

INFORMATION BRIEF
Minnesota House of Representatives
Research Department
600 State Office Building
St. Paul, MN 55155

Matt Burress, Legislative Analyst
651-296-5045

December 2006

Low-Power Vehicles

There has been an upsurge in the number and types of low-power vehicles available in Minnesota, including motor scooters, motorized foot scooters, pocket bikes, and neighborhood electric vehicles. They range from recreational vehicles intended primarily for children to more powerful vehicles aimed at young adults and even seniors.

This information brief describes the various types of vehicles and their status under Minnesota law and looks at how some other states have addressed them.

Introduction

Minnesota law regulates vehicle operation on public streets and highways, establishing licensing, insurance, and equipment requirements for different types of vehicles. Recent legislation has established new classifications of vehicles and devices. This reflects a recent expansion in the variety of vehicles available to consumers.

This information brief summarizes low-power vehicle laws in Minnesota. Low-power vehicles include motor scooters, motorized foot scooters, motorized bicycles (or mopeds), and neighborhood electric vehicles. Although all of the vehicles are motorized, they vary greatly in form, size, features, and intended use. They can resemble small motorcycles or passenger automobiles, but have unique characteristics that set them apart from other motor vehicles.

Copies of this publication are available by calling 651-296-6753. This document can be made available in alternative formats for people with disabilities by calling 651-296-6753 (voice) or the Minnesota State Relay Service at 711 or 1-800-627-3529 (TTY) for assistance. Many House Research Department publications are also available on the Internet at: www.house.mn/hrd/hrd.htm.

Summary of Low-Power Vehicles

The table below outlines the basic requirements for each type of low-power vehicle. Subsequent sections provide more detail on vehicle descriptions and regulations.

Requirement	Motor Scooter	Motorized Bicycle	Electric-Assisted Bicycle	Motorized Foot Scooter	Neighborhood Electric Vehicle	Segway
Registration	Title, registration, and license plate	Registration and license plate	Registration and license plate	None	Title, registration, and license plate	None
Licensing	Driver's license with two-wheeled vehicle endorsement	Driver's license or permit	Driver's license or permit	None; minimum operator age is 12	Driver's license or permit	None
Insurance	Liability coverage (same as passenger autos)	Liability coverage (same as passenger autos)	None	None	Liability and personal injury coverage (same as passenger autos)	None
Operation Rules	Generally same traffic laws as with motorcycles and other motor vehicles	Generally same traffic laws as with motorcycles and other motor vehicles	Generally same traffic laws as with motorcycles and motor vehicles; can be operated on certain bike paths	Generally same traffic laws as with bicycles; no operation on sidewalks; can be operated on certain bike paths and trails	Generally same traffic laws as with other motor vehicles; no operation if speed limit is above 35	Generally same traffic laws as with pedestrians; can be operated on bike paths
Safety Equipment	Helmet if under 18; eye protection for all operators; headlight must be on at all times	Helmet if under 18; eye protection for all operators; headlight must be on at all times; taillight required for night	Helmet; headlight must be on at all times; taillight required for night	Helmet if under 18; headlight and reflector required for night	Must meet federal equipment requirements	Reflectors required

Types of Low-Power Vehicles

This section describes the basic classifications of different low-power vehicles under Minnesota law, outlining their legal definitions and general characteristics.

Motor Scooters¹

These are common step-through scooters, with manufacturers such as Vespa and Honda. The engine is generally located underneath where the operator sits, and the standard design has a low platform for the operator's feet. They are defined and legally classified as a type of motorcycle, but are generally lighter (200 pounds), smaller (145 cc engine), and slower (top speed under 60 miles per hour) than the average motorcycle. Under Minnesota law, "motorcycles" are defined as motor vehicles that have no more than three wheels and a seat or saddle for the driver. [Minn. Stat. § 169.01](#), subd. 4.



Motorized Bicycles and Electric-Assisted Bicycles²

Bicycles with attached motors are available in a number of styles that generally resemble a bicycle, although they weigh more (from 55 to over 250 pounds), have additional features such as built-in headlights and turn signals, and may not necessarily have pedals for manual use. They are commonly referred to as "mopeds," although the term can describe other low-power vehicles as well. Minnesota has two categories for bicycles with attached motors. [Minn. Stat. § 169.01](#), subds. 4, 4a.

