

New and Alternative Vehicles

Vehicles that can operate on roads:

- Limited-Speed Motorcycles
- Motor-Assisted Bicycles
- Motor Tricycles
- Bicycles
- Electric Bicycles ("e-bikes")
- Electric Vehicle Conversions
- Personal Mobility Devices
- Segway™ Human Transporter / Personal Transporter

Vehicles that cannot operate on roads:

- Pocket Bikes
- Electric and Motorized Scooters (Go-peds)
- Low-Speed Vehicles

Introduction

New types of vehicles and devices arrive in the market place everyday. The province recognizes the importance of these new market innovations as they expand mobility options for Ontarians and provide an environmentally friendly way to travel. But, safety is a top priority for the province and the safe integration with other vehicles and pedestrians is a key consideration before any new type of vehicle will be allowed on Ontario roads. Therefore, it is also important to know whether these vehicles can—or cannot—legally operate on our roads and the safety requirements that must be met.

In addition to questions about new vehicle types, the ministry continues to receive questions about bicycle and wheelchair use. Before you operate a new vehicle type, you should read the information following.

Many new vehicles and devices, such as go-peds, pocket bikes, and limited-speed motorcycles fall within the definition of a motor vehicle in Ontario's Highway Traffic Act (HTA).

To operate a motor vehicle on public roads in Ontario, these vehicles must meet:

- Provincial equipment safety standards for motor vehicles, such as standards regulating lighting, braking, seat belts, etc.
- Federal standards for motor vehicles used on public roads.

If a motor vehicle meets the above standards, then the HTA requires it to be registered, have licence plates, and the operator to have a valid driver's licence and appropriate insurance, before it can be operated on public roads in Ontario., unless a pilot is created exempting the vehicle from these requirements (such as the Segway Pilot Project).

Certain vehicles/devices such as go-peds, Low Speed Vehicles and pocket bikes cannot operate on public roads in Ontario because they do not meet the provincial and federal standards noted.

Motor tricycles that meet the (federal) Canada Motor Vehicle Safety Act definition for that vehicle class may be eligible for registration for on-road use in Ontario. Motor tricycles must also meet Ontario's Highway Traffic Act (HTA) definition of "motorcycle", and all related legislative and regulatory safety standards and requirements for motorcycles.

The province continues to review both existing and new vehicle types to determine whether they fit into the HTA or if a new vehicle definition is required. Road safety will be a key consideration in determining which new vehicles or devices may operate on Ontario's roads.

This information is to be used as a guide only. For official purposes, please refer to the Highway Traffic Act.

Vehicles that can operate on roads

Limited-Speed Motorcycles

Limited-speed motorcycles can be operated on roads in Ontario.



A limited-speed motorcycle is:

- a. a motorcycle that:
 - 1) can attain a rate of speed of more than 32 km/hr on level ground within a distance of 1.6 kilometres from a standing start;
 - 2) has a maximum attainable speed of 70 km/h or less;
 - 3) has steering handlebars that are completely constrained from rotating in relation to the axle of only one wheel in contact with the ground;
 - 4) has a minimum seat height, when the vehicle is unladen, of 650 millimetres;
 - 5) has a minimum wheel rim diameter of 250 millimetres and a minimum wheelbase of 1016 millimetres;
 - 6) has a maximum engine displacement of 50 cubic centimetres or less; **or**,
- b. if the motorcycle was manufactured on, or after, September 1, 1988, it must have affixed a compliance label required under the Federal Motor Vehicle Safety Act (Canada) that identifies the motor vehicle as a limited-speed motorcycle.

A limited-speed motorcycle must meet vehicle requirements as defined under the federal Motor Vehicle Safety Act (MVSA). However, in order to use a limited-speed motorcycle, the driver must comply with the operating requirements of a motorcycle under provincial regulations. A limited-speed motorcycle has a maximum attainable speed of 70 km/h or less.

A restricted class M licence for limited-speed motorcycle (LSM) and moped drivers was introduced on November 28, 2005. This restricted class M licence has a condition that allows licence holders to drive limited-speed motorcycles and mopeds only.

