E-Micromobility Training

E-Bikes • E-Motos • Safety • Crash Risks • Maintenance

Shared By: MDOT Office of Active Transportation

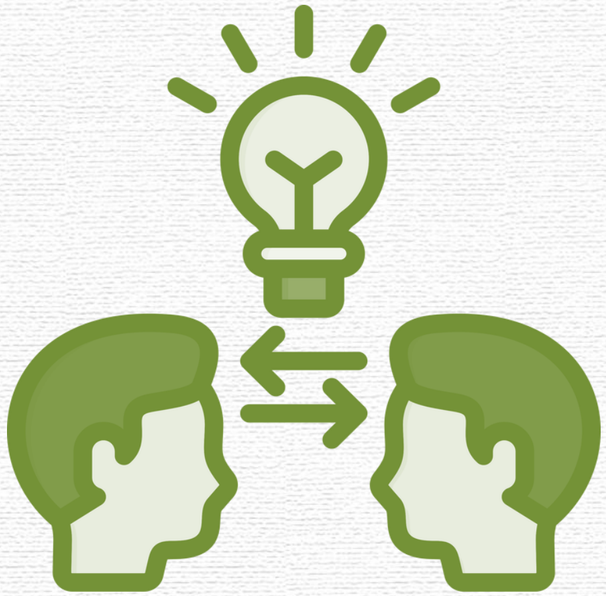
MDOT in Motion

SERIOUS ABOUT SAFETY

MDOT MARYLAND DEPARTMENT OF TRANSPORTATION

Learning Objectives

E-Micromobility



- Understand what e-micromobility devices are and associated safety risk
- Understanding the differences between e-bikes and e-motos
- Understanding the classes of e-bikes and identification requirements
- Understanding crash reporting guidance related to e-bikes, e-micromobility and e-motos
- Understand basics of maintenance and battery safety



What is e-micromobility ?

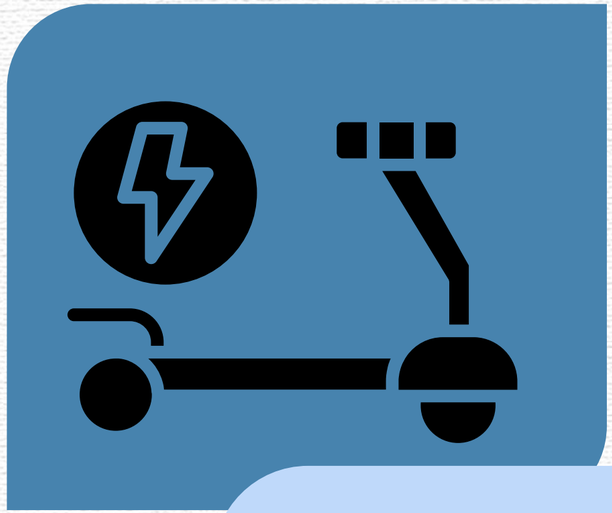
- **Micromobility** refers to small, low-speed vehicles typically powered by human effort, such as bicycles, and the emerging subset of electric powered small vehicles.
- **E-micromobility** refers to the subset of electric or battery-powered versions of these vehicles, including **electric bicycles** and **electric scooters.**
- Under Maryland Law, **e-Micromobility** vehicles are treated similarly to bicycles.
- **E-motos** are electric or battery-powered motorized vehicles with **motors exceeding 750 watts** and/or assisted **speeds over 28 mph**, including electric motorcycles and dirt bikes. Motorized scooters and mopeds are only legal if titled and registered through the MVA.

