# **District of Columbia E-Bike Guide**



# Making E-Bikes more affordable for the District



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# INTRODUCTION

When you ride an e-bike, you're riding with power, but as the saying goes, with great power comes great responsibility.

The **District Department of Transportation (DDOT)**, with great credit to **BikePGH**, created this guide to help readers make informed, safe choices when purchasing, riding, and maintaining their e-bikes for the most rewarding experience possible. Read on and get rolling!



# WHAT IS AN E-BIKE?

What makes an e-bike an e-bike? Simply put, an e-bike is a bicycle with an electric motor, also called a drive unit, powered by a battery.

In the United States, a legal e-bike **must have operable pedals**, meaning you can pedal it with or without any motor assistance, and a motor with no more than 750 watts of power.

Different states have different legal definitions, but the industry and at least 39 states recognize e-bikes as fitting into the following three classes:



A "Class 1 electric bicycle" is equipped with a motor that only provides pedal assistance when the rider is pedaling and stops providing pedal assistance when the bicycle reaches the speed of 20 miles per hour.



A "Class 2 electric bicycle" is equipped with a motor that may be used exclusively to propel the bicycle and stops to providing pedal assistance when the bicycle reaches the speed of 20 miles per hour.



A "Class 3 electric bicycle" is equipped with a motor that only provides pedal assistance when the rider is pedaling and stops to providing assistance when the bicycle reaches the speed of 28 miles per hour. It is also equipped with a speedometer.

"E-MTB Identification Guide", International Mountain Bike Association www.imba.com/sites/default/files/content/ resources/2022-12/E-Bike%20Identification%20 Guide.pdf

# WHAT IS NOT AN E-BIKE?

Any vehicle that does **not** fit into the three class definitions may not be legally considered an e-bike.

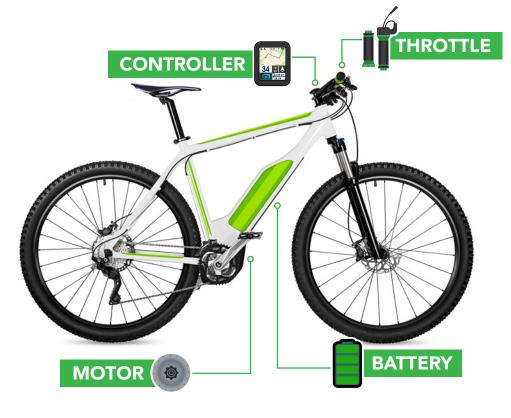
For example: vehicles without operable pedals (like scooters) or ones that can go above 28 mph under their own power without pedaling are not legally considered e-bikes and may be subject to different regulations.



| E-Bike<br>Class          | Maximum Speed<br>with Assistance | Can it be powered by throttle<br>instead of pedaling? | Maximum<br>Power          | Does it have<br>workable pedals? |
|--------------------------|----------------------------------|---|---------------------------|----------------------------------|
| 1                        | 20 mph                           | Νο  | 750 watts                 | Yes                              |
| 2                        | 20 mph                           | Yes   | 750 watts                 | Yes                              |
| 3                        | 28 mph                           | Νο  | 750 watts                 | Yes                              |
| Not legally<br>an E-Bike | Greater than<br>28 mph           | Yes   | Greater than<br>750 watts | Yes or No                        |

# E-BIKE ANATOMY

These are the components that are particular to e-bikes. Without them, they'd just be conventional pedal bicycles.



## The Motor

There are four different types of motors, also known as drive units:

#### Front Hub

Front hub motors are motors located in the hub of the front wheel. This system is commonly used in conversion kits and allows the bike to be powered without pedaling.

#### **Rear Hub**

Rear hub motors are motors located in the hub of the rear wheel. This system is commonly available on complete bikes sold as e-bikes. This motor often allows the bike to be throttled- or powered without pedaling.

#### **Mid-Drive**

Mid-Drive motors are motors attached around the bottom bracket of the bike. This motor helps power the cranks and generally only applies power when the operator is pedaling. Mid-Drive motors are common on complete bikes sold as e-bikes and can also be used in conversion kits. Bikes with Mid-Drive motors typically do not have throttles.