To operate these vehicles on a roadway:

- the driver must hold a restricted class M licence for limited-speed motorcycles and mopeds: Class M2 with L condition or M with L condition or a valid motorcycle licence (Class M1, M2 or M);

- the vehicle must be insured, registered and have a valid LSM licence plate; and
- the operator must wear an approved motorcycle helmet.

Motor-Assisted Bicycles (Mopeds)

Like limited-speed motorcycles, mopeds can be operated on roads in Ontario.

A restricted class M licence for limited-speed motorcycle (LSM) and moped drivers was introduced on November 28, 2005. This restricted class M licence has a condition that allows licence holders to drive limited-speed motorcycles and mopeds only. New moped drivers will be required to take road tests.



A motor-assisted bicycle is a bicycle that:

- is fitted with pedals that are operable at all times to propel the bicycle;
- weighs not more than 55 kilograms;
- has no hand or foot operated clutch or gearbox driven by the motor and transferring power to the driven wheel;
- has a piston displacement of not more than 50 cubic centimetres; and,
- does not attain a speed greater than 50 km/hr on level ground within a distance of 2 km from a standing start.

To operate these vehicles on the roadway:

- driver must hold the new restricted class M licence for limited-speed motorcycles/mopeds (Class M2 with L restriction or M with L restriction or a valid motorcycle licence (Class M1, M2 or M));
- approved motorcycle helmet is required;
- vehicle must be insured and registered and have a valid licence plate;
- no passengers allowed;
- they must meet federal safety standards for a limited speed motorcycle;
- motor-assisted bicycles are not allowed to travel on 400 series highways.

Motor Tricycles

Motor tricycles can be operated on roads in Ontario.



Motor tricycles are eligible for registration as motorcycles for on-road use in Ontario. Typically, these three-wheeled motorcycles were designed with a single front wheel and two rear wheels.

Motor tricycles with two front wheels have emerged on the market. These can be registered for on-road use as motorcycles in Ontario if they meet all of the (federal) Canada Motor Vehicle Safety Standards contained in the Motor Vehicle Safety Act (MVSA) for a motor tricycle. Motor tricycles must also meet Ontario's Highway Traffic Act (HTA) definition of a "motorcycle", and all related legislative and regulatory safety standards and requirements for motorcycles.

The MVSA defines a motor tricycle as a motorcycle that:

- a. is designed to travel on three wheels in contact with the ground,
- b. has seating on which all occupants must sit astride,

- c. has no more than four designated seating positions,
- d. has a GVWR of 1,000 kg or less; and
- e. does not have a structure partially or fully enclosing the driver and passenger, other than that part of the vehicle forward of the driver's torso and the seat backrest.

The HTA defines a motorcycle as a self-propelled vehicle having a seat or saddle for the use of the driver and designed to travel on not more than three wheels in contact with the ground. This definition includes a motor scooter, but does not include a motor-assisted bicycle. The HTA also specifies requirements and standards for braking, lighting, safety inspections, etc.

A driver of a motor tricycle is required to hold a M-class licence and must wear an approved motorcycle helmet. A driver that chooses to complete their M1 or M2 exit road test on a motor tricycle --- and that includes a motorcycle with a sidecar --- will be issued an M licence with a restriction to operate motor tricycles only upon successful test completion. The endorsement will appear as Condition "M" on the front of the licence card and "Restricted Motorcycle" category on the back of the licence card. NOTE: Anyone with this endorsement is not authorized to operate a two-wheeled motorcycle.

An example of a motor tricycle that has two front wheels and one back wheel and can be registered as a motorcycle is the Bombardier Recreational Products (BRP) Can-Am Spyder Roadster. The Piaggio MP3, because of the close spacing of its front wheels, is considered to be a two-wheeled open motorcycle by Transport Canada. It can be registered as a motorcycle. Anyone taking his/her road test on the Piaggio MP3, will receive an unrestricted M class licence.

Electric Bicycles ("e-bikes")

Can be operated on roads in Ontario



Since October 3, 2009, electric bikes (both those resembling conventional bicycles and those resembling motor scooters) have been permanently allowed on roads and highways where conventional bicycles are currently permitted. They must follow the same rules of the road as set out in the Highway Traffic Act (HTA) that currently apply to cyclists, with some exceptions.