Motorized bicycles are propelled by an electric or liquid fuel motor, have an engine displacement of up to 50 cc and power of up to 2 horsepower, and are capable of a top speed of 30 miles per hour on a flat surface. Although they are classified as bicycles in law, pedals are not specifically required.



Electric-assisted bicycles have a saddle and operable pedals, no more than three wheels, and an electric motor of up to 1,000 watts. The motor must disengage during braking and have a maximum speed of 20 miles per hour (whether assisted by human power or not). Electric-assisted bicycles are a subgroup of motorized bicycles.



¹ Image source: <http://www.vespausa.com>

² Image sources: <http://www.egovehicles.com>; <http://www.electric-bikes.com/others.htm>

Motorized Foot Scooters³

In the past few years, motorized foot scooters have become increasingly popular among youth. They are also termed “motorized scooters” and “go-peds.” The devices are usually lightweight platforms with two small wheels, having a design similar to a skateboard but with a motor as well as steering and acceleration control via handlebars mounted on the front. Braking is from a hand brake on the handlebar or by using a foot-operated rear-wheel brake. Some have a seat or saddle that sometimes is removable, which is typically found on more powerful and expensive models. Many motorized foot scooters weigh around 20 to 65 pounds, although heavier designs are available.



Types include both gas and electric motors. Electric models generally have a top speed below 15 miles per hour and a range of up to 20 miles. Models with gas engines commonly range from 25 to 50 cc (1.5 to 2.5 horsepower), and can have a top speed of over 30 miles per hour.

Under a Minnesota law passed in 2005, motorized foot scooters are defined as devices that:

- have handlebars;
- can be stood or sat on by the operator (a seat or saddle is not required);
- are powered by an internal combustion engine or an electric motor; and
- have either (1) wheels no more than 10 inches in diameter, or (2) an engine that is capable of a maximum speed of not more than 15 miles per hour on a flat surface.

[Minn. Stat. § 169.01](#), subd. 4c.

Since motorized foot scooters are defined as having a small wheel size *or* a modest top speed, the category also includes many pocket bikes (also referred to as mini-bikes, mini-motorcycles, and mini-choppers). These vehicles have become popular in recent years and are marketed as toys.



³ Image sources: <http://www.electrikmotion.com/GTscotersmain.htm>;
<http://www.lifesaversconference.org/webfiles2006/porter.ppt>

Pocket bikes come in a variety of styles, but typically resemble a miniature-sized motorcycle, with a saddle that is usually located about two feet off the ground. The vehicles are typically powered by a 49-cc gas engine (although electric models are available). They have wheel sizes around 10 inches, weights ranging from just over 30 pounds to about 100 pounds, and top speeds ranging from 30 to over 50 miles per hour. Depending on a vehicle's characteristics, it could be classified as a motorized foot scooter, motorized bicycle, or motor scooter.



Neighborhood Electric Vehicles (NEVs)⁴

Neighborhood electric vehicles (NEVs), also known as low-speed vehicles, are similar to golf carts, but have more power, can carry more passengers or cargo, and are designed for potential operation on public roads. A new Minnesota law passed in 2006 defines an NEV as a four-wheeled, electrically powered motor vehicle that has a maximum speed of between 20 and 25 miles per hour on a flat surface. [Minn. Stat. § 169.01](#), subd. 91.



NEVs have primarily been produced for niche uses such as military bases and retirement communities, but their use is widening. The largest U.S. market is in California. The vehicles are rechargeable through the electrical grid and have a range of between 30 to 75 miles before needing to recharge. Models come in styles ranging from two-seaters to small-scale trucks, weighing 1,000 to around 1,500 pounds. Prices start at about \$8,000.

Segways⁵

Segways were first introduced in 2001. They are referred to in law as “electric personal assistive mobility devices.” [Minn. Stat. § 169.01](#), subd. 90. They have two wheels that are parallel rather than tandem, handlebars that a standing operator uses for steering, and can transport only one person. They are designed to be self-balancing, which contrasts with the other two-wheeled low-speed vehicles that require balancing by the vehicle operator. The latest Segways have a top speed of 12.5 miles per hour and a range of about 24 miles. To be considered an electric personal assistive mobility device under Minnesota law, it must have a maximum speed of 15 miles per hour.