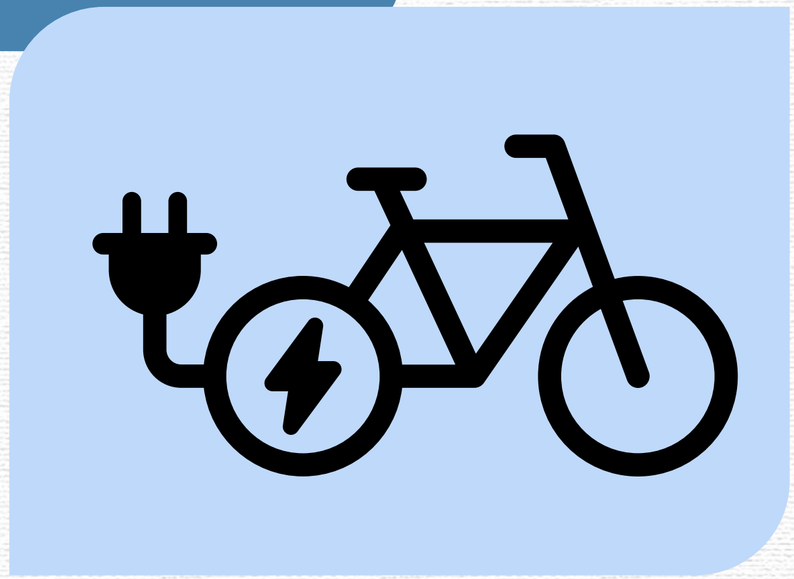
⚠️ E-MOTOS ARE NOT E-BIKES

- E-motos, unless registered as a moped, are not legal to ride on public roadways, in bike lanes, on sidewalks, or on public trails.

⚠️ If the vehicle owner tampers with the top speed, the e-bike is no longer street legal.

Why use Micromobility?





Necessity
A transportation option when a car isn't an option, available or practical. Most micromobility trips with known destinations are headed to transit or school.

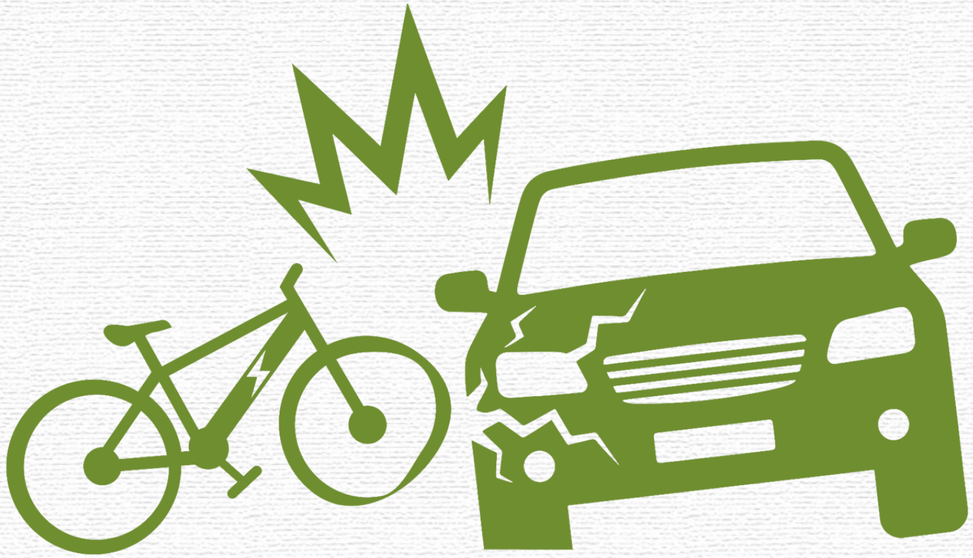
Time and Convenience
Can make short trips faster and easier. This is why many delivery services include e-bike deliveries.

Recreation
An accessible way to enjoy the outdoors.

Mobility and Activity
Supports staying active while aging.

Cost Savings
Owning a micromobility vehicle or renting a shared micromobility vehicle can be less expensive than owning a car or taking a taxi or rideshare (Uber/Lyft etc.).

What are the risks?



2024-2025 crash analysis*

- E-micromobility crashes are rising *
- 1,082 total e-micromobility crashes in Maryland
  - 373 crashes **ages 15-24** (>34%)
  - Crashes are 3x more prevalent among **male** riders
  - Of known destination crashes:
    - 20% all micromobility were headed to school
    - 80% of all micromobility indicated travel to transit
- Top contributing factors of fatal and serious injury crashes among e-micromobility and all micromobility users:
  - Failure to obey traffic signs, signals or Officer
  - Failure to Yield Right-of-Way
- Peak TIME crashes happen between (3:00 p.m. and 6:00 p.m.)