In order to operate an e-bike:

- Operators must be 16 years of age or older;
- **All** operators **must** wear an approved bicycle or motorcycle helmet at all times.

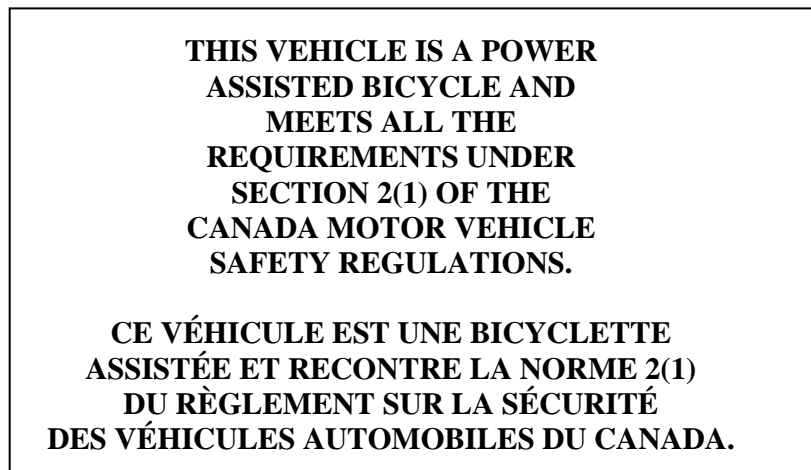
In addition:

- No person who is the owner or is in possession or control of an e-bike shall permit a person who is under the age of 16 years to ride on, drive or operate the e-bike on a highway.
- An e-bike must not be ridden on, driven or operated unless it is good working order.
- Similar to bicycles and mopeds, power-assisted bicycles are prohibited from use on certain provincial controlled-access highways.
- Any municipal by-law prohibiting bicycles from highways under their jurisdiction also apply to e-bikes. Municipalities may also pass by-laws specific to e-bikes that prohibit them from municipal roads, sidewalks, bike paths, bike trails, and bike lanes under their jurisdiction.

To operate an e-bike on Ontario roads, an e-bike must meet the following equipment requirements:

- Have a maximum unladen weight of 120 kg (includes the weight of vehicle and battery).
- Must be equipped with at least two independent braking systems that applies force to each wheel and is capable of bringing the e-bike, while being operated at a speed of 30 km/h, to a full stop within 9 metres from the point at which the brakes were applied.
- Must have wheels with a minimum diameter and width of 350 mm and 35 mm respectively.
- Must have all electrical terminals completely insulated or covered and, along with the battery and motor, must be securely fastened to the bicycle to prevent them from moving while the bicycle is in motion.
- No modifications to the motor of an e-bike to permit it to exceed the federal requirements for motor output or speed for an e-bike (500W and a speed greater than 32 km/h) are allowed.
- Must meet the federal definition of a power-assisted bicycle (*for the full definition, please see subsection 2(1) of the Motor Vehicle Safety Regulations under the Motor Vehicle Safety Act*, which includes:
 - Has steering handlebars and is equipped with pedals;
- Is designed to travel on not more than three wheels;
- Has an electric motor that has a power output rating of 500W or less. (Note: the motor is electric, and is incapable of propelling the cycle at speed of 32 km/h or greater on level ground, without pedaling) and
- Bears a permanently affixed label by the manufacturer stating in both official languages that the vehicle conforms to the federal definition of a power-assisted bicycle (refer to image below).

Sample label



Electric Vehicle Conversions:

Electric vehicle (EV) conversions can be operated on roads in Ontario.

Ontario is reviewing registration and safety requirements for vehicles that have been converted to electric power. In the interim, the following registration rules apply. Please note that these rules may change in the future.

EV conversions are:

- Road worthy vehicles that have been converted from an internal combustion engine (gasoline) to an electric power engine.
- Powered exclusively by an electric battery.
- Not equipped or powered by an internal combustion engine or any other method.

