



Electric bicycles: It has a motor, but in California it's not a motor vehicle

HOW E-BIKES ARE CLASSIFIED AND THE LEGAL RULES OF THE ROAD FOR THIS FAST-EMERGING MODE OF TRANSPORTATION

The California Legislature recently passed a transportation bill, Senate Bill 814, amending the Vehicle Code to clarify the status of electric bicycles (e-bikes). Those amendments became effective on January 1, 2022. For example, the definition of “bicycle” was expanded from covering only devices propelled by human power to add: “An electric bicycle is a bicycle.” (Veh. Code, § 231.)

That sounds pretty straightforward, but the expansion is more significant than it may seem. In the fast-evolving world of non-automobile options to move people and goods, statutory definitions are essential to distinguish between e-bikes, scooters, mopeds and pedicabs, and to identify corresponding insurance, license, and other legal requirements.

Cycling is fun and practical. Especially along California’s hilly coast, e-bikes help make cycling a more attractive option for people of all ages and ability, and they expand opportunities for commercial uses. I got over some lingering ex-racer pride many years ago and started using one to commute to the office, the best use of that time by a mile. For transportation policy nerds, e-bikes are also an opportunity to use all the hippest mobility-lingo in one breath: active transportation, sustainable transportation, and clean mobility. American consumers bought nearly one million e-bikes in 2021 (see <https://slate.com/technology/2021/02/e-bikes-act-electric-bicycles-subsidy.html>), about double the number imported to the U.S. in 2020. (See <https://electrek.co/2022/02/08/us-electric-bicycle-sales-tracking-towards-1-million-annually-global-market-heading-to-40b-with-a-b/>)

E-bikes can move fairly fast through an infrastructure designed primarily for cars, and riding one does come with some potential risk to the rider and those around them. This article is meant to provide a quick, practical checklist of issues to consider when evaluating an e-bike incident in California.

E-bike motor basics

A “bicycle” is a device having one or more wheels that can support a rider who can propel it through a belt or chain drive system. (Veh. Code, § 231.) An e-bike is a bicycle with “fully operable” pedals and a motor that must produce less than 750 watts, or 1 horsepower. (Veh. Code, § 312.5, subd. (a).) The motor provides some “assist” or forward rotation, either to the axle onto which cranks are mounted or the hub of one wheel. The motor must disengage or stop functioning when the brake is applied or when its on-switch is released. (Veh. Code, § 24016.) Tampering with or modifying an e-bike to change its top speed is prohibited. (Veh. Code, § 24016, subd. (d).) There is one narrow exception. A person shall not tamper with or modify an e-bike to change its speed capability unless they can re-label the bike and certify that it meets specific standards adopted by the US Consumer Safety Commission. (Veh. Code, § 24016(d).)

How e-bikes are categorized

E-bikes are now available in so many configurations and with a growing range of features. Some are designed for street use, some for hauling cargo, others for off-road travel; there’s even an amphibious version. California law recognizes just three basic categories, that determine where and how an e-bike may be ridden.

Commercially manufactured e-bikes are a breeze to identify. The manufacturer is required to stick a label on the bike that contains the bike’s classification number, top speed, and motor wattage. (Veh. Code, § 312.5, subd. (c).) There are also custom and home-made versions out there. Any bicycle can be fitted with a wide range of add-on motors, which may be much more difficult to classify. Vehicle Code section 312.5, subdivision (c) defines the three recognized classes:

A Class 1 e-bike’s motor only assists when the rider is peddling and stops assisting at 20 miles per hour.

A Class 2 e-bike may have a throttle so that the motor assists even when the rider is not peddling. The motor stops assisting at 20 miles per hour.

A Class 3 e-bike’s motor only assists when the rider is peddling, stops assisting at 28 miles per hour, and the bike must have a speedometer.

Many Class 1 and 3 e-bikes come with a strain-gauge that detects force applied through the drivetrain. Some force is required before the motor engages to prevent the bike from lurching forward unexpectedly, while stopped at an intersection, for example. When the rider pauses peddling and no force is detected, the motor disengages or stops. While all e-bike motors must be designed to stop providing assist at some top speed, any e-bike can go even faster down a steep grade or with some extra effort from the rider.