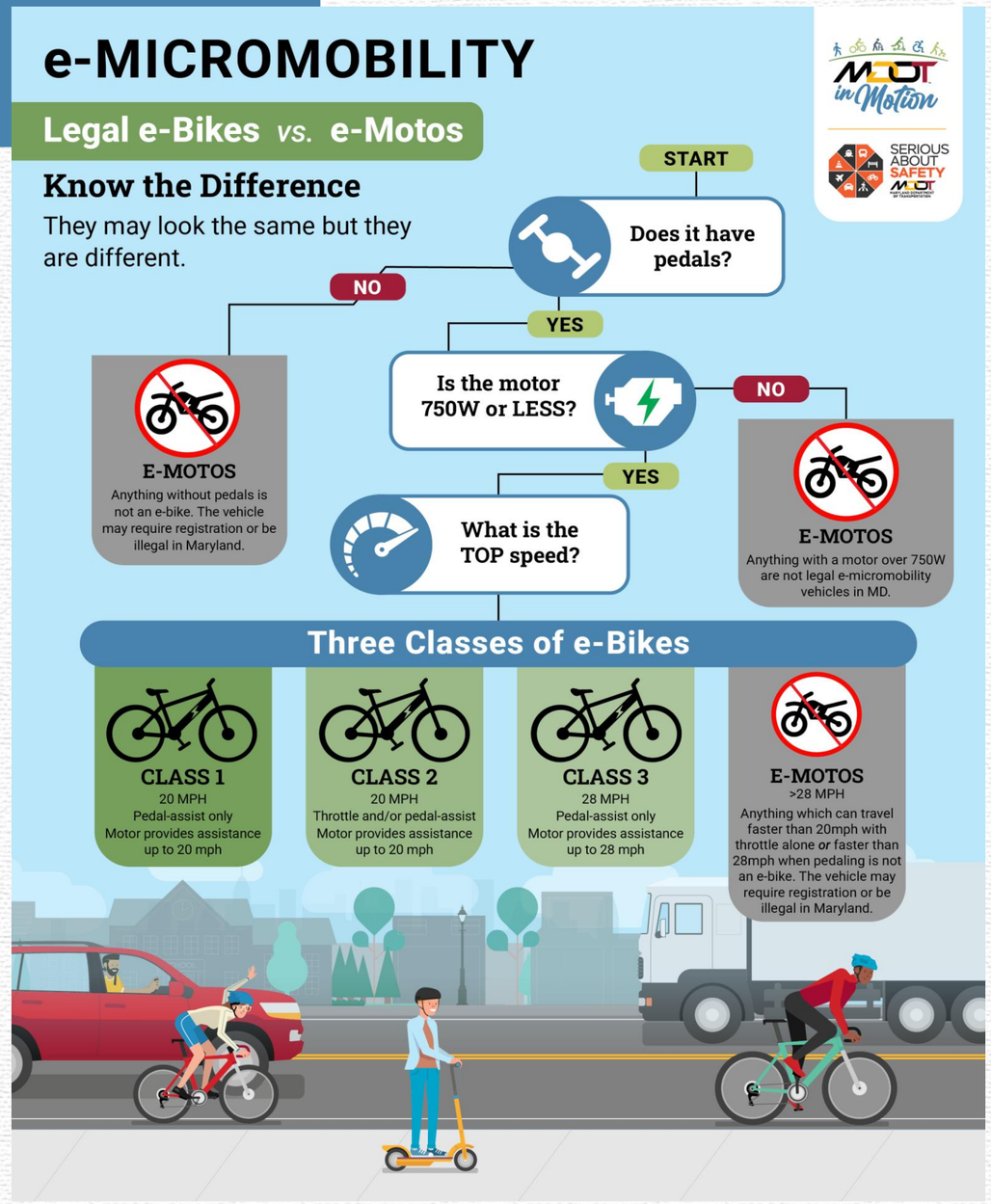
***Based on 2024 – 2025 crash data compiled from police-reported crashes through the Maryland State Police's Automated Crash Reporting System**