To register an EV conversion in Ontario, you will need the following:

- A completed EV Conversion Declaration form (PDF).
- A valid Safety Standards Certificate (SSC) completed after the conversion date.
- A vehicle permit if the vehicle is already registered in Ontario; or appropriate vehicle registration documents.
- Two EV conversion decals (pictured below) which must be affixed to the front windshield and rear window of the vehicle. The decals will be provided at the Driver and Vehicle Licence Issuing Office.



An EV conversion may only be registered at the following three Driver and Vehicle Licence Issuing Offices:

- College Park (Toronto) – 777 Bay Street, Toronto, M7A 2J3
- Downtown Ottawa – 110 Laurier Avenue West, Ottawa, K1P 1J1
- North York (Toronto) – 47 Sheppard Avenue East, Toronto, M5W 1G9

Personal Mobility Devices (Motorized Wheelchairs and Medical Scooters)
Do not require registration, licence plates, driver's licence or vehicle insurance.



Persons operating motorized wheelchairs are treated in the same way as pedestrians.

Wheelchairs can be driven by muscular power or other types of power, and are designed for and used by people whose mobility is limited by one or more conditions or functional impairments. In general, municipalities establish by-laws for where wheelchairs can or cannot be used. Operators should check with their local municipality to ensure by-laws permit their use on sidewalks.

A sidewalk should be the first choice for someone using a wheelchair or medical scooter. When there is no wheelchair accessible curb, the person should return to the sidewalk at the first available opportunity.

If there is no sidewalk available, people using wheelchairs or personal mobility devices should travel, like pedestrians, along the left shoulder of the roadway facing oncoming traffic.

Bicycles

Can be operated on roads in Ontario.



In the HTA, the definition of bicycle includes tricycles and unicycles but not motor-assisted bicycles. You do not need a driver's licence to operate a bicycle in Ontario.

A bicycle is a vehicle that:

- has steering handlebars and is equipped with pedals
- is designed to be propelled by muscular power
- has no age restriction for operators
- can be operated on most roadways (e.g., not allowed to travel on 400 series highways)
- cannot be operated across a roadway within a pedestrian cross-over

An operator must wear a bicycle helmet if under 18 and operating the bicycle on the road. If the operator is under 16 it is the duty of the operator's parent or guardian to ensure that he/she wears a helmet. If the person is 16 or 17 it is his or her personal responsibility to wear a helmet.

No passengers are allowed if the bicycle is only meant for one person. When going slower than the rest of traffic, cyclists should stay as close to the right edge of the road as is practicable. Cyclists are allowed to safely use the full lane if staying close to the right edge of the road is unsafe.

Segway™ Human Transporter / Personal Transporter

Can be operated on roads and sidewalks in Ontario by individuals aged 14 and older with a disability that impairs their mobility, Canada Post employees delivering mail door-to-door, and police officers.



The Segway Human Transporter, also known as the Segway Personal Transporter (commonly referred to as a "Segway"), is a self-balancing, electric-powered transportation device able to turn in place and designed for one person, with a top speed of 20 km/h.

On October 19, 2006, the Province of Ontario began a pilot project to evaluate the use of the Segway Human Transporter and the Segway Personal Transporter device on roads, sidewalks and paths for Canada Post letter carriers, police officers and persons with a mobility disability. The pilot will expire on October 19, 2013.

The pilot test of Segways is open to:

- Any person 14 years of age or older and who has a condition that impairs mobility, or
- Any employee of Canada Post who delivers mail door to door, or
- Any police officer using a Segway for law enforcement purposes.

During the pilot, the following requirements must be met:

- Helmet use for those under the age of 18
- Lights and bell required
- Eligible users should operate their device on the sidewalk, where available, unless municipal by-laws prohibit the operation of motor vehicles on sidewalks
 - When Segways are being used on sidewalks, Segway operators would be subject to the rules of the road that apply to pedestrians under the Highway Traffic Act.
 - The operator must restrict his/her speed to walking speed (police are exempt).
- Where sidewalks are not provided or where the operation of Segways on sidewalks is prohibited by municipal by-law, a Segway can be operated on the shoulder of the road as close to the right edge of the shoulder or if there is no shoulder, on the right side of the roadway as close to the edge of the roadway as possible.
- Segways are prohibited from highways where pedestrians and bicyclists are prohibited by provincial regulation and municipal by-law.

