NEW JERSEY

MICROMOBILITY GUIDE

May 2025

RUTGERS–NEW BRUNSWICK
Edward J. Bloustein School of Planning and Public Policy
Alan M. Voorhees Transportation Center

Acknowledgments

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Housed at the Alan M. Voorhees Transportation Center (VTC), located within the Edward J. Bloustein School of Planning and Public Policy at Rutgers University, the NJDOT BPRC assists public officials, transportation and health professionals, and the public in creating a safer and more accessible walking and bicycling environment. The Center shares research and updates on the state of micromobility in New Jersey. For more information or to ask additional questions, visit njbikeped.org.

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INTRODUCTION & BACKGROUND

INTRODUCTION

The New Jersey Micromobility Guide serves as a resource for micromobility users across the state, collecting and summarizing the laws and safety best practices that can make riders safer. Micromobility is an affordable, energy-efficient, eco-friendly alternative to driving. For short-distance travel, micromobility can replace car trips, thus reducing transportation costs and helping to reduce congestion and car parking demand on local streets. For longer trips, this guide clarifies if and how micromobility riders can bring their devices onto public transportation.

This guide explains regulations and policies for many different types of micromobility devices based on Title 39, the set of laws that govern transportation on New Jersey roadways. If your device is not specifically included in this guide, the legal definitions provided should help you determine whether your device is technically defined as some other type of device or if it is not defined under Title 39 and therefore not legal on public roads in New Jersey.

Key Takeaways

Laws

- E-bikes are classified as either Class 1, Class 2, or Class 3 depending on whether they are pedal-assist or throttle-powered and based on their maximum assisted speed.
- Class 1 and Class 2 e-bikes are considered low-speed electric bicycles and are primarily regulated like traditional bicycles. Class 3 e-bikes are more strictly regulated, and they require a license and registration to operate.
- Low-speed electric scooters may be ridden on public streets, bike lanes, and paved bikeways.
- Pocket bikes, dirt bikes, and other types of motorized bicycles are not permitted on public roads.
- Municipalities can further regulate the use of micromobility devices, including whether they can be ridden on sidewalks, in pedestrianized areas, and on shared-use paths, trails, and boardwalks. Always check local regulations.
- The New Jersey Safe Passing Law requires motorists to change lanes to pass micromobility users. If another lane is not available, drivers must slow down to 25 mph and wait until they have enough room to pass with at least four feet to spare.

Safe Riding

- Micromobility users, in most cases, have the same right to the road as motor vehicle drivers and are required to follow the same laws, including riding in the direction of traffic and obeying all stop signs and traffic signals.
- Riding safely means being attentive, predictable, and visible. As much as possible, ride where people can see you. New Jersey law requires all bicycles, e-bikes, and e-scooters to have a front white light, rear red light, and a bell.
- Tampering with a speed limiter on a micromobility device to increase its maximum assisted speed is dangerous and illegal. Removing the speed limiter can degrade a device's performance and negatively impact the device's safety. Additionally, tampering with the speed limiter on a micromobility device can void the device's warranty and can make your device illegal to ride on public roads.

Battery Safety

- The primary causes of lithium-ion battery fires in micromobility devices are the use of low-quality batteries and chargers and improper charging practices.
- The risk of a battery fire can be reduced significantly by using high-quality batteries, charging batteries according to the manufacturer's instructions, and storing batteries in a cool, dry place away from fire escape routes and out of direct sunlight.
- It is best to regularly inspect your electric micromobility device and its battery for noticeable wear or damage.

Micromobility is an affordable, energy-efficient, and eco-friendly alternative to driving. Pictured: Veo shared micromobility at Newark Penn Station. (NJDOT Bicycle and Pedestrian Resource Center)

Always check local regulations before riding on trails. While paved trails usually allow micromobility devices, trail owners can choose to restrict certain electric devices. Pictured: Sandy Hook, NJ. (NJDOT Bicycle and Pedestrian Resource Center)

Riding on Trails and Paths

- Paved trails generally allow micromobility devices, but trail owners can decide to restrict e-micromobility devices. Always check local regulations.
- E-micromobility devices are not typically permitted on trails with a natural surface, including bare earth and wood chips, but trail owners can decide to allow them.

Transit

- Transit agencies make their own rules about which micromobility devices are allowed on their vehicles and if they are restricted during busy times. Always check transit agency regulations before bringing your micromobility device on board.
- No transit agencies in New Jersey permit any gas-powered micromobility devices in their systems or on their vehicles.
- Most time-based restrictions on micromobility devices do not apply to folding devices.
- If possible for your trip, locking and leaving your micromobility device is often better than bringing it with you on transit.

BACKGROUND

Why this Guide?

In recent years, micromobility options like e-bikes and e-scooters have become increasingly popular forms of transportation for both commuting and leisure, offering a sustainable and efficient alternative to traditional transportation methods. Using an e-bike or e-scooter is an inexpensive, environmentally-friendly, and fun alternative to traveling by car.

Many municipalities across New Jersey have noticed the growth in micromobility use and responded by expanding their active transportation networks, such as creating or adding to a network of on-street bike lanes, off-road trails, and shared-use paths. Active transportation networks increase the safety of riding micromobility by providing space for bicyclists, e-bike and e-scooter riders, and pedestrians that is separated from motor vehicle traffic.

However, the laws and best practices concerning micromobility safety are not common knowledge, even among everyday users. Drivers and micromobility riders alike can find themselves in risky situations due to this knowledge gap. Because riding most micromobility devices does not require a license or training, riders generally do not receive any education on the laws that govern micromobility. Additionally, as more New Jerseyans take up riding e-bikes and e-scooters, more people are looking for information as they explore their micromobility options. People have questions; this Micromobility Guide answers them.

Why Now?

Micromobility use has been growing rapidly in recent years and the New Jersey state legislature has passed several new laws that impact micromobility users. For example, in 2019, Governor Phil Murphy **signed legislation defining "low-speed electric bicycle" and "low-speed electric scooter,"** solidifying these devices' status under the law. The law codifies different classes for e-bikes depending on different characteristics; regulations regarding e-bikes depend on these classes, which are not identifiable solely by device appearance.

Furthermore, in March of 2022, Governor Murphy signed the **New Jersey Safe Passing Law**, which defines new requirements for drivers to **slow down and provide a minimum of four feet while passing vulnerable road users**, which includes, among others, pedestrians, bicyclists, and micromobility users.

The two examples above represent a fraction of the rules and regulations that concern micromobility in New Jersey, but they illustrate the changing regulatory landscape for micromobility users. This Micromobility Guide addresses the pressing need for clear information on laws, rules, regulations, and safety best practices for micromobility users.

Who is this Guide for?

In short, this guide is for is for everyone who lives, works, and travels in New Jersey. Knowledge of the rules and regulations that govern micromobility concern everyone who uses public roads, including micromobility users, pedestrians, and drivers.