#### Friction

The simplest and least efficient of e-bike motors, friction motors turn a roller which contacts the front or rear tire adding extra driving force. These are commonly found on inexpensive conversion kits.

### **Battery**

At the heart of an e-bike is the battery. Rechargeable lithium-ion batteries provide the efficient, long-lasting power that make modern e-bikes capable, safe, and reliable. E-bike batteries are typically detachable to allow for charging off the bike and replacement.

#### E-bike batteries come in a variety of types:

#### **FRAME BATTERY**

Battery mounts onto the bike frame.

#### **INTEGRATED BATTERY**

Battery is integrated inside the bike frame.

### **RACK BATTERY**

Battery attaches to the bicycle's cargo rack.



#### **DUAL BATTERY**

Bike may have multiple batteries for additional range



High quality e-bike batteries have a Battery Management System (BMS) to prevent malfunctioning or overheating. For this reason, only use batteries and chargers that are compatible with your e-bike's system. And never use a damaged battery or charger. Contact the manufacturer or ask a local e-bike dealer if you have questions about replacing a battery or charger.

#### **How Much Power?**

Power, measured in Watts (W), is a measurement of how much energy can be delivered over time by an e-bike's motor. Regulations in the US limit the total power available to legal e-bikes to 750 watts. Some e-bike brands clearly label the power available to their motors while others do not. However, stated power can differ from how an e-bike feels and a test ride is often more useful than a physics lesson in knowing what kind of e-bike is right for you!



### Controller

Most e-bikes have controllers, also known as control units, that turn on and set the level of assistance. The levels of assistance may be referred to as modes and generally are on a scale of 0 through 4 or 5, or may also be labeled eco, touring, sport, or turbo. Some e-bikes do not have a controller, but offer a default, nonadjustable level of assistance.

### **Conversion Kits**

Conversion kits allow a traditional bike to be converted into an e-bike by adding a motor (typically friction, front hub, or mid-drive), a battery, and a controller. Because of the added weight and speed of the electric motor, many traditional bikes are not safe to convert to e-bikes. Consult a local bike shop for advice on making a conversion.



## Throttle

A throttle is a device that allows the e-bike motor to be activated without pedaling. Throttles commonly come in a twist grip style. Because an e-bike with a throttle can be powered without pedaling, it can behave more like a moped or scooter.

### To Throttle or Not to Throttle

Class 1 and Class 3 e-bikes are pedal assist e-bikes. You must pedal to receive any assistance from the motor. The assistance cuts out at a certain speed based on the e-bike's class with Class 1 e-bikes limited to 20 mph and Class 3 e-bikes limited to 28 mph.

Class 2 e-bikes have a throttle which allows them to be powered without pedaling with throttle assistance cutting out at 20 mph. These e-bikes may be operated more like a moped or scooter.

Which option is best for you? That depends! Pedal Assist e-bikes have a more natural bike-like handling while throttled e-bikes have a rapid acceleration that can be helpful when starting from a stop but can also feel more unmanaged when riding.

# **TYPES OF E-BIKES**

An e-bike's class refers to the level and type of assistance provided by its motor and controller. **Type** refers to the overall design and intended usage of the bike. The four main types of e-bikes by their intended usage are: road/gravel or leisure, e-mountain bikes or e-mtbs, commuting or city e-bikes, and e-cargo bikes. Any of these types may be sold as Class 1, 2, or 3 e-bikes.



**Road/Gravel and Leisure E-Bikes** These e-bikes may come in the form of road, gravel (wider tires for rougher roads), or upright townie bikes.



#### E-Mountain Bikes

E-Mountain bikes are primarily designed for riding off-road. They typically feature wide handlebars, powerful brakes, wide knobby tires, and suspension either in the front fork in the case of hardtails or within the frame itself in the case of full-suspension bikes.



#### Commuting or City E-Bikes

Perhaps the broadest category is the commuting or city e-bike. This can be any one of the e-bikes, which has been adapted for commuting with the addition of lights, racks, and/or fenders. It may also be specifically designed for commuting with these elements already integrated. Some city e-bikes also come in folding varieties for easy storage.

