> Applicant must accept full liability
VEHICLE TECHNOLOGY/ EQUIPMENT	<ul style="list-style-type: none"><input type="checkbox"/> Vehicle must have a direct oversight function capable of bringing the vehicle to a safe stop (e.g., a trained passenger with access to a switch that stops the vehicle or a remote operator)<input type="checkbox"/> Must have vehicle signage indicating that the vehicle is self-driving
ALERT RELEVANT AUTHORITIES	<ul style="list-style-type: none"><input type="checkbox"/> Applicant must provide to MTO, municipalities and relevant authorities a law enforcement and work zone interaction plan prior to testing<input type="checkbox"/> Participant must alert the impacted municipality and/or regional municipality prior to testing<input type="checkbox"/> If testing on a provincial highway, prior approval from MTO is required

Platooning

MTO has created a Cooperative Truck Platoon Pilot to evaluate the safety and practicality of this technology, including compatibility with existing road users and infrastructure.

Platoon Pilot Conditions

Driver Qualifications	Driver in each vehicle; valid Class A, C or D driver's licence (with Z (air brake) endorsement as applicable); 5 years truck driving experience; trained by technology provider
Carrier Qualifications	Carriers with 'Conditional' or 'Unsatisfactory' Carrier Safety Ratings may not qualify; minimum \$5M liability insurance coverage; 5 years trucking experience
Vehicle Configuration Types	Certain vehicle configuration types not permitted; vehicle weights and dimensions as set-out in O.Reg 413/05 [Schedule 1 &19-25]; lead vehicle must be the heaviest
Cooperative Truck Platoon Restrictions	Maximum of 3 vehicles permitted within the platoon; following distance between platooning vehicles must be at a minimum of 20 metres (65.6 feet), or a minimum of 1.7 seconds following distance, whichever the greater; requirement to disengage platooning technology in certain situations (e.g. allow vehicles to merge)
Safe Operation & Inclement Weather	Where practical, travel in the right-most lane; report to any Truck Inspection Station as required; accompaniment by well-signed pilot/escort vehicles; must not operate in Winter Road Conditions
Areas of Operation	Carriers must receive approval from MTO in advance of their intended testing and provide details; the Cooperative Truck Platooning Network generally consists of controlled access, multi-lane, divided highways including connecting ramps
Cargo Restrictions & Special Equipment Requirements	Must not carry placarded dangerous goods, livestock or special provision loads; functioning ADAS and V2V systems and air brakes; audible and visual alert for disengagement or other issue; braking systems must be fully inspected
Rear Signage	Sign must be displayed on the rear of all platooning vehicles
Data Collection Requirements	Record of each trip including location/date/time/distance etc; report collision within 10 days; annual reports; 6 month touchpoint conversations with MTO
HTA Exemptions	Display screens, handheld wireless communication device; following too closely, careless driving – only when platooning technology engaged, to facilitate the close proximity of the vehicles



Resources

Pilot Regulation: [Ontario Regulation 306/15](#)

MTO Website – AV Pilot:

<http://www.mto.gov.on.ca/english/vehicles/automated-vehicles.shtml>

MTO Website – Platooning Pilot:

<http://www.mto.gov.on.ca/english/trucks/cooperative-truck-platooning.shtml>



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