The throttle option on a Class 2 e-bike stands out. Some readers may remember that a “motor vehicle” is a vehicle that is self-propelled. (Veh. Code, § 415, subd. (a).) A Class 2 e-bike’s throttle may sound a lot like that. With the new clarification that “an electric bicycle is a bicycle,” (Veh. Code, § 231), so long as the technical requirements of Vehicle Code section 312.5 are met, “an electric bicycle is not a motor vehicle.” (Veh. Code, § 24016, subd. (b).) That has become an important distinction to keep our Vehicle Code coherent when, for example, “no person shall drive a motor vehicle in a bicycle lane....” (Veh. Code, § 21209, subd. (a).) There are a few exceptions to this restriction, of course, such as to access an adjacent parking space, enter or leave the roadway, or within 200 feet of an intersection when preparing to turn. (Veh. Code, § 21209, subd. (a).)

Electric pedicabs

The recent amendments to our Vehicle Code really grew out of an ambiguity that made it difficult or impossible for pedicab operators to get

permits for electric pedicabs. The definition of pedicab now incorporates that of an e-bike and may be worth mentioning here. The best things come in threes, and pedicabs also come in three categories under Vehicle Code section 467.5:

- A bicycle or e-bike with three or more wheels that is capable of transporting passengers for hire. (Veh. Code, § 467.5, subd. (a).)
- A bike or e-bike pulling a trailer or sidecar used by its operator to transport passengers for hire. (Veh. Code, § 467.5, subd. (b).)
- A four-wheeled device primarily or exclusively pedal-powered with seating for eight or more, limited to 15 miles per hour and used to transport passengers for hire. (Veh. Code, § 467.5, subd. (c).)

As we cover various rules that apply to e-bikes, keep in mind they also apply to an e-bike being used as a pedicab, except that the pedicab may also be subject to additional local laws.

No liability insurance, driver's license or registration required

Inspecting the bike in question carefully and determining whether it fits the definition of some class of e-bike may help avoid insurance coverage disputes. Regardless of its class, the rider of an e-bike is not subject to the Vehicle Code's financial responsibility requirements, and does not need a driver's license, registration or a license plate. (Veh. Code, § 24016, subd. (b).) For privately owned e-bikes, for example, many non-auto insurance policies provide coverage for bike-related incidents but may exclude motor vehicles.

If an e-bike is being used as a pedicab, on the other hand, it is quite a different story. Cities are authorized to regulate this industry by ordinance. (Veh. Code, § 21100, subd. (n).) San Francisco is an obvious example, which has adopted a handful. (Ord. 38-86 § 3901 et seq.) A driver's license is required. So is training, a permit issued by the SFPD, and a metal license plate to be renewed annually. Insurance coverage (or a bond) is also required with minimum limits increasing according to the size of the operation,

and workers' compensation coverage must be provided. (*Id.* at § 3905.)

Rules for operating an e-bike on roads and bicycle facilities

In California, a bicycle rider has essentially the same rights and responsibilities as the driver of any vehicle. (Veh. Code, § 21200.) That means observing speed limits, rules about passing movements, traffic controls and more. Rules of the road that are specific to bicycles also apply to e-bikes, with a few exceptions that we'll cover here. A careful review of these rules may be helpful if there is any question about right-of-way or comparative fault.

A cyclist, whether on bicycle or e-bike, may ride in the traffic lane of a so-called Shared Roadway (one with no bikeway designation). On an e-bike, however, she may be required to use, or prohibited from using, some specific bicycle facility when available, such as a bike lane or bike path. (Chapter 1000 of California Department of Transportation's Highway Design Manual provides an excellent overview of various facilities built for bicycle travel. Available for download at: <https://dot.ca.gov/-/media/dot-media/programs/design/documents/chp1000.pdf>) Bicycle facilities are also classified, and it may be helpful to have thumbnail descriptions close at hand:

Class I "Bike Paths" are the gold standard. They provide a completely separated right-of-way for bicycles and pedestrians only, minimizing motor-vehicle crossflow. (Sts. & Hy. Code, § 890.4, subd. (a).)