#### **E-Cargo Bikes**

E-Cargo Bikes have many similarities to commuting or city e-bikes. However, they differ because they are designed specifically to carry additional cargo or passengers. Due to this capacity, the e-cargo style is greatly effective at replacing car trips to work, the grocery store, picking up kids from daycare, or even going on camping trips. They come in three main styles: compact cargo bikes, longtail cargo bikes, and box bikes.



#### Compact Cargo Bikes

Are closest in design to city and commuting e-bikes but may have integrated front or rear racks designed for carrying additional weight in cargo or passengers.



#### Longtail Cargo Bikes

Have an extended frame allowing for additional cargo or passengers to be carried on the back of the bike. Special kits can be purchased to carry passengers (within certain weight limits) on the back of the bike.



#### **Box Bikes**

Have a large cargo compartment or box on the front of the bike for carrying heavy cargo or passengers.

#### **Precious Cargo**

When carrying passengers on your E-Cargo Bike, make sure to consult the manufacturer's instructions, obey weight and passenger capacity limits, and only use manufacturer-tested and approved passenger carrying equipment! Of course, make sure your bike is properly assembled and safety checked before riding with passengers, and follow all traffic laws.



# OBTAINING AN E-BIKE

Considering the added speed, power, and risk associated with e-bikes and their potentially flammable batteries (not to mention the often-higher price tag), making an informed purchase decision is vital. We strongly recommend going to reputable bike shops that are e-bike dealers first and having a conversation with their staff about the e-bikes they sell and/ or service, then go for a test ride!



## Things to Consider When Shopping for an E-Bike

#### Safety & Reliability

First and foremost, purchase a legally classified e-bike from a reputable brand. If the e-bike is not classified as Class 1, 2, or 3, or is powered over 750 watts, it may not be a legal e-bike. Since an e-bike's lithium-ion batteries are potentially flammable, make sure the batteries and electrical system meet third party testing requirements from the Consumer Product Safety Commission (CPSC), and are certified to the UL 2849 Standard for Electrical Systems for E-bikes.

#### Intended Use

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When choosing your e-bike, determine your needs and constraints. For example, will this bike be used for recreation, your commute to work, running errands, carrying cargo, or all the above? For instance, if you're looking for a bike for commuting or running errands, you may want to purchase one that is easily compatible with a rack, fenders, and kickstand.

### Fit & Comfort

Once you've decided on the type of bike that's right for you, find the right size for your personal height and weight. Some e-bikes are highly adjustable and can fit a wide range of rider heights whereas others are a more precise fit.

#### Serviceability

Like all bikes, your e-bike will need service. Some of the basic maintenance you can do yourself, but for warranty concerns and more complex repairs, a shop can service your bike. The authorized bike retailer that redeems your voucher will be able to service your bike and handle any warranty issues. Be sure to always use a reputable retailer. Lastly, when it comes to fixing flat tires, mid-drive bikes will generally make it easier for you to remove wheels to fix flat tires, whereas hub-drive wheels can be difficult to remove.

#### Weight

The motor, battery, and electronics will all make an e-bike heavier than a conventional bike, and a cargo bike built for heavy loads will be even heftier. The motor tends to pull its own weight while riding it, but if you ever need to hand carry your bike upstairs or a ramp, the weight will quickly become apparent with many bikes weighing between 40 and 100 lbs. Consider the bike's weight when making your purchase.

#### Portability

Some e-bikes, and particularly cargo bikes, can have longer wheelbases which makes them harder to store or to transport. Some e-bikes with tires wider than 3" may not fit in bus bike racks. If you anticipate needing to carry your bike up some stairs, on the top or back of your car, or on the bus rack, consider one that is light and small enough to meet your needs. You may also need a heavier duty rack to attach a heavier or longer e-bike to your car.