In particular, the following groups of individuals can expand their understanding of micromobility as a safe, sustainable option for some or all of their transportation and recreational needs:

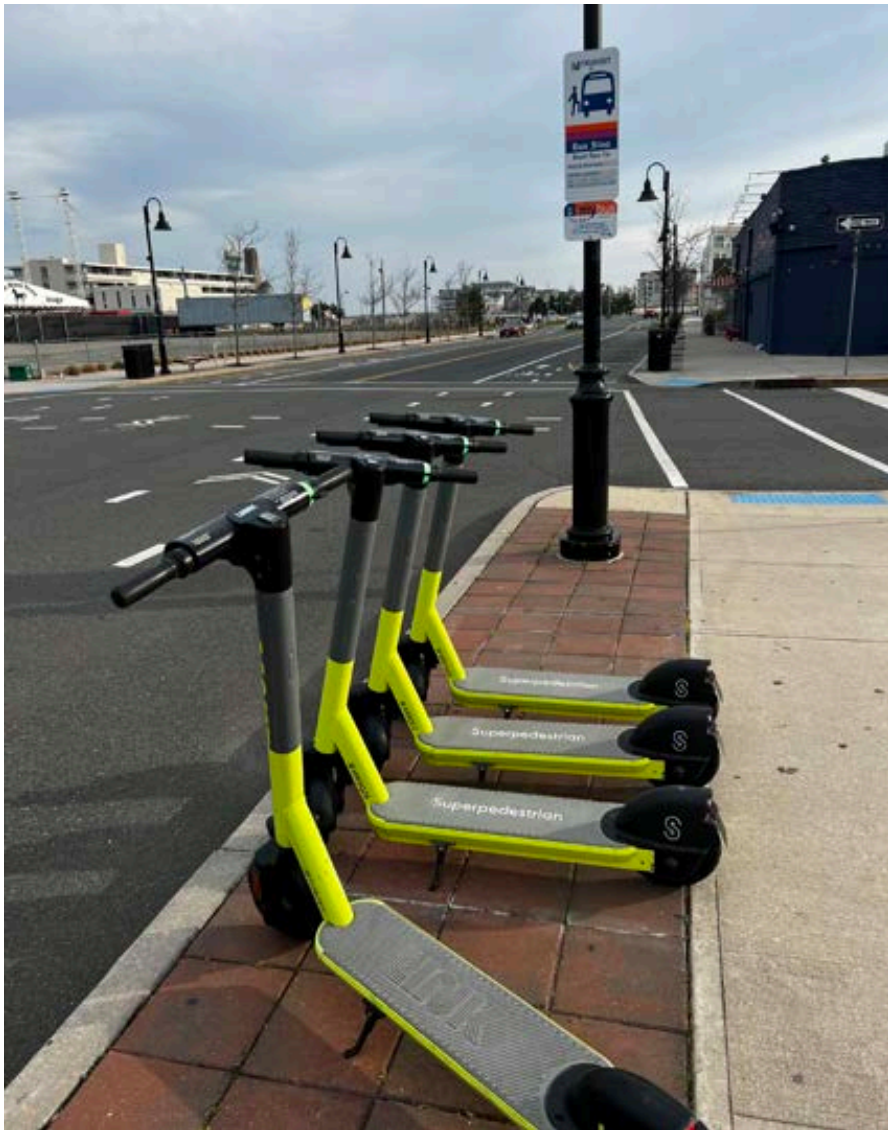
Individuals with limited mobility: Micromobility is an efficient, cost-effective method of transportation. It can provide an alternative to driving for people who cannot drive either because they do not have a driver's license or they cannot afford the high costs of car ownership. Additionally, transit-reliant individuals can use micromobility to get to their destinations more directly and without relying on a timetable, or they can use a micromobility device to connect to local transit hubs for longer trips.

Delivery workers: With the rise of gig-based food delivery apps, there has been an increase in demand for fast, efficient delivery services performed mostly by independent contractors. Many delivery workers, especially in dense, urban areas, have opted to use micromobility due to the low cost and high time-efficiency of smaller electric devices for making medium-length trips relative to a motor vehicle.

Young people: Many micromobility options are available for children and young adults. For example, traditional bicycles and some e-bikes and e-scooters do not have a minimum age requirement for use in New Jersey; however, there are helmet requirements for individuals under 17 years old. This guide provides information on transportation options available for young people that can offer them greater mobility and independence.

Sidewalks, bike lanes, and shared-use paths provide space for many micromobility options. (NJDOT Bicycle and Pedestrian Resource Center)

Older adults: Micromobility can promote independence for older adults who can no longer drive or want to reduce the amount of time they spend behind the wheel. This guide offers tailored information on micromobility devices that align with older individuals' varied transportation, comfort, and physical needs.



Micromobility can provide a first and last mile connection to transit in towns like Asbury Park. (NJDOT Bicycle and Pedestrian Resource Center)

Residents who want to live greener: Transportation is one of the largest contributors to carbon emissions and local air, ground, and water pollution in the United States. Compared to private motor vehicles, micromobility produces much less pollution and fewer carbon emissions.

Planners and policymakers: This guide provides insights and data that can inform legislators and city planners about the current state of micromobility technology. Micromobility use is rising, and planners and policymakers can use this guide as a resource for their work in creating livable communities that can accommodate these devices as a safe, healthy alternative to driving.

Anyone else looking to drive less: Many car trips in the United States are under 10 miles long. Micromobility is an inexpensive alternative to driving for these trips, providing opportunities to replace many trips in a car with trips on a micromobility device. Especially within communities and on shorter trips, replacing driving with micromobility has many potential benefits. Among them are time and money saved on parking and fuel, avoiding traffic congestion, and reduced vehicle maintenance costs.

Drivers and other road users: The increased popularity of micromobility as a mode of transportation has been accompanied by a misunderstanding of how drivers should share the road with those riding devices. Many motorists also use micromobility devices, such as bicycles, for recreational purposes or to replace some trips. Even drivers who never use micromobility devices will benefit from a better understanding of both the legal requirements of micromobility users around them as well as their own responsibilities when interacting with micromobility riders on public roads. Furthermore, a modal shift from cars to micromobility can further benefit drivers by reducing traffic congestion on local streets.

What is Micromobility?

The term "micromobility" refers to a range of compact, electric- and human-powered devices designed for short-distance travel. This includes traditional bicycles, e-bikes, e-scooters, and other low-speed wheeled devices. Micromobility devices are compact and lightweight, and they act as an extension of a person's mobility beyond walking without the costs and space constraints of a motor vehicle. In this guide, micromobility includes many types of devices that are designed—and legal—for travel on public roads in New Jersey.

Motorized and Non-Motorized Wheelchairs

Wheelchairs are a type of device used to provide mobility to individuals with physical disabilities or limitations that make it difficult or impossible to walk (see Title 39:1-1). Because wheelchair users remain with their chair at all times and because federal and state law prohibits discrimination against persons with disabilities, New Jersey State law regulates all wheelchair users as pedestrians. Because a person using a wheelchair is considered a pedestrian, they are not included under this guide's definition of micromobility.