⁴ Image source: <http://www.gemcar.com>

⁵ Image source: <http://www.segway.com>

Wheelchairs

Wheelchairs are in a separate category. Under Minnesota law persons in wheelchairs are considered pedestrians rather than vehicle operators, and have the same rights and responsibilities as pedestrians. This is true whether the wheelchair is powered or not. Wheelchairs are required to remain on sidewalks and stay off streets except to cross them, or in situations where a passable or useable sidewalk is not available.

Low-Power Vehicle Provisions and Requirements

Most low-power vehicles are not subject to state regulation while they are being operated on private land, including private driveways. However, once they venture onto streets, roads, and even alleys they are subject to state, and in some places local, regulations. Recent changes in Minnesota law, with the introduction of motorized foot scooters and NEVs, have expanded the assortment of vehicles that can be operated on public roadways.

Motor Scooters

Motor scooters are treated under Minnesota law in the same manner as motorcycles (the following regulations are the same for motor scooters and motorcycles). *See Minn. Stat. § 169.974*. Motorized bicycles, electric-assisted bicycles, and tractors are not considered motorcycles.

<i>Registration</i>	The vehicle must be registered and carries a registration tax of \$10. Minn. Stat. § 168.013 , subd. 1b. The license plate must be displayed on the rear of the vehicle. A certificate of title also needs to be obtained.
<i>Licensing</i>	A valid driver's license with a two-wheeled vehicle endorsement is required. The fee is \$18.50 for the initial endorsement, and \$13 for each renewal. A two-wheeled vehicle instruction permit is available to a person who is over 16 years old, has a driver's license, is enrolled in a two-wheeled driver's safety course, and passes a written exam.
<i>Insurance</i>	Liability insurance (which covers certain claims from another driver) is required, and is the same as for passenger automobiles. ⁶ Motor scooters and motorcycles are exempt from the requirements of personal injury protection under the Minnesota No-Fault Automobile Insurance Act (which establishes minimum coverage levels for medical, lost wages, and related expenses).
<i>Operation</i>	Operation is allowed on streets but not sidewalks. Motor scooter and motorcycle operators are subject to the same traffic laws as operators of other motor vehicles (except those that by their nature would not be

⁶ The minimum liability coverage is \$30,000 per person for injuries, \$60,000 per occurrence for injuries, and \$10,000 for property damage.

relevant). Instruction permit holders face additional limits on vehicle operation, including prohibitions on carrying passengers and driving at night.

Safety equipment The vehicle must have at least one rearview mirror, a brake light, a horn, and a headlight that is lighted at all times. A helmet is required for operators and passengers under the age of 18, and eye protection is required for all operators.

Motorized Bicycles and Electric-Assisted Bicycles

Motorized bicycles and electric-assisted bicycles are regulated in a manner similar to motor scooters. Most of the laws for motorcycles and motor scooters also apply to motorized bicycles, with a few exceptions. In addition, certain regulations are different for electric-assisted bicycles. [Minn. Stat. § 169.223](#).

Registration The bicycle must be registered, with an annual tax of \$6. [Minn. Stat. § 168.013](#), subd. 1h. The license plate must be displayed on the rear of the vehicle. A title is not required.

Licensing An operator must have a driver's license (a two-wheeled vehicle endorsement is not required), motorized bicycle operator's permit, or motorized bicycle instruction permit. Minors at least 15 years old can obtain an operator's or instruction permit. Fees for a motorized bicycle operator's permit range from \$6 (initial permit, valid for one year) to \$15 (renewal permit for over age 21, valid for four years). [Minn. Stat. § 171.02](#).

Insurance If it is a motorized bicycle, liability insurance (which covers certain claims from another driver) is required, and is the same as for passenger automobiles.⁷ However, liability coverage is not required for an electric-assisted bicycle. Both types of bicycle are exempt from the requirements of personal injury protection under the Minnesota No-Fault Automobile Insurance Act (which establishes minimum coverage levels for medical, lost wages, and related expenses).