Segways users are not required to hold a driver's licence or have vehicle registration or liability insurance.

Vehicles that cannot operate on roads

Pocket Bikes

Cannot be operated on roads in Ontario.



Pocket bikes are meant for closed circuit use only, not public roadways. These bikes can be imported as "restricted-use motorcycles." However, in order to comply with federal standards, pocket bikes require 17-digit vehicle identification numbers, reflectors and warning labels that clearly state these bikes are intended for off-road use only.

Electric and Motorized Scooters (Go-peds)

Cannot be operated on roads in Ontario.



While these devices fall within the definition of a motor vehicle under Ontario's HTA, they do not meet the provincial equipment safety standards for on-road use. As such, these devices may only be operated where Ontario's HTA does not apply, such as on private property.

Anyone using a go-ped should contact their local municipalities for by-laws pertaining to their use on sidewalks or bike paths.

Low-Speed Vehicles (Expired Pilot Project)

Low Speed Vehicles cannot be legally operated on a roadway in Ontario. The below exemptions no longer apply as the pilot project creating them has been terminated on 01 January 2015.



Expired Pilot Project:

Can be operated by park employees who have a valid driver's licence, other than an M-class licence or G1, on roads in provincial parks, municipal parks and conservation areas in Ontario.

Can be operated by any person with a valid Class A, B, C, D, E, F or G driver's licence on roads with speed limits of 50 km/h or less on Pelee Island, within 50 metres of property owned or occupied by a university or college of applied arts and technology and between private properties by directly crossing certain public roads subject to specific equipment requirements and operating conditions.

Can be operated by any person with a valid Class A, B, C, D, E, F or G driver's licence on public roads with speed limits of 50 km/h or less province-wide, if the LSV meets prescribed additional equipment requirements and Canada Motor Vehicle Safety Standards (CMVSS).

"A "low-speed vehicle" means a vehicle, other than an all-terrain vehicle, or a vehicle imported temporarily for special purposes, that:

- is designed for use primarily on streets and roads where access and the use of other classes of vehicles are controlled by law or agreement;
- is powered by an electric power train;
- does not produce emissions;
- is designed to travel on four wheels;
- does not use fuel as an on-board source of energy;
- has a gross vehicle weight rating of less than 1,361 kg;
- has an attainable speed in 1.6 km of more than 32 km/h but not more than 40 km/h, on a paved level surface; and
- meets the Transport Canada Technical Document 500 standards for LSVs. (This means LSVs are required to have, at minimum, such equipment as headlamps, turn signals, parking brake, windshield, seat belt assembly, and exterior and interior mirrors).

***Please note there are different sets of rules, depending on where a LSV is used.**

LSV usage in parks and conservation areas

On September 19, 2006, the Province of Ontario began a five-year pilot project to evaluate the use of low-speed vehicles (LSVs) on roads in provincial parks, municipal parks and conservation areas. This pilot has been extended and has expired on December 31, 2014.

During the pilot, low-speed vehicles used in parks and conservation areas must:

- meet definition and requirements of an LSV in the federal Motor Vehicle Safety Regulations,
- operate on park roads with speed limit of 40 km/h or less,
- be driven by park employees who hold a valid driver's licence; and,
- have liability insurance.

LSV usage in controlled environments and on public roads province-wide with posted speed limits of 50 km/h or Less

Effective March 21, 2009, the Province of Ontario expanded the LSV pilot for five years to allow any person with a valid Class A, B, C, D, E, F or G driver's licence to drive an LSV on roads with speed limits of 50 km/h or less on Pelee Island, within 50 metres of property owned or occupied by a university or college of applied arts and technology and between private properties by directly crossing certain public roads subject to specific equipment requirements and operating conditions. LSVs will also be permitted to operate on public roads with speed limits of 50 km/h or less province-wide if the LSV meets prescribed additional equipment requirements and Canada Motor Vehicle Safety Standards (CMVSS).