Micromobility Use in New Jersey

In New Jersey and across the United States, the use of micromobility devices has noticeably grown in recent years. Both traditional and electric micromobility devices have become more popular and mainstream, especially in larger cities with higher congestion and shorter trip lengths. Unfortunately, the data to quantify micromobility use is limited because the technology used to count these devices effectively is still new, expensive, and uncommon.

In New Jersey, two metropolitan planning organizations (MPOs) perform vulnerable road user counts that record the number of bicycles, pedestrians, or micromobility devices to pass a certain point or travel through a certain intersection. The North Jersey Transportation Planning Authority's (NJTPA's) vulnerable user count datasets and the Delaware Valley Regional Planning Commission's (DVRPC's) bicycle and pedestrian counts both offer publicly-available data on micromobility use in New Jersey. The costliness of conducting manual or virtual counts restricts the widespread use of this method, so data is most often recorded as part of some other planning or engineering study focused on a specific location or corridor and is therefore limited in scope.

A Note on Crash Reports

New Jersey law enforcement officers report crashes on the NJ TR-1 form. Researchers, planners, engineers, policymakers, and law enforcement use the reported data to inform analyses of traffic safety trends and crash hotspot locations. TR-1 forms collect information from a motor vehicle crash as identified by the reporting officer, including location, damage, injuries, collision details, statements from those involved in the crash, and contributing factors.

The TR-1 crash report form includes separate fields for bicyclists and pedestrians involved in motor vehicle crashes. Other micromobility devices, including low-speed e-bikes, low-speed e-scooters, motorized scooters, motorized wheelchairs, and electric personal assistive mobility devices (such as hoverboards), are categorized as "personal conveyances."[1]

TR-1 forms are only filed in crashes involving at least one motor vehicle in transport; crashes resulting in at least $500 of damage, injury, or death; and crashes where a law enforcement officer is aware of the incident. This excludes many types of micromobility crashes that occur, including:

- Single-user crashes, such as falls
- Crashes between two micromobility users
- Crashes between a micromobility user and a pedestrian
- Crashes between a micromobility user and a legally parked motor vehicle
- Crashes that do not result in significant damage, injury, or death

In crashes between motor vehicles and micromobility users that do not result in damage, injury, or death, an officer is not obligated to file a TR-1 report, but could complete an operations/incident report instead. In many cases, it may be wise to generate a crash report even if no one appears to have sustained any damage or injury at the time of the crash. A 2022 study of bicyclist injury-related hospital data showed that many injuries are not reported. The analysis found that New Jersey crash data misses 37 percent of all crash injuries and 59 percent of bicyclist injuries.[2]

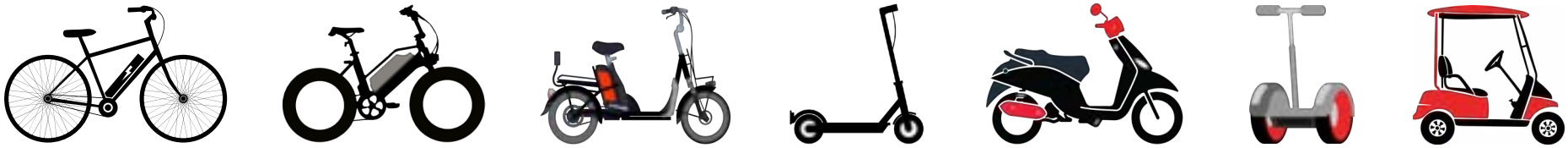
REGULATIONS BY DEVICE

In New Jersey, definitions of vehicle types and regulations about how and where to ride are contained within Title 39 of the New Jersey Statutes, which is the statewide set of laws related to motor vehicles and traffic regulation. In 2019, New Jersey Governor Phil Murphy signed legislation adding new regulations to Title 39 for e-bikes and e-scooters. The law defines a **"low-speed electric bicycle"** as a two or three-wheeled vehicle with fully operable pedals and an electric motor of less than 750 watts that ceases to provide assistance when the bicycle reaches the speed of 20 miles per hour. The law further defines a **"Class 1 low-speed electric bicycle"** as a low-speed electric bicycle equipped with a motor that provides assistance only when the rider is pedaling and a **"Class 2 low-speed electric bicycle''** as a low-speed electric bicycle equipped with a motor that may be used exclusively to propel the bicycle.

The law also defines a **"low-speed electric scooter"** as "a scooter with a floorboard that can be stood upon by the operator, with handlebars, and an electric motor that is capable of propelling the device with or without human propulsion at a maximum speed of less than 19 miles per hour."

According to Title 39, low-speed electric bicycles and scooters are almost always governed by the same rules of the road and regulations as traditional bicycles; however, there are some exceptions. Furthermore, other types of micromobility devices are defined under various other sections of Title 39, and there are sometimes differences in how a specific device is regulated under state law.

The following section of this guide breaks down the regulations for specific types of micromobility devices, including traditional and e-bicycles, e-scooters, skateboards, and others. Each page covers the regulations of one type of device, providing detailed information such as its legal definition, where it is allowed to be ridden and by whom, if and when certain transit agencies permit them onboard, and many other details.



Municipal Regulations

Many municipalities in New Jersey may have their own regulations for some or all micromobility devices, including whether they permit them on local sidewalks, pedestrian plazas, boardwalks, and shared-use paths. In some cases, a municipality may enact age-based restrictions, such as allowing children–but not adults–to ride on sidewalks. Most local regulations are not discussed in this guide due to their sheer number, the variability between localities, and the frequency with which these regulations change.

Before riding, it is best to familiarize yourself with the local regulations in your town and the towns you visit or ride through.

BICYCLE

Under New Jersey law (N.J. Stat. § 39:4-14.5), a bicycle means any two-wheeled vehicle having a rear drive wheel which is solely human-powered and having a seat height of 25 inches or greater when the seat is in the lowest adjustable position.

A municipal or county government or State agency may further regulate the operation of bicycles on facilities under its jurisdiction. For example, some municipalities allow young children to ride on sidewalks.

Characteristics	**Power Source**	**Propulsion Method**	**Max. Assisted Speed**
	Manual	Pedal	N/A

Requirements	**Minimum Age**	**Helmet**	**License**	**Registration**
	None	Required under 17 years old	Not required	Not required

Where is it allowed?	**Paved Bikeways, Shared-Use Paths, & Surfaced Trails**	**Public Streets**	**Parking on Sidewalk**
	Yes	Yes	Yes, if not blocking pedestrian access

*Check the transit operator's website for specific information.

When is it allowed on transit?