Operation The bicycle may not be operated on a sidewalk, except to cross it. An electric-assisted bicycle, but not other motorized bicycles, can be operated on a bicycle path or lane unless (1) it is reserved for non-motorized use, or (2) operation is restricted by local government.

Operators must ride as close as is practical to the right-hand side of the road, and must follow the same traffic laws as operators of motor scooters, motorcycles, and other motor vehicles (except those that by their nature would not be relevant).

⁷ The minimum liability coverage is \$30,000 per person for injuries, \$60,000 per occurrence for injuries, and \$10,000 for property damage.

Safety equipment The bicycle must have at least one rearview mirror, a horn, and a headlight that is on at all times. A taillight is additionally required for operation at night.

A bicycle helmet is mandatory for operators under the age of 18 or if operating an electric-assisted bicycle. Eye protection is required except for operators of electric-assisted bicycles.

Motorized Foot Scooters

Minnesota law treats motorized foot scooters like bicycles, meaning that operators have the same rights as bicyclists and must generally follow the same laws. [Minn. Stat. § 169.225](#).

Registration A motorized foot scooter does not need to be registered, and a certificate of title is not necessary.

Licensing A driver's license or permit is not required for operation. The minimum operator age is 12 years old.

Insurance The device does not need to be insured.

Operation A motorized foot scooter may not be operated on a sidewalk, except to cross it. The device can be operated on a bicycle path, bicycle trail, bicycle lane, or bikeway unless (1) the pathway is reserved for non-motorized use, or (2) operation is restricted by local government.

Operators must ride as close as is practical to the right-hand side of the road, and must follow the same traffic laws as bicyclists. This includes a requirement that when making a left turn, the rider must dismount and cross the roadway on foot (the person is then subject to any restrictions applicable to a pedestrian).

No passengers besides the operator can be carried.

Safety equipment Any person under age 18 must wear a helmet.

The device can be operated when it is dark out, but under current Department of Public Safety regulations it must meet the same lighting requirements that apply to a bicycle: a headlight that is visible at least 500 feet ahead, and a red reflector that can be seen from 600 feet behind when in the path of a motor vehicle's headlight.

Neighborhood Electric Vehicles (NEVs)

NEVs are most similar under Minnesota law to passenger motor vehicles. See [Minn. Stat. § 169.224](#). Because of the registration and vehicle equipment requirements, most golf carts would not be considered an NEV. In general, the only circumstances under which golf carts can be legally operated on public streets and highways is when they are driven on designated roads by a disabled person with a locally issued permit.

<i>Registration</i>	<p>An NEV is considered a passenger automobile and must be registered. It is subject to the same registration tax (based on vehicle value, depreciated over time) as cars, pickup trucks, and vans. License plates must be displayed on the vehicle.</p> <p>A certificate of title also must be obtained, which requires a vehicle identification number and a manufacturer's certificate of origin.⁸ Homemade electric vehicles and retrofitted golf carts do not qualify for titling.</p>
<i>Licensing</i>	<p>A valid driver's license or instruction permit is required, and no special endorsement is necessary.</p>
<i>Insurance</i>	<p>Insurance requirements match that of other passenger automobiles, including liability coverage (which covers certain claims from another driver) and personal injury protection under the Minnesota No-Fault Automobile Insurance Act (which establishes minimum coverage levels for medical, lost wages, and related expenses).⁹</p>
<i>Operation</i>	<p>Drivers of NEVs are subject to the same traffic laws as operators of other motor vehicles. The vehicle cannot be operated on a street or highway with a speed limit above 35 miles per hour, except to directly cross it. A local government can restrict use of the vehicle on its roads.</p>
<i>Safety equipment</i>	<p>The vehicle may only be operated on public streets and highways if it meets federal equipment standards established for low-speed vehicles. This includes: a windshield, headlamps, tail-lamps, brake lights, front and rear turn signals, reflectors at the rear, rearview mirrors, a parking break, a seat belt, and a vehicle identification number.</p>

Segways

Operators of a Segway (or other electric personal assistive mobility device) have the same rights and responsibilities as pedestrians, with some additional requirements. [Minn. Stat. § 169.212](#).