#### **Price**

Once you've narrowed down a bike by the above criteria, it's time to consider the price. Your budget is your budget, but don't be tempted to purchase at the lowest price point if the bike does not fit your specific needs. Bikes sold online at prices that seem too good to be true may fail in terms of safety and reliability, serviceability, and fit and comfort.

### **Electric Bike Share**

One great way to try a pedal assist e-bike is through Capital Bikeshare (CaBi). Capital Bikeshare e-bikes provide a default nonadjustable level of assistance that can make riding around town easier and can even climb the District of Columbia's hills. You can identify their e-bikes by the color: black or silver, instead of red, and indicated by a lightning bolt in the CaBi app.

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#### Purchasing Online

# The District E-Bike Incentive Program only allows purchases at local authorized retailers.

If you are purchasing an e-bike outside of the program and online, follow the tips below:

#### 🛐 Research

Read reviews and ask a local shop for their opinion. Ask the owner of a brand of e-bike for their experience.

#### Read the instructions

Make sure your bike is assembled safely and correctly. Incorrect assembly could result in a potentially fatal crash.

#### Ask a professional

Contact the manufacturer or bring it to a local bike shop for their professional help assembling and adjusting your bike.

#### ) Buyer Beware

Because of the added expense and possible risks of e-bikes and their batteries, purchase only from a reputable dealer who can offer a warranty on the bike and its battery. If looking into used bikes, try to find certified resellers who can offer a warranty. Otherwise, you may be purchasing a defective product with little recourse if you need to replace expensive parts or batteries.





# **RIDING YOUR E-BIKE LEGALLY**



Newly emerging e-mobility technology has created a legal grey area for e-bikes and other e-mobility devices on public roads, paths, and trails. It is vital to understand the legal requirements of your vehicle in your locality and to make sure that you are riding a legally conforming Class 1, 2, or 3 e-bike. Lastly, note that access rules between classes may also differ per locality with Class 1 e-bikes being allowed more broad access than Class 2 or Class 3 e-bikes.

### Legally Riding Your E-Bike On The Road

According to DC Law, so long as the e-bike's motor is under 750w, has a maximum speed of 20mph on a level surface when powered by the motor source only, weighs no more than 100 lbs., and has operable pedals, it's considered legal. DC essentially treats users of legal e-bikes on roads the same as users of other bicycles.

### **Licenses and Helmets**

Riders of e-bikes in the District of Columbia, are not required to obtain a license or insurance to ride an e-bike. Riders over the age of 16 are not required to wear a helmet **(although we strongly recommend them!)** 

#### Not for Kids!

According to DC law, riders of e-bikes must be at least 16 years of age. Because of the added speed, power, and weight of e-bikes, it is not only illegal, but unsafe to allow riders under the age of 16 to operate them.

## **Lights and Reflectors**

In the District of Columbia when in use at night, the e-bike must be equipped with a lamp on the front which emits a steady or flashing white light visible from a distance of at least five hundred feet (500 ft.) to the front and with a red reflector on the rear which must be visible from fifty feet (50 ft.) to three hundred feet (300 ft.) to the rear when directly in front of upper beams of head lamps on a motor vehicle.

"A lamp emitting a steady or flashing red light visible from a distance of five hundred feet (500 ft.) to the rear may be used in lieu of the red reflector."

Many e-bikes are equipped with integrated lights that are powered by the e-bike's battery, so no need to charge them separately.

## **Rights and Responsibilities**

On the road in Washington DC, riders of e-bikes have many of the same legal rights and responsibilities as riders of conventional bikes. These are:

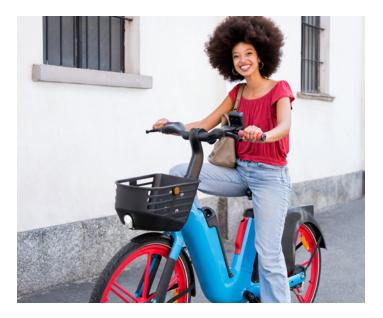
- Obey stop signs, stop lights, posted speed limits, and all traffic controls.
- Bike riders must travel in the direction of traffic.
- Bike riders can ride on the sidewalk (except in Central Business District); however, they must give "right of way" to pedestrians.
- Bike riders should travel in the right half of the roadway that goes to their destination.
- Bike riders can ride on the shoulder in the same direction as traffic but are not required to do so.
- Bike riders should not ride more than two abreast on the roadway.
- Motor vehicles must pass bicycles with at least 4 ft of space and only pass when it is safe to do so.