	Type of Transit	Folding	Non-Folding
NJ TRANSIT	Atlantic City Rail Line	All times	All times
	Northeast Corridor, North Jersey Coast Line, Morris & Essex Lines	All times	Allowed during off-peak times** Not permitted on holidays
	Raritan Valley, Montclair-Boonton, Gladstone, Main, Bergen County, Pascack Valley, Port Jervis Lines	All times	Weekdays off-peak** Weekends all times Not permitted on holidays
	NJT Bus	All times	If a front rack or underfloor storage space is available
	Hudson Bergen Light Rail & Newark Light Rail	All times	Weekdays off-peak** Weekends all times
	River Line	All times	All times
OTHER TRANSIT SERVICES	PATH Trains	All times	Not permitted between 6:30-9:30am and 3:30-6:30pm on weekdays
	PATCO Trains	All times	All times
	Amtrak	All times, as a carry on	Requires a reservation ($20 fee, limited number per train)**
	Private Commuter Buses, Shuttles, and Jitneys	Varies*	Varies**
	NY Waterways	All times	All times

Updated March 2025.

CLASS 1 E-BIKE

Under New Jersey law (N.J. Stat. § 39:1-1), both Class 1 and 2 e-bikes are regulated as "low-speed electric bicycles." A Class 1 e-bike is a low-speed electric bicycle equipped with a motor that provides assistance only when the rider is pedaling, and that ceases to provide assistance when the bicycle reaches a speed of 20 miles per hour.

A municipal or county government or State agency may prohibit the operation of low-speed electric bicycles on facilities under its jurisdiction.

Low-speed e-bikes are considered motor vehicles, and users of these devices have the same rights and responsibilities as operators of other motor vehicles.

Characteristics	**Power Source**	**Propulsion Method**	**Max. Assisted Speed**
	Electric	Pedal	20 mph

Requirements	**Minimum Age**	**Helmet**	**License**	**Registration**
	None	Required under 17 years old	Not required	Not required

Where is it allowed?	**Paved Bikeways, Shared-Use Paths, & Surfaced Trails**	**Public Streets**	**Parking on Sidewalk**
	Yes*	Yes	Yes, if not blocking pedestrian access

*E-bikes are not permitted on trails designated for non-motorized vehicles with natural surface, such as wood chips or bare earth, unless permitted by the trail's owner.

**Check the transit operator's website for specific information.

When is it allowed on transit?

	Type of Transit	Folding	Non-Folding
NJ TRANSIT	Atlantic City Rail Line	All times	All times
	Northeast Corridor, North Jersey Coast Line, Morris & Essex Lines	All times	Off-peak times** Not permitted on holidays
	Raritan Valley, Montclair-Boonton, Gladstone, Main, Bergen County, Pascack Valley, Port Jervis Lines	All times	Weekdays off-peak** Weekends all times Not permitted on holidays
	NJT Bus	All times	If a front rack or underfloor storage space is available
	Hudson Bergen Light Rail & Newark Light Rail	All times	Weekdays off-peak** Weekends all times
	River Line	All times	All times
OTHER TRANSIT SERVICES	PATH Trains	No	No
	PATCO Trains	Nothing mentioned in guidelines	
	Amtrak	All times, as a carry on	Requires a reservation ($20 fee, limited number per train)**
	Private Commuter Buses, Shuttles, and Jitneys	Varies**	Varies**
	NY Waterways	All times	All times

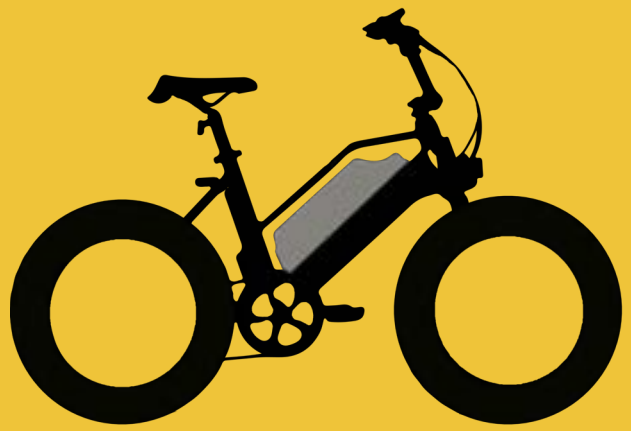
Updated March 2025.

CLASS 2 E-BIKE

Under New Jersey law (N.J. Stat. § 39:1-1), both Class 1 and 2 e-bikes are regulated as "low-speed electric bicycles." A Class 2 low-speed electric bicycle is a low-speed electric bicycle equipped with a motor that may be used exclusively to propel the bicycle, and that is not capable of providing assistance when the bicycle reaches a speed of 20 miles per hour.

A local government can restrict where Class 2 electric bicycles may be ridden.

Low-speed e-bikes are considered motor vehicles, and users of these devices have the same rights and responsibilities as operators of other motor vehicles.



Characteristics	**Power Source**	**Propulsion Method**	**Max. Assisted Speed**
	Electric	Pedal & Throttle	20 mph

Requirements	**Minimum Age**	**Helmet**	**License**	**Registration**
	None	Required under 17 years old	Not required	Not required

Where is it allowed?	**Paved Bikeways, Shared-Use Paths, & Surfaced Trails**	**Public Streets**	**Parking on Sidewalk**
	Yes*	Yes	Yes, if not blocking pedestrian access

*E-bikes are not permitted on trails designated for non-motorized vehicles with natural surface, such as wood chips or bare earth, unless permitted by the trail's owner.

**Check the transit operator's website for specific information.

When is it allowed on transit?

	Type of Transit	Folding	Non-Folding
NJ TRANSIT	Atlantic City Rail Line	All times	All times
	Northeast Corridor, North Jersey Coast Line, Morris & Essex Lines	All times	Off-peak times** Not permitted on holidays
	Raritan Valley, Montclair-Boonton, Gladstone, Main, Bergen County, Pascack Valley, Port Jervis Lines	All times	Weekdays off-peak** Weekends all times Not permitted on holidays
	NJT Bus	All times	If a front rack or underfloor storage space is available
	Hudson Bergen Light Rail & Newark Light Rail	All times	Weekdays off-peak** Weekends all times
	River Line	All times	All times
OTHER TRANSIT SERVICES	PATH Trains	No	No
	PATCO Trains	Nothing mentioned in guidelines	
	Amtrak	All times, as a carry on	Requires a reservation ($20 fee, limited number per train)**
	Private Commuter Buses, Shuttles, and Jitneys	Varies**	Varies**
	NY Waterways	All times	All times

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CLASS 3 E-BIKE/MOTORIZED BICYCLE/MOPED

Under New Jersey law (N.J. Stat. § 39:1-1), Class 3 electric bicycles are defined as "motorized bicycles," which refers to a pedal bicycle having a helper motor characterized in that either the maximum piston displacement is less than 50 cc. or said motor is rated at no more than 1.5 brake horsepower or is powered by an electric drive motor and said bicycle is capable of a maximum speed of no more than 25 miles per hour on a flat surface or a pedal bicycle having an electric motor that is capable of propelling the bicycle in excess of 20 miles per hour with a maximum motor-powered speed of no more than 28 miles per hour on a flat surface.