Class II "Bike Lanes" provide a restricted right-of-way for the exclusive or semi-exclusive use of bicycles. Motor vehicle or pedestrian use is prohibited except to access parking and for crossflow. (Sts. & Hy. Code, § 890.4, subd. (b).)

Class III "Bikeways" provide a right-of-way shared with pedestrians and motorists. (Sts. & Hy. Code, § 890.4, subd. (c).) These are really a way-finding feature marking preferred routes for bikes, marked with signs or "sharrows" (painted bike with chevrons).

Class IV "Separated Bikeways" are another gold standard, providing a right-of-way exclusively for bikes adjacent to a roadway, separated from vehicular traffic. Separation may be by grade, flexible posts, inflexible physical barriers, or on-street parking. (Sts. & Hy. Code, § 890.4, subd. (d).)

For all bikes and e-bikes, one requirement to keep in mind is that when there is a Class II bike lane present, a rider moving slower than the normal speed of traffic must use it unless (1) she needs to leave the lane to safely pass another bike, car or pedestrian, or to avoid debris or some other hazard, or (2) she is getting ready to turn left at an intersection or to turn right. (Veh. Code, § 21208, subd. (a).)

Given that e-bike motors stop assisting at 20 or 28 miles per hour, an e-bike rider would be required to use an available Class II facility in most instances.

In terms of restrictions specific to e-bikes, a Class 3 e-bike "shall not be operated on a bike path or trail, bikeway, bicycle lane ..., equestrian trail, or hiking or recreational trail" unless one of two things is true: (1) the facility is within or adjacent to a roadway; or (2) a local agency permits riding a class 3 e-bike there by ordinance. (Veh. Code, § 21207.5, subd. (a).)

Bottom line: riding a Class 3 e-bike on a Class I bike path is prohibited. Riding a Class 3 e-bike in a Class II lane is generally allowed as bike lanes are usually within or adjacent to the roadway. The same goes for Class III, generally allowed.

Riding a Class 3 e-bike in a Class IV bikeway is prohibited unless it is adjacent to the roadway. A few tables show up online summarizing rules for e-bikes that disagree on this last point, and it is worth looking carefully at both the law and the bikeway's design (manner and degree of separation) if this issue ever arises.

There may be other very local restrictions to investigate, depending on the location. The use of e-bikes on public grounds, for example, may be restricted by a transit board or the Regents of the

University of California. (Veh. Code, § 21113.)

Rules for off-road use

Off-road e-bike riding is growing more popular each year. The general framework for regulating off-road e-bike riding on trails is to prohibit Class 3 e-bikes unless specifically allowed by the local agency, and to allow Class 1 and 2 e-bikes access unless specifically prohibited.

A Class 3 e-bike “shall not be operated on a ... trail, ..., equestrian trail, or hiking or recreational trail” unless a local agency permits riding a Class 3 e-bike there by ordinance. (Veh. Code, § 21207.5, subd. (a).) The local agency “may prohibit, by ordinance, the operation of a class 1 or class 2 electric bicycle on that path or trail.” (Veh. Code, § 21207.5, subd. (b).)

California’s State Parks Department does allow Class 1 e-bikes on some controlled-access roads and trails, in most cases where traditional mountain bike use is already permitted. Class 2 and 3 e-bikes are not allowed anywhere except on public roads and in a few vehicular recreation areas. This is an evolving landscape, and the Department has done a remarkable job of listing which trails allow access in a table sorted by class of e-bike. (See California Department of Parks & Recreation’s e-bike policy and access updates at: https://www.parks.ca.gov/?page_id=30521)

Marin County has adopted an ordinance on the topic, Ord. 3711, section II, 2019, Ch. No. 10.05.030(b), which provides:

No person shall operate any class 1 or class 2 electric bicycle within parks except upon paved roads, paved designated bicycle and multi-use pathways or public roads not signed against such use. Furthermore, no person shall operate or possess any class 1 or class 2 electric bicycle elsewhere within parks, including fire roads and trails, unless signed specifically to permit such operation.