- Motor vehicle drivers and passengers must not open their car doors until they know it is safe to do so.
- Bike riders should pass parked cars with sufficient space to avoid the 4 ft. "door zone."

## Riding Your E-Bike On Sidewalks

Riding on sidewalks is allowed except in the Central Business District.

- Pedestrians have the right-of-way on sidewalks and bicycle paths. You must give an audible signal as you approach and pass a pedestrian.
- It is not a good idea to ride an e-bike on a sidewalk faster than people are walking. The added weight of the e-bike along with the speed differential between walkers and e-bike riders could result in injuries if there's a crash.
- Automobiles may not yield to bicycles being ridden across a crosswalk (at a trail crossing for example) as the bicycle is treated as a vehicle. A better choice is to dismount and walk your bike across.
- No bicyclist shall suddenly leave a sidewalk and ride into the path of a vehicle which is so close that it is impossible for the driver to yield.



# Riding Your E-Bike On Bike & Pedestrian Paths And Trails

D.C. is surrounded by public recreation lands, including National Park Service (NPS) trails. Class 1 and 3 e-bikes are currently permitted wherever bikes are allowed at Rock Creek Park and the National Mall. So be sure to:

- Avoid riding in any trail area where the rules are unclear.
- Ride at the posted speed limit for the trail.
- Take care when overtaking slow trail users. Give an audible signal and pass with sufficient space.
- Slow down and wait to pass if there isn't enough space.

## **Riding Your E-Bike On Unpaved Or Natural Surface Trails**

E-bike access on unpaved or natural surface trails can vary significantly by location and access rules are constantly changing, so be mindful of local rules in the places where you ride.

- Ride at or below the posted speed limit for the trail.
- E-Bikes may not be allowed on trails designated as non-motorized only.
- Some trails may restrict e-bike access to Class 1 e-bikes only.

### Know Before You Go

E-bike access on trails can vary by neighborhood. Know the rules of the trail system you want to ride before you take your e-bike with you!



# RIDING YOUR E-BIKE SAFELY

## **Use As Intended**

Read your user's manual and understand the intended uses of your e-bike:

- Do not exceed your bike's weight limits for passengers and cargo.
- Do not use a bike in conditions it was not designed for, i.e., using a road style e-bike on mountain bike trails.
- Never attempt to tamper with or modify an e-bike's battery, motor, or electrical system. This will void your warranty and can increase the likelihood of dangerous malfunctions.



# ABC Quick Check Before Every Ride

#### A: Air Pressure

Check your tires to make sure they are inflated to the proper pressure range (as labeled on the sidewall of the tire) and check for cuts or damage or debris stuck in your tires.

#### **B: Brakes**

Squeeze your brake levers and check for a thumb-wide gap between the lever and the handlebars. Brake levers should never touch handlebars when they are applied. Next, rock the bike forward or backwards with the brakes applied. Neither wheel should be able to turn.

#### C: Chain

Visually check the chain for rust and damage and to see that it is lubricated. Lift your rear wheel off the ground and pedal forward to make sure the chain can turn the cogs of the rear wheel.

#### Quick

Quick Releases must be properly adjusted and in the closed position with the lever facing inwards towards the bike. Ask a local shop if you have any questions about how to properly adjust and close your quick release mechanism.

#### Check

Check the rest of your bike over. Make sure the handlebars are not loose by holding the front wheel between your knees and attempting to turn the handlebars. If they move, they will need to be properly tightened before riding.

#### **Biking 101** For many more great riding tips check out <u>goDCgo.com/bike</u>.

#### Wear A Helmet

Although not required by law for riders over the age of 16, we strongly recommend wearing a helmet when riding an e-bike. The increased speed and power of e-bikes can increase the likelihood of high-speed crashes, so wearing a properly fitting helmet for yourself and passengers is crucial.