Motorized bicycles shall not be operated upon interstate highways or upon public highways divided by a grass or concrete median or highways with posted speed limits in excess of 50 mph. Unless otherwise determined by the commissioner, statutes, rules and regulations applicable to bicycles shall apply whenever a motorized bicycle is operated upon any highway or upon any public land. A motorized bicycle shall carry only the operator.

Characteristics

Power Source	Propulsion Method	Max. Assisted Speed
Gas or Electric	Pedal & Optional Throttle	28 mph

Requirements

Minimum Age	Helmet	License	Registration
15 years old	Required for all ages	Required	Required

Where is it allowed?

Paved Bikeways, Shared-Use Paths, & Surfaced Trails	Public Streets	Parking on Sidewalk
Yes*	Yes (when speed limit is up to 50 mph)	No

*E-bikes are not permitted on trails designated for non-motorized vehicles with natural surface, such as wood chips or bare earth, unless permitted by the trail's owner.

**Check the transit operator's website for specific information.

When is it allowed on transit?

	Type of Transit	Folding	Non-Folding
NJ TRANSIT	Atlantic City Rail Line	All times	All times
	Northeast Corridor, North Jersey Coast Line, Morris & Essex Lines	All times	Off-peak times** Not permitted on holidays
	Raritan Valley, Montclair-Boonton, Gladstone, Main, Bergen County, Pascack Valley, Port Jervis Lines	All times	Weekdays off-peak** Weekends all times Not permitted on holidays
	NJT Bus	All times	If a front rack or underfloor storage space is available
	Hudson Bergen Light Rail & Newark Light Rail	All times	Weekdays off-peak** Weekends all times
	River Line	All times	All times
OTHER TRANSIT SERVICES	PATH Trains	No	No
	PATCO Trains	Nothing mentioned in guidelines	
	Amtrak	All times, as a carry on	Requires a reservation ($20 fee, limited number per train)**
	Private Commuter Buses, Shuttles, and Jitneys	Varies**	Varies**
	NY Waterways	All times	All times

GAS-POWERED VEHICLES ARE NOT ALLOWED ON TRANSIT.

Updated March 2025.

LOW SPEED E-SCOOTER

Under New Jersey law (N.J. Stat. § 39:1-1), a "low-speed electric scooter" is a scooter with a floorboard that can be stood upon by the operator, with handlebars, and an electric motor that is capable of propelling the device with or without human propulsion at a maximum speed of less than 19 miles per hour.

A local government can restrict where low-speed electric scooters may be ridden.

Low-speed electric scooters are considered motor vehicles, and users of these devices have the same rights and responsibilities as operators of other motor vehicles.

Characteristics	Power Source	Propulsion Method	Max. Assisted Speed
	Electric	Kickstart & Throttle	19 mph

Requirements	Minimum Age	Helmet	License	Registration
	None	Required under 17 years old	Not required	Not required

Where is it allowed?	Paved Bikeways, Shared-Use Paths, & Surfaced Trails	Public Streets	Parking on Sidewalk
	Yes*	Yes	Yes, if not blocking pedestrian access

*E-scooters are not permitted on trails designated for non-motorized vehicles with natural surface, such as wood chips or bare earth, unless permitted by the trail's owner.

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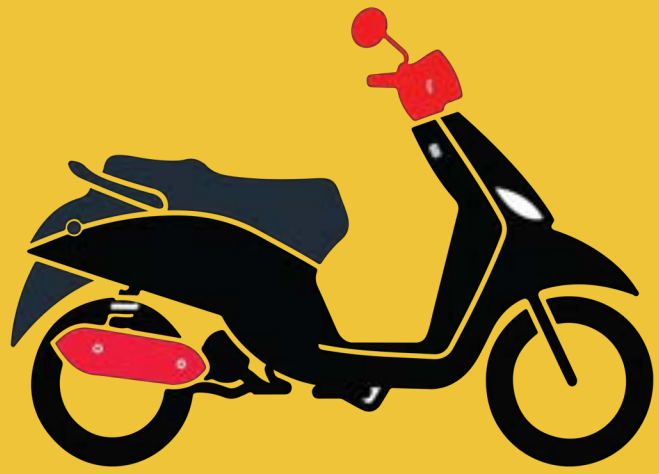
	Private Commuter Buses, Shuttles, and Jitneys	Varies**	Varies**
	NY Waterways	All times	All times

Updated March 2025.

MOTORIZED SCOOTER

Under New Jersey law (N.J. Stat. § 39:1-1), a "motorized scooter" is a miniature motor vehicle and includes, but is not limited to, pocket bikes, super pocket bikes, scooters, mini-scooters, sport scooters, mini choppers, mini motorcycles, motorized skateboards and other vehicles with motors not manufactured in compliance with Federal Motor Vehicle Safety Standards and which have no permanent Federal Safety Certification stickers affixed to the vehicle by the original manufacturer. Motorized skateboards are defined as skateboards that are propelled otherwise than by muscular power and are regulated the same as motorized scooters.

Motorized scooters are prohibited on any public street, highway, or sidewalk, with some exceptions for operators with mobility-related disabilities. The governing body of any municipality or county may, by ordinance, permit the operation of motorized scooters upon designated public property under its jurisdiction, except for streets, highways, and sidewalks.



	Power Source	Propulsion Method	Max. Assisted Speed
Characteristics	Gas or Electric	N/A	15 mph

	Minimum Age	Helmet	License	Registration
Requirements	12 years old	Required under 17 years old	Not required	No*

	Paved Bikeways, Shared-Use Paths, & Surfaced Trails	Public Streets	Parking on Sidewalk
Where is it allowed?	No	No*	No

*While motorized scooters are generally not street legal, there are exceptions for persons with mobility-related disabilities. Registration with the NJ MVC is required in these cases.

When is it allowed on transit?

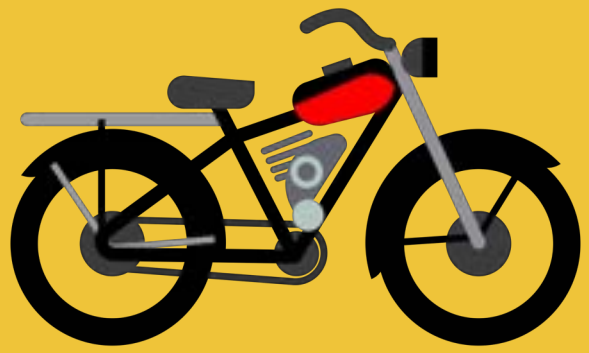
	Type of Transit	Regulations
NJ TRANSIT	Atlantic City Rail Line	No
	Northeast Corridor, North Jersey Coast Line, Morris & Essex Lines	No
	Raritan Valley, Montclair-Boonton, Gladstone, Main, Bergen County, Pascack Valley, Port Jervis Lines	No
	NJT Bus	No
	Hudson Bergen Light Rail & Newark Light Rail	No
	River Line	No
OTHER TRANSIT SERVICES	PATH Trains	No
	PATCO Trains	No
	Amtrak	No
	Private Commuter Buses, Shuttles, and Jitneys	No
	NY Waterways	No

Updated March 2025.