To operate an LSV in a controlled environment with a speed limit of 50 km/h or less, your LSV must:

- Comply with the federal LSV definition;
- Meet the three Canada Motor Vehicle Safety Standards (CMVSS) for LSVs. (i.e., seatbelt assembly, windshield, VIN);
- Be equipped with compartment doors; and
- Meet additional HTA motor vehicle requirements requiring service brakes, high and low-beam headlamps, windshield wiper, odometer, safety glass where glass is used, horn and federally compliant tires.

To operate an LSV on public roads with a speed limit of 50 km/h or less, your LSV must:

- Comply with the federal LSV definition;
- Meet additional HTA motor vehicle requirements requiring service brakes, high and low-beam headlamps, windshield wiper, odometer, safety glass where glass is used, horn and federally compliant tires;
- Be equipped with doors, defog/defrost and heating systems, 3-point seat belts, slow-moving vehicle sign, and a proximity warning device that emits intermittent noise when the vehicle is near pedestrians/bicyclists; and
- Meet eight Canada Motor Vehicle Safety Standards (CMVSS):
 - The current three CMVSS required federally for LSVs. (i.e., seatbelt assembly, windshield, VIN); and
 - Five additional federal Canada Motor Vehicle Safety Standards (CMVSS) requirements for occupant protection, driver impact protection, occupant restraint systems in frontal impacts, seat belt assembly anchorages and side door strength.

During the pilot, the following operating conditions must be met for both pilots:

- Operator must have a valid full driver's licence (other than Class M, M1, M2, G1 or G2) and insurance coverage;
- LSV must have a Motor Vehicle Safety Act (Canada) compliance label* from a manufacturer/importer registered with Transport Canada, and be manufactured as an LSV;
- LSV must be registered and plated as a passenger vehicle;
- Slow-moving vehicle sign required; • Operator to provide a signed "Declaration Form" prior to vehicle registration that states acknowledgement of LSV pilot and the vehicle's safety limitations; • All HTA rules of the road and speed limits apply to LSVs and their drivers;
- LSV to have an interior warning label visible to occupants at all times;
- LSVs not to be driven faster than 40 km/h; • A traffic control device must be present before a low-speed vehicle may directly cross a higher speed road of up to 80 km/h;
- No passengers under age eight; • No towing; • No modifications to increase maximum speed; and
- You cannot use an LSV for an MTO road test.

* Low-speed vehicles being operated as part of the controlled environment pilot (e.g., college and university campuses and Pelee Island) must have a compliance label that bears the notation "ONT-LSV-BASIC" or "ONT-LSV-5CMVSS." Low-speed vehicles being operated on roads with speed limits of 50 km/h or less must have a compliance label that bears the notation "ONT-LSV-5CMVSS."

Only LSVs manufactured/imported by a company registered with Transport Canada, that have a compliance label indicating compliance with the additional five CMVSS requirements, and meet all additional equipment requirements are eligible for use on roads with a speed limit of 50 km/h or less province-wide (subject to the above operating conditions). To view a list of LSV manufacturers/importers that are currently registered, please visit Transport Canada's website at: <http://wwwapps.tc.gc.ca/saf-sec-sur/7/vmrtc-cvaetc/search.aspx> Please note that prior to LSV registration for province-wide use, LSV manufacturers/importers registered with Transport Canada must also provide proof of compliance with the additional 5 CMVSS to the Ministry of Transportation.

Please note that a declaration form (PDF) (HTML) must be provided to the buyer by the seller prior to purchase and that a signed copy must be submitted at the time an LSV is registered. The declaration form outlines the conditions of the pilot, the operator requirements and the limited safety features compared to a passenger car. This form must be signed and handed in when you register your vehicle – without this form, you cannot register your LSV. A copy of the declaration form can be printed and filled out prior to purchasing an LSV.

Municipalities have not been granted the authority to pass by-laws to prohibit LSVs on roads within their jurisdiction.

- For more information on federal safety standards and recommendations, read Transport Canada's low-speed vehicle information sheet.
- For full report: Safe Integration of Electric Low-Speed Vehicles on Ontario's Roads in Mixed Traffic