#### **Properly Fit Your Helmet!**

Follow this QR code for a quick guide to proper helmet fitting.

#### **Control Your Speed**

If riding your e-bike for the first time, practice on a safe, flat surface like a parking lot. Throttles can offer a high level of acceleration, so practice using your throttle gradually. Never throttle your bike when you are not sitting on it. When riding on trails or in traffic, follow the posted speed limit and ride at speeds suitable for the conditions.

#### **Ride Aware**

Be mindful of your surroundings and use caution. Other road users may have difficulty judging your speed and may attempt to turn or cut in front of you, especially when you're going uphill.

#### **Range Anxiety?**

Range is determined by battery capacity measured in Watthours, but in practice also by factors such as the weight of the bike, rider, and cargo; how hilly the route is; and how efficiently its tires roll. Generally, the harder you pedal and the more assistance you use from the motor, the shorter your range will be. If you are looking to maximize your range, consider using lower modes of assistance and lower gears on your bike which demand less power from the motor. Note: colder temperatures can also decrease battery range.

### **Be Prepared**

Check the weather, dress accordingly. Check out the <u>DC Bike Map</u> to plan your route. Pack a multitool, pump, tire levers, spare tube, and anything you need to fix a flat. Bring a wrench if your e-bike has bolt-on wheels.



godcgo.com/wp-content/uploads/DC-Bike-Map.pdf

#### Save Your Power

Pedaling hard and fast on a high level of assist will quickly drain your battery. Ride on an easy gear with a smooth and quick rate of pedaling (or cadence) on a low to medium level of assist to get the most range. If you're traveling a long distance or have a heavy load, consider a multiple battery option.

#### Be Seen

Use front & rear lights at night - it's the law! Lights help in the rain, too.

#### Gear Down!

Pedal assist bikes can have a slight lag between when you start pedaling and when the assistance kicks in. This can be a problem when starting your bike from a stop, so try to anticipate your stops and shift your bike in an easy gear that way you can easily start up again!

# CARING FOR YOUR E-BIKE & BATTERY

# 🚳 E-Bike

Your e-bike has largely the same maintenance requirements as a traditional bicycle, but with a few special considerations.

- Make sure your e-bike is properly assembled. Follow assembly instructions diligently or bring to a local bike shop for professional assistance.
- Make sure your e-bike is properly adjusted and maintained.
  - Because of e-bikes' additional weight and power, care must be taken to ensure brakes are properly adjusted and brake pads are in good condition to optimize stopping power.
  - E-bike motors can accelerate the wear on chains, so make sure to use e-bike specific chains and check for wear regularly.
  - Additional e-bike weight and speeds can accelerate tire wear, so make sure tires are properly inflated and in good condition.

# Motor

- Read operator instructions thoroughly before use.
- Only use e-bike motors as directed in the instructions.
- Do not attempt to modify the motor or speed management system.
- Bring your bike to a local dealer if there are any problems with the motor or if the controller display indicates any errors.



# 😰 Battery

Read all operator instructions thoroughly before using and charging the battery. Below are guidelines but follow your operator's manual first!

- Only use the battery and charger that is compatible with your e-bike. Contact the manufacturer or ask a local bike shop if you're unsure.
- Make sure your battery is properly attached and locked to your frame before riding so that it does not fall off and become damaged.
- Do not use damaged, modified, or incompatible batteries. Ask your local bike shop if you need a replacement battery.
- Do not use a battery which is cracked, leaking, bulging, or otherwise showing signs of damage.
- Do not charge batteries unattended or continue charging them after reaching a full charge.
- Do not cover the battery or charger with anything while charging.
- Ideally, charge batteries on a wire rack away from flammable material and near a working smoke detector and an ABC fire extinguisher.
- Store and charge batteries at room temperature.
- Store batteries between a 30% and 60% charge.