The differences between e-bikes and e-motos

E-bikes

- Operable pedals
- ⩽750 watt motor
- Top speed of 20mph for Class 1 or 2 and 28mph for Class 3

- If the device doesn't meet **ALL THREE** e-bike characteristics, it is an **e-moto**. If a device has been modified, it is an **e-moto**.
- E-motos are **only** street-legal if they meet another vehicle classification, like a moped, to be properly titled and registered through the MVA.



E-bikes vs. Regular bikes

- E-bikes are faster, heavier, and more difficult to control than regular bikes
- E-bikes accelerate faster and brakes may wear out more quickly than regular bikes. This makes vehicle maintenance even more important on e-vehicles.



Three classes of e-bikes

- **Class 1** – Top speed of 20 mph, pedal assist only
- **Class 2** – Top speed of 20 mph, pedal assist and/or throttle
- **Class 3** – Top speed of 28 mph, pedal assist only

A sticker with the class of e-bike should be affixed to the bicycle frame **(required by State law).**

Youth and e-bikes

Know the Age AND Safety Requirements

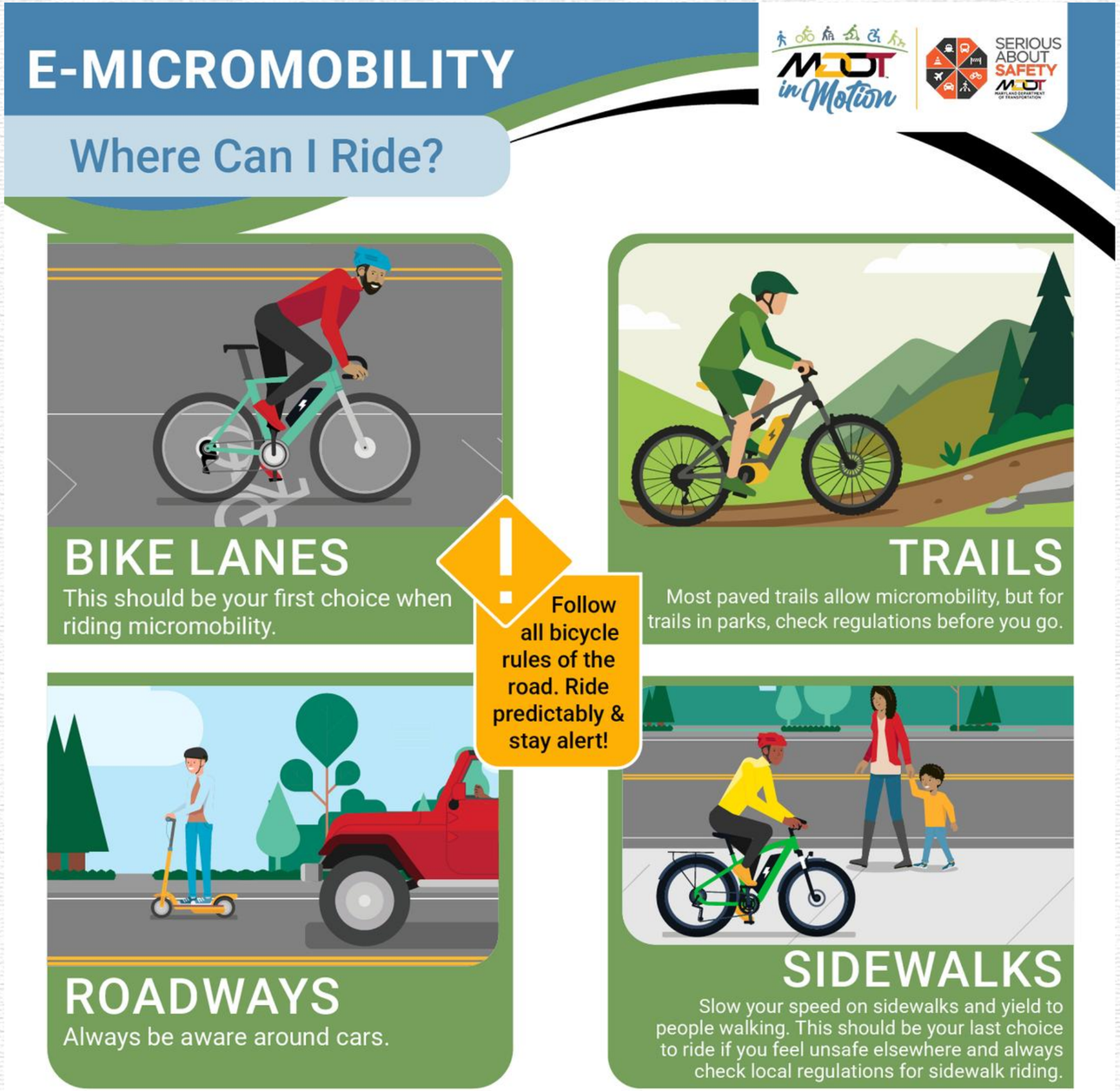


- Youth are overrepresented in crash data. 373 crashes occurred within **ages 15-24** (>34%).
- E-bikes are not recommended for children under 12.
- Riders must be at least 16 years old to ride a Class 3 e-bike by law.
- All riders under 16 are required to wear a helmet; all riders are encouraged to wear helmets.
- MDOT has available an e-bike readiness guide and agreement for families on their website.

Remember: E-bikes are **faster and heavier** than traditional bikes and can be more difficult to control.

Where can e-bikes be ridden?

- Bike lanes
- Roadways
- On paved trails, but not all park trails, always check park rules
- On sidewalks unless locally prohibited, always check local rules and yield to pedestrians.



Rules of the Road

Rules of the road for e-bikes and e-scooters are the same as for regular bikes.

- Ride in the same direction as traffic.
- Obey traffic signs and signals.
- Always yield to pedestrians.
- Lights are required at night.
- Do not park in a way that blocks the sidewalk, driveways, or roads.

Motor vehicles near micromobility must:

- Give 3 feet when passing micromobility vehicles.
- Look before opening the car door.
- Look and yield to micromobility vehicles and people before turning.
- Never drive or park in bike lanes.

Riding Equipment

- **HELMETS** are required for riders under 16, recommended for all.
- **LIGHTS** are required in low light.
- **CLOSED-TOE SHOES** are recommended for faster speeds.
- **REFLECTIVE OR BRIGHT CLOTHING** is recommended for visibility