<i>Registration</i>	<p>They do not need to be registered, and a certificate of title is not necessary.</p>
<i>Licensing</i>	<p>A driver's license or permit is not required for operation.</p>
<i>Insurance</i>	<p>The device does not need to be insured.</p>
<i>Operation</i>	<p>The device may be operated on a bicycle path. Operators must use due care, and may not go at speeds that are not "reasonable and prudent</p>

⁸ The certificate of origin is created by the vehicle manufacturer and sent to a dealer along with the vehicle itself. The dealer then provides the certificate to the Department of Public Safety when the vehicle is sold.

⁹ The minimum liability coverage is \$30,000 per person for injuries, \$60,000 per occurrence for injuries, and \$10,000 for property damage. The minimum personal injury protection coverage is \$40,000 per person per accident (\$20,000 for hospital and medical expenses, and \$20,000 for other expenses such as lost wages).

under the conditions.” [Minn. Stat. § 169.212](#).

Segways can only be operated on a road if directly crossing the roadway, the sidewalk is obstructed or unavailable, under direction of a traffic control device, or temporarily to reach a motor vehicle.

No passengers may be carried.

Safety equipment The device must have reflectors on its front, back, and wheels, which can be seen from 600 feet when in the path of a motor vehicle’s headlight.

Identifying the Type of Vehicle

A wide variety of low-power vehicles have been coming onto the market in recent years. The characteristics of a vehicle, such as engine size, top speed, and safety equipment, determine how it is treated under Minnesota law. In particular, determining whether a specific model is classified as a motor scooter, motorized bicycle, motorized foot scooter, or motorcycle can be challenging.

A key issue is whether the vehicle fits one of the definitions of those vehicles identified under Minnesota law. With a vehicle that does not clearly fit any low-power vehicle definition, if it has two or three wheels as well as a seat or saddle, it is likely to be classified as a motorcycle. Vehicle title and registration would therefore be required. However, pocket bikes and smaller scooters that might fall into the motorcycle classification often lack safety equipment required under federal regulations, preventing a vehicle identification number (VIN) from being assigned. Since a VIN is needed in order to issue a title, the vehicle would not be able to be titled and registered, which is necessary for legal operation on public roads.

The default categorization for a vehicle or device that does not conform to any other low-power vehicle definition is simply a motor vehicle. As such, it would need to be registered and have license plates, the operator must have a driver’s license, full insurance coverage is required, and the vehicle must be equipped with lights, turn signals, and brakes at both the front and rear.

Legislation in Other States

There are relatively longstanding laws addressing motorcycles and motor scooters in most states, and recent legislation has dealt with other kinds of low-power vehicles. Almost all states now have regulations governing NEVs. The definition of an NEV generally matches Minnesota’s, which is based on a federal standard. States usually allow operation only on roads with a speed limit of 35 miles per hour or less. The majority of states allow Segways to be used on public sidewalks and bike paths. A handful have not enacted legislation governing their use, and they are not allowed in a couple of states.

States are beginning to address the status of motorized foot scooters, and there is variation among those states that have specific laws. Some, including Delaware and New Jersey, prohibit operation on public roads, trails, and sidewalks. Others have different provisions for:

- minimum operator age (ranging from no minimum in Washington to age 16 in California, Florida, and Oregon);
- helmet requirements (generally required);
- driver's license (required in a couple of states including Florida and Maine); and
- maximum speed limit of streets on which they can be operated (25 miles per hour in a few states such as California and Oregon).

Recent legislative activity on pocket bikes has primarily consisted of prohibiting their operation on public streets and roads, sidewalks, trails, and other public lands. Concerns about the vehicles include engine noise, lack of safety equipment such as horns and mirrors, stability at higher speeds, and reduced visibility of both the vehicle (due its small size) and the operator (due to positioning quite low to the ground). A couple of states have also recently enacted labeling and disclosure laws. California, New Hampshire, and Connecticut require that manufacturers or retailers affix a label stating that pocket bikes cannot be legally operated on public roads. New Hampshire additionally requires disclosure by the retailer that the vehicle might not be covered under an operator's insurance policy.

For more information about vehicles, visit the transportation area of our web site, www.house.mn/hrd/issinfo/trans.htm.