# 🕲 Cleaning Your E-Bike

Be careful to clean your e-bike without damaging its electronic system:

- Remove battery and controller before cleaning. If the controller cannot be removed, cover it with a plastic bag.
- Bike shampoos or dish soap will work.
- Use a sponge or rag to clean the frame and components.
- Avoid high-powered solvents around motor and electronics.
- Do not use high pressure washers on your e-bike.
- Never apply lubricant to rotors or braking surfaces. Only use water or rubbing alcohol.
- Avoid getting battery contacts wet. Dry thoroughly before reinstalling the battery.
- After cleaning and drying, lubricate the chain with chain lube. Do not contaminate brake rotors or braking surfaces. Wipe off excess with rag.

# ① Storing and Securing Your E-Bike

Protect your investment! Your e-bike is a target for theft and its electrical system is susceptible to the elements.

- Store inside and under cover from precipitation whenever possible.
- Use a high-quality lock when parking your e-bike and make sure the frame is locked to a fixed object, like a bike rack.
- Don't just lock your wheel(s) to a rack, your bike can be easily separated from them by a thief.
- Remove your battery if your e-bike is parked for long periods of time, particularly in cold or wet weather.

### **Prevent Battery Fires**



E-bike fires have made national

news, but e-bike batteries are safe if used properly. These fires are most likely to occur when the battery is being charged, so practice safe charging:

- Only use chargers that are compatible with your battery.
- Never charge a damaged battery that is bulging or leaking.
- Never leave your battery plugged into a charger unattended.
- Never block hallways, doorways, or fire escapes with your e-bike or battery.
- Keep a working ABC fire extinguisher and smoke detector near your charger.

To ensure your battery is thoroughly tested and up to safety standards, look for batteries with the UL 2849 certification, the Standard for Electrical Systems for e-Bikes. This provides fire safety certification by examining the electrical drive train, battery, and charger system combinations in e-bikes.

### Dispose of Old Batteries Properly

E-bike lithium-Ion batteries contain toxic and potentially flammable materials. For that reason, never dispose of an e-bike battery in the garbage or municipal recycling. Cont



garbage or municipal recycling. Contact your e-bike dealer, local bike shop, or <u>Call2Recycle.</u> org to safely recycle a defective battery.



# CONCLUSION

We hope this guide has helped to demystify the e-bike for you and has also demonstrated the great potential that this technology presents as a commuting gamechanger. So, should you make the leap to an e-bike? We think technology is a great way to get back on a bike or even try it for the first time. E-bikes can give you the power to top hills, slice through headwinds, keep up with faster riders, and better match the speed of road traffic.

With all that said, we don't think that speed alone is an e-bike's best asset, especially on bike and pedestrian trails where a conventional bike is typically fast enough on its own. Where e-bikes truly shine is in their ability to get more people riding, riding more often, and replacing single occupancy vehicle trips. For avid riders who commute by car, an e-bike or e-cargo bike may be the perfect tool to make bike commuting an option when it wasn't before. We hope, after reading this guide, that you've found the answers to any questions you have about e-bikes.

Down the road, whether your bike uses electricity or not, we hope you find the encouragement and the tools you need to bike more often in the city of landmarks (and hills)!



# **REFERENCES AND RESOURCES**

DC Bicycle Safety Laws, DDOT

Electric Bike Laws State by State, People for Bikes

E-Bike Maintenance: What Owners Need to now to Take Care of Their Rides, Bicycling

<u>E-Bikes: Retailer and Consumer Safe Storage & Handling of Lithium-Ion Batteries</u> National Bicycle Dealer's Association

E-Bike Terminology Explained, The Pro's Closet

Electric Bicycle Battery Recycling, Call2Recycle

Micromobility: E-Bikes, E-Scooters and Hoverboards, Consumer Products Safety Commision

Range Calculator, Bosch

<u>Safe Lithium-ion Battery Storage and Charging Procedures for the Bike Shop,</u> National Bicycle Dealer's Association

What is an E-Bike and What Makes Them Different, The Pro's Closet

About District E-Bike Incentive Program

Legal disclaimer: This guide is for educational purposes only. All information has been written to the best of DDOT's knowledge at the time of publication (2024) but may change at any time. Please review your local laws before riding and use e-bikes at your own discretion.