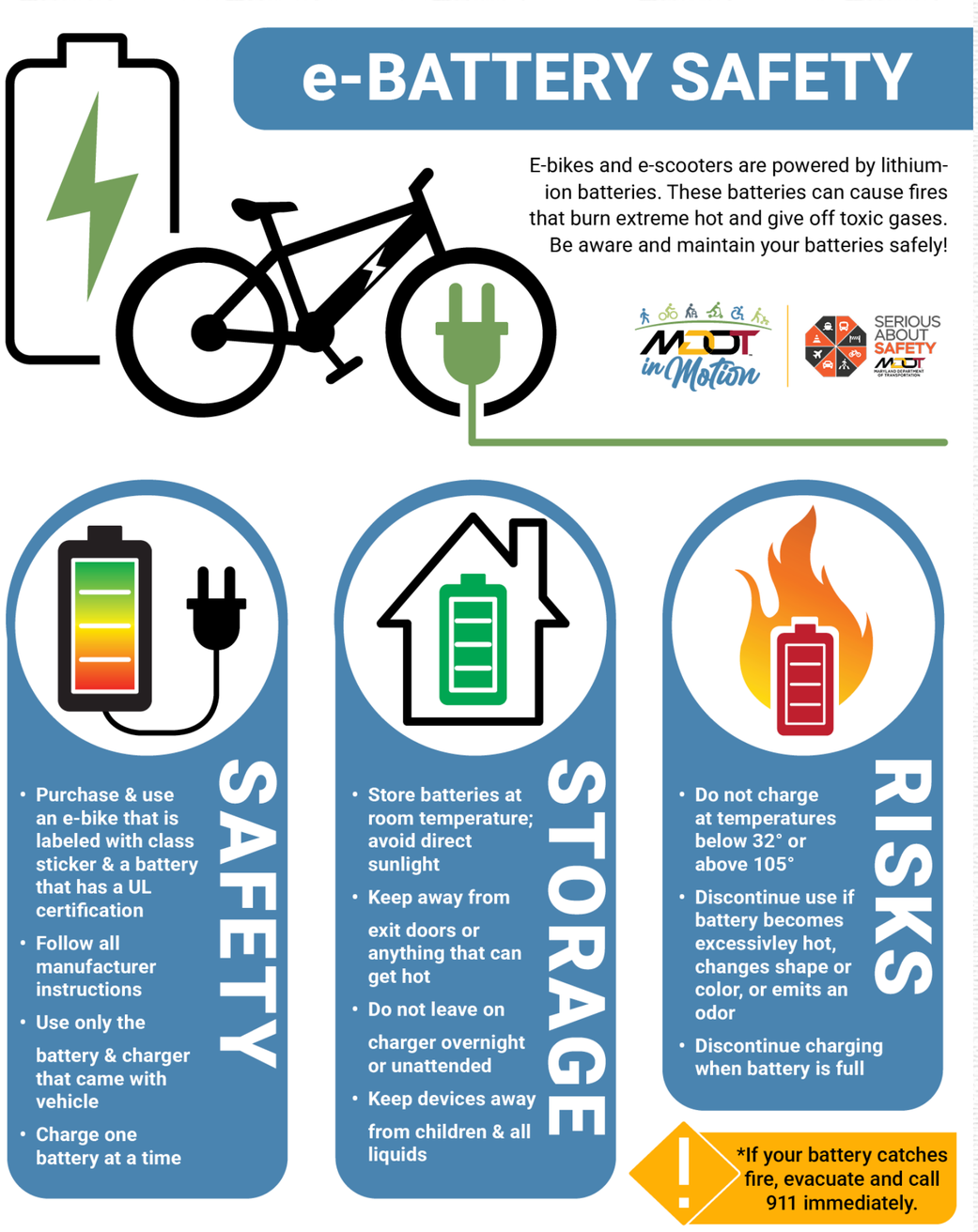


Rules of the road for e-bikes are the same as they are for regular bikes.

e-Battery Safety

- Use a licensed and insured mechanic to service e-vehicles.
- Only use the battery and charger that came with the e-vehicle
- Do not store e-bikes near exits or near anything flammable.

If the battery catches fire, evacuate and call 911 immediately. Lithium-Ion battery fires burn hotter than regular fires and give off toxic gases.



e-Bike Maintenance

- Use a licensed and insured mechanic to service e-vehicles.
- Only replace e-bike specific parts including tires, breaks and chains.
- Do not use high pressure water on e-bikes. It could loosen wires.
- Before each ride, complete a quick **ABC** check:

A – Air: Ensure tires are properly inflated.
B – Brakes: Confirm brakes engage and stop the vehicle properly.
C-Chair/Components: Check that moving parts and controls are functioning properly.

BUYER BEWARE!

Many e-bikes purchased online or from discount retailers can't be serviced by local bike shops.



Thank You

Additional materials available include:

Digital Materials

- E-Micromobility Safe Riding Guide
- E-Vehicle Maintenance and Battery Safety
- Micromobility in MD Regulations Overview
- Micromobility Quick Guide
- Family Readiness Checklist

FOR ADDITIONAL INFORMATION VISIT: WWW.MDOT.MARYLAND.GOV/MICROMOBILITY

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