The point is, figuring out whether off-road use of an e-bike was poaching or permitted will take some investigation. Similarly, rules for when bicycles or e-bikes may be ridden on a sidewalk vary

wildly from city to city, town to town, often dependent on the age of the rider, commercial zones and other criteria.

Age, helmet and lighting requirements

There is no minimum age to ride a Class 1 or Class 2 e-bike, or requirement the rider wear a helmet while doing so other than the general requirement that people under 18 wear one when riding a bike on a street, bikeway, path or trail. (Veh. Code, § 21212.)

A rider must be 16 or older to operate a Class 3 e-bike. (Veh. Code, § 21213, subd. (a).) Both the rider of a Class 3 e-bike and any passenger are required to wear a helmet that meets specific national standards. (Veh. Code, § 21213, subd. (b).) The helmet requirement also applies to passengers in a side-car or trailer attached to a Class 3 e-bike, so customers riding in some electric pedicabs too. (*Ibid.*)

Most commercially produced e-bikes come with hard-wired front and rear lights to comply with very specific lighting requirements, a white front light visible from 300 feet and red rear visible from 500 feet. (Veh. Code, § 21201, subd. (d).) A minor point, maybe, but something to consider.

E-bikes distinguished from mopeds or motorized scooters

As a careful lawyer you will want to turn over every stone. Sometimes twice. In the absence of a manufacturer’s sticker identifying an e-bike’s class, you may want to consider whether it could be a moped or motorized scooter. Especially in the case of custom or home-made motorized bikes. Recall that a bicycle is a device having one or more wheels that can carry its rider who propels it through a belt or chain drive. An e-bike must have working pedals and a motor capable of less than 750 watts.

A “motorized bicycle” or “moped,” could have two or three wheels, may or may not have pedals, must have an automatic transmission, a motor that produces less than 4 horsepower, and have a top speed of 30 miles per hour. (Veh. Code, §406.) Unlike an e-bike, mopeds

must come with an obvious disclosure in 14-point font, all caps, warning that the owner’s insurance policy may not cover its use. (*Ibid.*) The disclosure won’t appear on a sticker. It must be provided on a single piece of paper. (*Ibid.*) Vehicle Code section 21209 prohibits driving a motor vehicle in a bike lane, but specifically carves out motorized bicycles being used in a reasonable manner. (Veh. Code, § 21209, subd. (b).) A “motorized scooter,” on the other hand, is a two-wheeled device with handlebars, a floorboard or with seat and footrests, possibly human-powered but it must also have a motor. (Veh. Code, § 407.5, subd. (a).) The seat/footrest configuration is new in 2022. The motor may be electric or powered by “a source other than electrical power.” (Veh. Code, § 407.5, subd. (b).) Like a moped, a motorized scooter must also come with an obvious disclosure that the owner’s insurance may not cover its use. (Veh. Code, § 407.5, subd. (c).) A motorized scooter may be used on a bike path, trail or bikeway unless prohibited by the local agency. (Veh. Code, § 21230.) Other technical requirements and rules of the road for scooters are spelled out in Vehicle Code section 21235.

Imagine a future for cycling with no loss of life

E-bikes are growing in popularity every year. It is so exciting to see the many creative ways people are using them to combine transportation with physical activity, and in a way that reduces the amount of vehicle traffic and jaw-clenching in our world. And yet, more than 1,000 people are killed each year while riding in the U.S., and 130,000 are injured.

As a transportation policy nerd and someone who has lived in the Netherlands, I do believe that promoting cycling through better infrastructure is the right direction. That requires a clear vision and the Vision Zero Network’s platform is perhaps the best starting point: no loss of life is acceptable. If other countries can build a coherent network that makes cycling a safe and attractive option, so can we. That may take time.

For now, cyclists remain especially vulnerable.

Nestor Schnasse is the principal attorney at Schnasse Law. He has practiced law in

California for more than 15 years and is based in Novato. He represents people who have been seriously hurt or lost a loved one in personal injury cases, including bicycle, auto, premises liability and government liability. He is also a

cyclist who in his youth competed in international road-races throughout Europe and Australia. Bicycle cases are one focus of his law practice, an opportunity to draw on personal experience.