MOTORCYCLE

Under New Jersey law (N.J. Stat. § 39:1-1), the definition of "motorcycle" includes motorcycles, autocycles, motor bikes, bicycles with motor attached and all motor-operated vehicles of the bicycle or tricycle type, except motorized bicycles, low-speed electric bicycles, and low-speed electric scooters, whether the motive power be a part thereof or attached thereto and having a saddle or seat with driver sitting astride or upon it or a platform on which the driver stands. Motorcycle operators must wear goggles or a face shield.

The New Jersey Motor Vehicle Commission (NJ MVC) defines low-speed motorcycles as those which are less than 50 cubic centimeters (cc) or have a 1.5 brake horsepower motor or less with a maximum speed no more than 35 miles per hour on a flat surface. Low-speed motorcycles may not be driven on any state toll road, limited-access highway or any public road with a posted speed limit greater than 35 miles per hour. Low-speed motorcycles must be titled, registered and insured. Basic auto license holders can operate a low-speed motorcycle without any endorsement or separate motorcycle license.



Characteristics	Power Source	Propulsion Method	Max. Assisted Speed
	Gas or Electric	Throttle	N/A

Requirements	Minimum Age	Helmet	License	Registration
	17 years old	Required for all ages	Required	Not required

Where is it allowed?	Paved Bikeways, Shared-Use Paths, & Surfaced Trails	Public Streets	Parking on Sidewalk
	No	Yes	No

When is it allowed on transit?

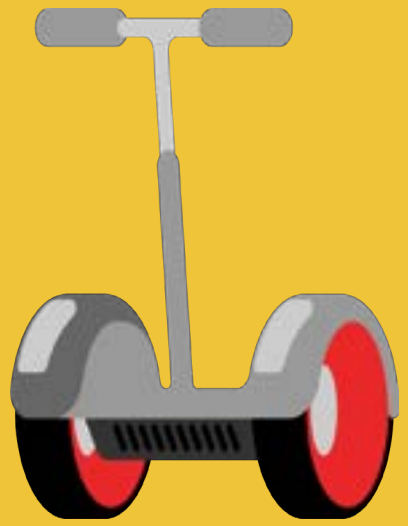
	Type of Transit	Regulations
NJ TRANSIT	Atlantic City Rail Line	No
	Northeast Corridor, North Jersey Coast Line, Morris & Essex Lines	No
	Raritan Valley, Montclair-Boonton, Gladstone, Main, Bergen County, Pascack Valley, Port Jervis Lines	No
	NJT Bus	No
	Hudson Bergen Light Rail & Newark Light Rail	No
	River Line	No
OTHER TRANSIT SERVICES	PATH Trains	No
	PATCO Trains	No
	Amtrak	No
	Private Commuter Buses, Shuttles, and Jitneys	No
	NY Waterways	No

Updated March 2025.

HOVERBOARDS AND SEGWAYS

Under New Jersey law (N.J. Stat. § 39:4-14.10), vehicles like hoverboards and Segways are considered "electric personal assistive mobility devices." This is defined as a self-balancing non-tandem two wheeled device designed to transport one person which uses an electric propulsion system with average power of 750 watts (one horsepower), whose maximum speed on a paved level surface, when powered solely by such a propulsion system while operated by a person weighing 170 pounds, is less than 20 miles per hour. This definition excludes motorized wheelchairs, motorized bicycles, motorcycles, motorized scooters, motorized skateboards, and motor vehicles.

Local governments can regulate or prohibit the operation of electric personal assistive mobility devices on the roadways and public properties under their jurisdiction. Operators of electric personal assistive mobility devices have the same rights and responsibilities as bicyclists.



Characteristics	Power Source	Propulsion Method	Max. Assisted Speed
	Electric	N/A	20 mph

Requirements	Minimum Age	Helmet	License	Registration
	16 years old	Required for all ages	Not required	Not required

Where is it allowed?	Paved Bikeways, Shared-Use Paths, & Surfaced Trails	Public Streets	Parking on Sidewalk
	Yes*	Yes	Yes, if not blocking pedestrian access

*E-devices like hoverboards and Segways are not permitted on trails designated for non-motorized vehicles with natural surface, such as wood chips or bare earth, unless permitted by the trail's owner.

**Check the transit operator's website for specific information.

When is it allowed on transit?

	Type of Transit	Regulations
NJ TRANSIT	Atlantic City Rail Line	No
	Northeast Corridor, North Jersey Coast Line, Morris & Essex Lines	No
	Raritan Valley, Montclair-Boonton, Gladstone, Main, Bergen County, Pascack Valley, Port Jervis Lines	No
	NJT Bus	Yes (Segways to be stored in underfloor luggage compartments when available)
	Hudson Bergen Light Rail & Newark Light Rail	No
	River Line	No
OTHER TRANSIT SERVICES	PATH Trains	No
	PATCO Trains	Nothing mentioned in guidelines
	Amtrak	Yes (As a carry on)
	Private Commuter Buses, Shuttles, and Jitneys	Varies**
	NY Waterways	No

Updated March 2025.

SKATEBOARD, ROLLER SKATES, AND ROLLER BLADES

Under New Jersey law (N.J. Stat. § 39:4-10.10a), skateboards, roller skates, and roller blades are all regulated as "roller skates," which is defined as a pair of devices worn on the feet with a set of wheels attached, regardless of the number or placement of those wheels, and used to glide or propel the user over the ground.

Municipalities can regulate the operation of skateboards and roller skates on specific roadways and public properties under their jurisdiction. They may not, however, enact a blanket prohibition of stakeboards from all public roads.

Operators of roller skates and skateboards have the same rights and responsibilities as operators of vehicles.

	Power Source	Propulsion Method	Max. Assisted Speed
Characteristics	Manual	N/A	N/A

	Minimum Age	Helmet	License	Registration
Requirements	None	Required under 17 years old	Not required	Not required

	Paved Bikeways, Shared-Use Paths, & Surfaced Trails	Public Streets	Parking on Sidewalk
Where is it allowed?	Yes	Yes	N/A

*Check the transit operator's website for specific information.

When is it allowed on transit?

	Type of Transit	Regulations
NJ TRANSIT	Atlantic City Rail Line	Yes
	Northeast Corridor, North Jersey Coast Line, Morris & Essex Lines	Yes
	Raritan Valley, Montclair-Boonton, Gladstone, Main, Bergen County, Pascack Valley, Port Jervis Lines	Yes
	NJT Bus	Yes
	Hudson Bergen Light Rail & Newark Light Rail	Yes
	River Line	Yes
OTHER TRANSIT SERVICES	PATH Trains	Yes
	PATCO Trains	Yes
	Amtrak	Yes
	Private Commuter Buses, Shuttles, and Jitneys	Varies*
	NY Waterways	Yes

Updated March 2025.

