



# E-bikes in Vermont: Frequently Asked Questions

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## What is an e-bike?

Under VT law, an electric bicycle (e-bike) is a bicycle with an electric motor of less than 750 watts. Electric bicycles can provide propulsion via pedal assist, which refers to the motor providing assistance when the rider is pedaling, or by throttle, which does not require the rider to pedal. In order to qualify as an e-bike under VT law, the vehicle must meet specific requirements for one of the three e-bike classes defined in statute:


**Class 1:** Motor provides pedal assistance (only propels when rider is pedaling) (no throttle), and pedal assistance ceases at 20 MPH.

**Class 2:** These bikes may be propelled by throttle, and may also have pedal assistance. Pedal assistance and/or throttle power both cease at 20 MPH.

**Class 3:** Pedal assistance only, with a power cut off speed of 28 MPH.

There is a fourth type of vehicle that is defined as a “motor-assisted bicycle” in the statute. A motor-assisted bicycle can be a bicycle or tricycle, and can have pedal assist, throttle, or both. It cannot produce a speed over 20 MPH with throttle alone, and has a motor with a power output under 1,000 watts.

Below is a table which clarifies the differences between the e-bike classes and motor-assisted bicycles. Reference: [23 V.S.A. § 4 \(45\)\(A\) - \(46\)\(A\)](#)



### Vermont's electric bicycle types

Type	Power actuation	Assist cut-off	Power limit	Other regulations
Class 1 E-bike	Pedal assist only	20 MPH	749 watts	N/A
Class 2 E-bike	Throttle (usually with pedal assist)			
Class 3 E-bike	Pedal assist only	28 MPH		Must be 16+ to operate
Motor-assisted bicycle	Pedal assist or throttle	20 MPH under throttle, no pedal assist limit	1000 watts	Not permitted on sidewalks Must be 16+ to operate

## What traffic laws apply to e-bikes?

**E-bikes and motor-assisted bicycles are not legally considered motor vehicles, and are mostly governed by the same laws that apply to bicycles ([23 V.S.A. § 1136](#), [1136a](#)).**

These additional regulations apply to e-bikes and motor-assisted bicycles:

- A person under 16 cannot operate a motor-assisted bicycle on a road in Vermont
- Motor-assisted bicycles cannot be ridden on sidewalks in Vermont
- A person under 16 cannot operate a class 3 electric bicycle on a road in Vermont, but can ride on one as a passenger
- There are additional requirements for labeling, speedometers, and compliance with CPSC requirements outlined in 1136a.

## How fast can an e-bike go?

**The vast majority of e-bikes sold in the U.S. are class 1 and class 2, so most e-bikes on the road cease to provide any power output above 20 MPH.**

The top speed at which any legal electric bicycle will produce assistance or power is 28 MPH, which is the cut-off speed for assistance for a class 3 electric bicycle.

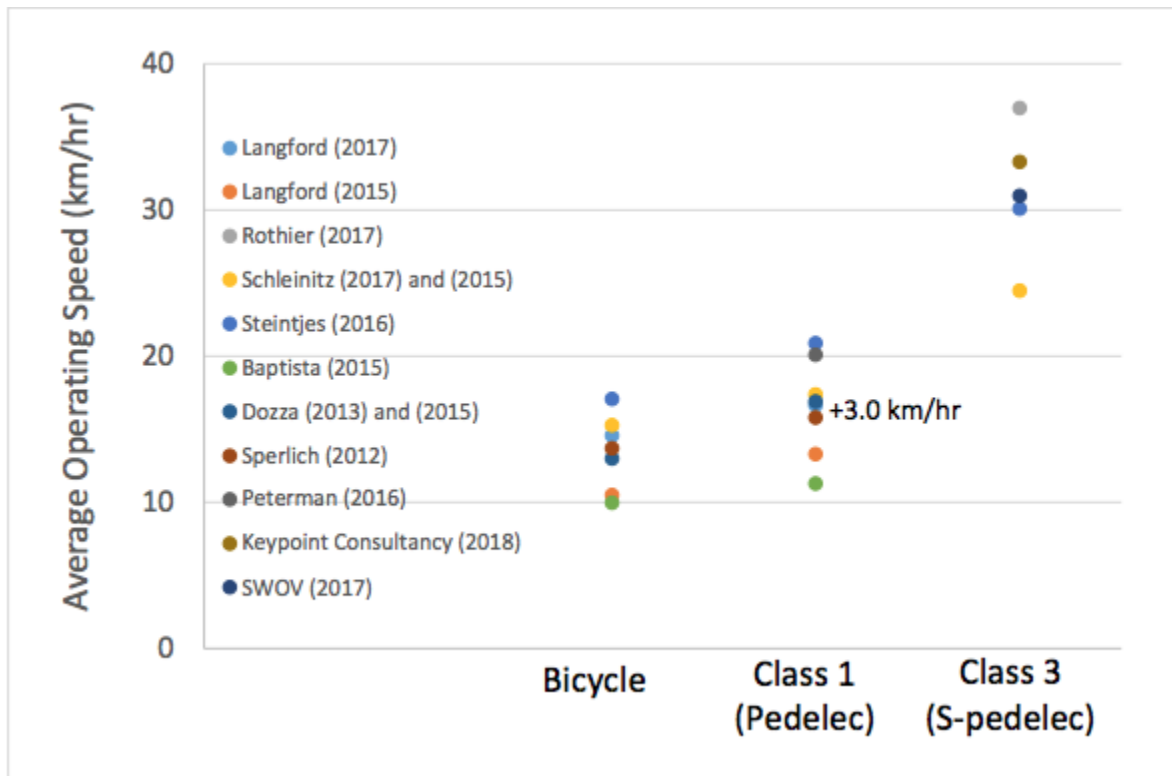
Motor-assisted bicycles do not have a regulated top speed for pedal assist. They are regulated by power output, and power provided via throttle cuts off at 20 MPH.

