

## **A Pilot Project to Safely Test Autonomous Vehicles – Summary of Proposal**

### **BACKGROUND:**

#### **What is an autonomous vehicle?**

An autonomous vehicle (AV) is a driverless or self-driving vehicle, capable of sensing its environment using artificial intelligence, sensors and global positioning system coordinates to drive itself without human input.

Advanced control systems interpret sensory information to identify appropriate navigation paths, as well as obstacles and relevant signage. A human may choose a destination, but is not required to perform any mechanical operation of the vehicle.

Although fully autonomous vehicles are not available to consumers yet, semi-autonomous driver assistance systems are. These include technologies like adaptive cruise control, lane assist, self-parking, etc. Once a fully autonomous vehicle becomes available to consumers, it will be able to be operated without driver intervention. Estimates vary, however some manufacturers predict that fully autonomous vehicles will be available to consumers between 2020 and 2025.

#### **What are other jurisdictions are doing?**

Autonomous Vehicles are currently being tested in some parts of the United States, in Europe, Japan and China.

Three U.S. states (Nevada, Florida and California) have passed laws permitting the testing of AVs and several U.S. states are considering legislation to regulate testing of AVs on public roads.

#### **Benefits of Autonomous Vehicles**

Proponents of autonomous vehicles state that, once widely available and adopted, AVs could provide a number of benefits, including:

- Fewer traffic collisions (through improved collision avoidance);
- Reduction in traffic congestion/increase in highway capacity;
- Improved fuel efficiency;
- Reduced vehicle emissions;
- Convenience, time savings and lower stress for drivers and commuters;
- Enhanced mobility; and
- Other benefits could be realized related to the economy, innovation, infrastructure, environment, land-use planning, etc.

#### **Proposed Pilot Project Framework**

After researching and reviewing what laws other jurisdictions have put in place, the Ontario Ministry of Transportation (MTO) is proposing a pilot framework in order to safely test and evaluate autonomous vehicles under prescribed conditions before they become widely available to the public.

Prescribed conditions in the pilot framework to facilitate the testing of autonomous vehicles would include:

#### Pilot Length:

- The pilot will be for 5 years to ensure sufficient time to effectively evaluate the pilot.

#### While in Autonomous Mode:

- Restricted use for testing purposes only;
- A driver must be present in the vehicle at all times and have a valid G class driver's licence;
- Driver must be trained to safely operate an autonomously equipped vehicle;
- 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; and
- May only be operated by those drivers approved by the ministry (i.e., employed by the manufacturers, software developers, etc.) and for testing purposes only.

#### Safety and Rules of the Road

- Current Highway Traffic Act (HTA) rules of the road and penalties will apply to the driver/vehicle owner;
- An AV must display signs at the front and rear to show that it is an AV; and
- The pilot will reflect a phased-in approach that initially limits driving exposure (e.g.; specific roads, posted speed limits, traffic volumes, etc.).

#### Registration and Insurance

- Proof of third-party liability insurance, in an amount yet-to-be determined;
- Must be registered and plated as a passenger vehicle for use in Ontario;
- Only vehicles manufactured and equipped by recognized parties permitted;
- Must submit an application to MTO for approval before vehicle permit and number plates for the AV are issued;
- Extensive supporting documentation will have to be submitted with the application, including but not limited to:
  - (i) proof of ownership of the vehicle;
  - (ii) certification by the owner that the AV meets all of the usual provincial and federal safety standards that are applicable to motor vehicles, and that the autonomous technology does not diminish any of the required safety features;
  - (iii) verification that the AV is not a homebuilt conversion;
  - (iv) agreement by the registrant to provide any driver with sufficient training in the operation of AVs;
  - (v) agreement by the registrant that the AV will be operated for testing purposes only;
  - (vi) certification by the owner the AV has desirable safety features, including, but limited to:
    - (i) a mechanism to quickly disengage the autonomous technology, so that the driver can take over manually at any time;
    - (ii) an indicator that shows when the vehicle is in its autonomous mode;
    - (iii) a system to alert the driver if the autonomous technology fails, or unexpectedly turns off;

- (iv) a mechanism to capture and store any data about the prior operation of the vehicle from at least 30 seconds before any collision.

## **Public Consultation**

The government of Ontario is considering this proposal and we invite you to submit your comments on the proposed pilot framework, including comments on: conditions for the pilot (such as restrictions to specific roads, posted speed limits, etc.); and what data the ministry should require be collected, retained and reported to inform its evaluation of the pilot.