LOW-SPEED VEHICLE

A “low-speed vehicle” (LSV) is a four-wheeled vehicle whose attainable speed is more than 20 miles per hour but not more than 25 miles per hour on a paved level surface and which is not powered by gasoline or diesel fuel (N.J. Stat. § 39:1-1). Low-speed vehicles include golf carts and similar electric vehicles.

Low-speed vehicles can be operated on roads with speed limits up to 25 mph, but the State, counties, and municipalities can further allow the operation of LSVs on roads under their respective jurisdictions with speed limits up to 35 mph. Municipalities and counties can also prohibit the use of low-speed vehicles on any street where the operation of LSVs would constitute a hazard.

Characteristics	**Power Source**	**Propulsion Method**	**Max. Assisted Speed**
	Electric	N/A	25 mph

Requirements	**Minimum Age**	**Helmet**	**License**	**Registration**
	18 years old	Not required	Required	Required

Where is it allowed?	**Paved Bikeways, Shared-Use Paths, & Surfaced Trails**	**Public Streets**	**Parking on Sidewalk**
	No	Yes (when speed limit is up to 35 mph)	No

When is it allowed on transit?

	Type of Transit	Regulations
NJ TRANSIT	Atlantic City Rail Line	No
	Northeast Corridor, North Jersey Coast Line, Morris & Essex Lines	No
	Raritan Valley, Montclair-Boonton, Gladstone, Main, Bergen County, Pascack Valley, Port Jervis Lines	No
	NJT Bus	No
	Hudson Bergen Light Rail & Newark Light Rail	No
	River Line	No
OTHER TRANSIT SERVICES	PATH Trains	No
	PATCO Trains	No
	Amtrak	No
	Private Commuter Buses, Shuttles, and Jitneys	No
	NY Waterways	No

Updated March 2025.

AUTOCYCLE

An “autocycle” is a three-wheeled motorcycle designed to be controlled with a steering wheel and pedals in which the operator and passenger may ride in a completely or partially enclosed seating area that is equipped with a roll cage or roll hoops, safety seat belts for each occupant, and anti-lock brakes (N.J. Stat. § 39:1-1). Autocycles are regulated the same as motorcycles.

	Power Source	Propulsion Method	Max. Assisted Speed
Characteristics	Gas or Electric	N/A	N/A

	Minimum Age	Helmet	License	Registration
Requirements	17 years old	Required for drivers and passengers under 17 years old	Required	Required

	Paved Bikeways, Shared-Use Paths, & Surfaced Trails	Public Streets	Parking on Sidewalk
Where is it allowed?	No	Yes	No

When is it allowed on transit?

	Type of Transit	Regulations
NJ TRANSIT	Atlantic City Rail Line	No
	Northeast Corridor, North Jersey Coast Line, Morris & Essex Lines	No
	Raritan Valley, Montclair-Boonton, Gladstone, Main, Bergen County, Pascack Valley, Port Jervis Lines	No
	NJT Bus	No
	Hudson Bergen Light Rail & Newark Light Rail	No
	River Line	No
OTHER TRANSIT SERVICES	PATH Trains	No
	PATCO Trains	No
	Amtrak	No
	Private Commuter Buses, Shuttles, and Jitneys	No
	NY Waterways	No

Updated March 2025.

MICROMOBILITY SAFETY BEST PRACTICES

The following sections describe best practices for using your low-speed electric devices safely and legally in New Jersey, including tips for locking your device, taking it on transit, charging it, and more. While many of these best practices can apply to a range of micromobility devices, they are primarily targeted at low-speed (Class 1 and 2) electric bicycles, motorized (Class 3) bicycles, and low-speed electric scooters.

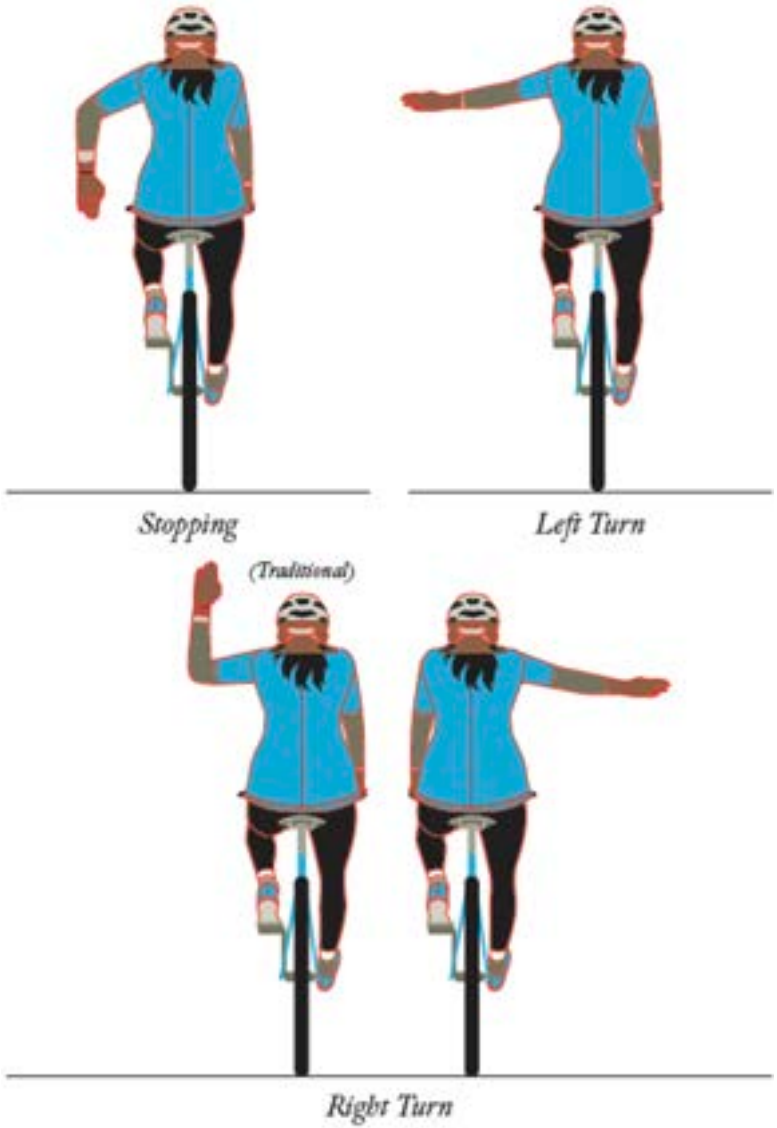
General Safety Tips

Safety is proactive, and it takes practice. Riding a bicycle, e-bike, e-scooter, or any other type of micromobility device comes with many responsibilities. Among the most important responsibilities is to keep yourself and those around you safe. There are many habits and practices that can help keep you safe while using a micromobility device. Below are tips to keep you, your device, and your community safer.