It is physically possible for a rider to propel an electric bike at speeds above the power cut off, but this is very difficult to do, and even the strongest riders struggle to exceed power cutoff speeds—even by 1 or 2 MPH—for more than a moment. This is largely due to the weight of the bicycle, as well as additional rolling resistance created by the larger tires that come on many e-bikes.

## How fast do e-bikes usually go?

**[Most evidence points to e-bike riders sustaining average speeds about 2 - 3 MPH faster than riders on conventional bikes.](#)**

Counterintuitively, top speeds of e-bike riders do not tend to be higher than riders on conventional bicycles, likely due to e-bike weight and tire rolling resistance. Essentially, it is easier to maintain a speed of 15-20 MPH on an e-bike compared to a traditional bike, but much more difficult to maintain speeds in excess of the electric assistance cut-off, which is typically 20 MPH. E-bike speeds are close enough to that of traditional bicycles that they can operate on the same facilities without issue.



Note that the chart above is in kilometers per hour. 20 KPH is equal to 12 MPH. [Chart Source](#)

What's up with e-bikes that have throttles? Isn't that a motorcycle?

Class 2 e-bikes have throttles that may be used to propel the bike at speeds up to 20 MPH. In practice, throttle power alone is usually not sufficient to propel an e-bike at that speed. While a small number of class 2 e-bike riders may occasionally power their e-bike with throttle alone, most riders primarily use pedal assistance, as using the throttle drains the battery more quickly.

Because pedal assistance is reliant on the pedals rotating, and pedal rotation is only possible when the bike is moving, throttles can be very useful when getting going on an e-bike. This is especially true when a rider is starting on an uphill, or carrying cargo or passengers.

A motorcycle is a much heavier, higher-powered motor vehicle that is capable of dramatically faster acceleration and higher top speeds.

Who can ride an e-bike?

**There are no restrictions on class 1 and 2 e-bikes. People under 16 cannot operate class 3 e-bikes or motor-assisted bicycles in Vermont, but may ride as passengers.**

Are e-bikes more dangerous than traditional bikes?

The [most comprehensive meta analysis](#) on this subject did not find definitive negative or positive safety impacts.

Unfortunately, there are issues with crash data, as well as differences in user types and trip length which currently make evaluating this question challenging. Given that there is little difference in average speed, it stands to reason that there is not much difference in safety when trip distance and growth in the number of users are accounted for.

What education is currently provided to e-bike purchasers?

Local Motion is developing educational materials which will be distributed to Vermont bike shops and can be given out with bikes. We are also working with VTrans on a more comprehensive e-bike education campaign.

Local Motion also provides educational programming applicable to e-bikes for adults through our Everyday Bicycling Workshops.

We train Vermont elementary and middle school students every year with Bike Safety skills through our Bike Smart program. Bike Smart is in its seventh year of operation, and over the lifetime of this program, we have served 31,579 children, with 148,713 hours of training in 178 programs. Bike smart has gone to 60 towns and 73 schools and camps in all 14 Vermont counties!

Where can an e-bike be ridden?

**E-bikes and motor-assisted bicycles are not motor vehicles, so they can generally be ridden anywhere that a traditional bicycle can be ridden.**

Motor-assisted bicycles cannot be ridden on sidewalks. 23 V.S.A. § 1136a allows municipalities/property owners to regulate access of e-bikes on multi use paths (bike paths). Natural-surface singletrack (mountain biking and hiking trails) is a different issue—Vermont Mountain Bike Association is a better resource on that topic.

## Do people use e-bikes to replace car trips?

**Yes! Many Vermonters use e-bikes for transportation, and many more are interested in doing so.**

- In a survey of 104 Vermonters who borrowed e-bikes through Local Motion's E-bike Lending Libraries, 84% of respondents said that owning an e-bike would increase the distance or frequency of their transportation bike trips
- Also from that survey, most respondents think they would replace at least 20% of the trips they normally take alone in a car with an e-bike if they owned one
- In a statistically representative survey of Chittenden County residents administered by Embold Research on behalf of Local Motion, we found that 39% of residents are interested in using an e-bike for transportation purposes

## Do people use e-bikes for recreation?

**Yes! E-bikes are ridden for recreation just like traditional bikes.** [Research indicates](#) that e-biking can help people meet recommendations for physical activity and increase their physical fitness—and this is true whether users are riding for transportation or for recreation.

## Can e-bikes help us reduce transportation emissions?

**Yes. E-bikes are an extremely cost-effective way to reduce transportation emissions, and in the process we will also enjoy benefits to public health and reduced transportation costs for Vermonters.**

Here is a quote from a recent article that explored this subject:

Because e-bikes are not cars, it is tempting to dismiss e-bike subsidies as a waste compared to ZEVs [zero-emissions vehicles]. After all, most people drive for most trips, so that logic suggests that getting people into ZEVs is the most direct way of decreasing gasoline miles.

But researchers have found that e-bikes can displace gasoline miles quite effectively, too. When a household buys an e-bike, their driving (as measured by vehicle miles traveled, or VMT) decreases by more than a third. While not as much as a ZEV, which cuts 100% of gasoline VMT, the lower cost of stimulating e-bike sales with rebates more than makes up the difference. When that is taken into consideration, an e-bike subsidy is 2.9 times more effective per dollar at displacing gasoline miles than a ZEV subsidy.

You can read the entire article, as well as view the calculations and studies used [here](#). This is one of many studies which have found e-bikes to be a cost-effective means of reducing emissions.

## Can e-bikes reduce transportation costs for Vermonters?

**Absolutely. According to industry experts at [People for Bikes](#), the average price of an electric bicycle is \$2,000 before rebates. This is 3% of the average cost for a new electric car ([\\$66,000](#)).**

In some areas of Vermont, it is realistic to entirely replace a car with an e-bike—especially in developed areas and where options for transit and even car sharing exist. Some Vermont households purchase e-bikes instead of owning second cars. Even for individuals who own cars, an e-bike can quickly pay for itself based on how much mileage it replaces and the significantly lower cost per mile of riding an e-bike.

## Should the State subsidize e-bikes?

**Local Motion and its coalition partners at [Transportation for Vermonters](#) strongly believe that the State should subsidize e-bikes, for the reasons outlined above and more.**

In the statistically representative poll Local Motion conducted of Chittenden County residents, cost was by far the most commonly identified barrier to owning/using an e-bike, suggesting that the State subsidy is needed and makes a difference.

Based on funding utilization in FY23, and the effectiveness of e-bike incentives in reducing greenhouse gas emissions, we recommend allocating \$500,000 for e-bike subsidies in FY24.

Local Motion is also interested in adjustments to the structure of the subsidy program aimed at:

- Advantaging locally-owned bike shops over national direct-to-consumer sellers by making bikes sold locally price-competitive with those sold direct-to-consumer
- Further increasing the subsidy for low-income Vermonters

## Who used the State e-bike subsidy in FY23?

Drive Electric VT provides a [dashboard with statistics](#) on the e-bike rebate. Here are a few key facts:

- Program launched with ~\$92k in rebates available in July 2022 and ran out of funding within three months, in September 2022.
- 55% of the total number of rebates went to low-income Vermonters who qualified for an enhanced rebate.
- 66% of the funding was used for enhanced rebates for low-income Vermonters.
- Per-capita rebate utilization by county is as follows (ranked in from highest to lowest):
  1. Caledonia
  2. Orange

3. Washington & Lamoille (tied)
4. Chittenden
5. Rutland
6. Franklin
7. Windsor
8. Addison
9. Bennington & Grand Isle (tied)
10. Windham
11. Orleans
12. Essex