As a human, you are vulnerable. Wearing a helmet properly is an easy way to reduce your risk of injury in certain types of crashes. Most injuries on micromobility devices are not from crashes with vehicles but from falls. A fall can happen to even the most experienced rider. Helmets are designed to protect you only once, so if you ever are in a crash or fall where your helmet impacts the ground or another object, it is time to replace the helmet.

Those around you are vulnerable, too, so it is important to ride responsibly to reduce the risk of injuring someone else.

1. **Follow the law**. New Jersey law explains that, in most cases, micromobility users have the same right to the road as motor vehicles. You should ride with the direction of traffic and obey all stop signs and traffic signals. Many types of micromobility are allowed in bike lanes. New Jersey state law does not prohibit riding low-speed micromobility on sidewalks. However, conventional bicycles, e-bikes, and e-scooters should generally be ridden on the road, and some municipalities have passed local ordinances



Common hand signals for bicyclists. (League of American Bicyclists)

prohibiting riding on sidewalks. Exceptions are often made for young children. For more information on where you can ride specific types of micromobility devices according to New Jersey laws, see the **Regulations by Device Type** section of this guide.

Avoid riding in the "door zone" next to parked cars. (NJDOT Bicycle and Pedestrian Resource Center)

2. **Be predictable**. One critical way to keep yourself and others safe is to communicate your intentions while riding. You should ride in a straight line on the road or in a bike lane. If you want to make a turn or change lanes, scan your surroundings, including behind you, and signal using hand signals. It is best to signal 100 feet before your turn and to hold the signal for 3-5 seconds.

3. **Be visible.** The responsibility for keeping everyone safe is a shared one, and that includes you. In order to be visible to other road users, you should always ride where people can see you. Even when it is legally allowed, it is not recommended to ride on sidewalks in most cases because you will often be less visible to drivers entering and exiting driveways. Additionally, riding on sidewalks is discourteous and a potential safety hazard to pedestrians. New Jersey law requires bicycles, low-speed e-bikes, and e-scooters to have a white front light and a red rear light[3] as well as a bell[4]. When possible, it is also recommended to wear bright clothing when you ride to increase your visibility.

4. **Think ahead.** You should anticipate what drivers, pedestrians, and other micromobility users will do next. Watch for turning vehicles and avoid riding in the "door zone" next to parked cars. Powered micromobility gives riders the opportunity to go faster, but all riders have the responsibility to maintain control and be ready to stop to avoid a crash or injury.

5. **Ride ready.** Before you ride, inspect your micromobility device to make sure it is in good repair. Check tire pressure and ensure that brakes are working properly. If your device has a battery, verify that it has enough of a charge for your needs. Check that chains are running smoothly and that any quick release levers are closed. You should be prepared to address any basic concerns with your device, so you may want to carry tools and supplies that could save you in an emergency.

Where is the best place to ride my micromobility device?

Many electric micromobility devices, including low-speed electric bikes and low-speed electric scooters, are regulated like a conventional bicycle. As such, they should be ridden where it would be best to ride a conventional bicycle. Bike lanes are dedicated places for bicyclists and micromobility users and are commonly delineated with white or green paint, traffic bollards or planters. Bike lanes are often the safest place to ride, though you should watch out for potholes, debris, or parked cars obstructing the lane.

If the bike lane is blocked or no bike lane is available, micromobility users should ride in the road, traveling in the same direction as traffic. New Jersey law states that micromobility users, such as bicyclists and riders of low-speed electric bikes and scooters, have as much of a right to ride on the road as any motorist. As a general rule, the safest place to ride is in the rightmost lane that allows you to reach your destination. At intersections, you may need to change positions to get into the lane that is going where you want to go. Before doing this, scan around and behind you, signal your intent to change lanes, then scan again before safely making your move.

New Jersey law states that, when riding in the road, bicyclists should ride as near to the right as practicable with exceptions when making left turns, avoiding debris or other hazards, or passing slower vehicles. Bicyclists are also allowed to occupy any available lane when traveling at the same speed as other traffic and are allowed to travel two abreast as long as traffic is not impeded.[5]

In New Jersey, the Safe Passing Law requires drivers approaching a micromobility user to move over to a different lane, pass with at least four feet to spare, or otherwise slow down to 25 miles per hour and prepare to stop until it is safe to pass.

When approaching an intersection on a bicycle, you may need to change positions to get where you want to go. (NJDOT Bicycle and Pedestrian Resource Center)

Are E-Scooter Users More Seriously Injured than Other Micromobility Modes?

The increased popularity and use of micromobility devices have led to concerns about the perceived heightened risk of injury with powered devices that are capable of achieving higher speeds than traditional bicycles, particularly with e-scooters. While some communities across New Jersey have responded to this perceived risk by imposing bans on shared e-scooters, recent statistics from the International Transport Forum (ITF) show that **e-scooter users are not more likely to be injured per mile traveled compared to cyclists**.[6] Moreover, research conducted by the Voorhees Transportation Center at Rutgers University has found that **e-scooter crashes do not result in more severe injuries compared to other micromobility modes**.[7] The study analyzed the proportion of severe or fatal injures based on the outcomes of hospital visits, revealing a consistent severity level across three modes: traditional bicycles, e-bikes, and e-scooters. Notably, the majority of micromobility users treated in emergency departments experience non-severe injuries, leading to early discharge. In fact, individuals with e-scooter injuries exhibit a slightly higher rate of discharge (85%) compared to e-bikes (81%) and bicycles (79%).

The research has established that facts do not back the prevalent belief that injuries among e-scooter users are inherently more severe. Instead, the safety of micromobility users in New Jersey is influenced by various factors, such as infrastructure, motor vehicle speed, and cultural understanding. Prioritizing safety in micromobility necessitates a holistic approach aligned with Vision Zero and the Safe System Approach.

Research has found that e-scooter crashes do not result in more severe injuries compared to other micromobility modes. (NJDOT Bicycle and Pedestrian Resource Center)

Speed Limiters

Some e-bike owners, in an effort to achieve higher speeds, attempt to remove the speed limiters built into e-bikes by manufacturers. This is ill-advised for several reasons. Not only does New Jersey law prohibit individuals from modifying low-speed electric bicycles in a way that changes the speed capability of the device[8], but removing speed limiters can cause an array of problems that affect device performance and, most importantly, user safety.

Some of the reasons you should avoid removing speed limiters include:

It is illegal: New Jersey law not only prohibits tampering with an e-bike to alter its speed capabilities, but State law also defines maximum speed limits for low-speed e-scooters (19 mph), low-speed Class 1 and 2 e-bikes (20 mph), and Class 3 e-bikes (28 mph).[9] Modifying an e-bike or e-scooter to exceed speed limitations may mean it no longer qualifies as a legal device.

It voids the warranty: In many cases, removing speed limiters and other unauthorized modifications can void a device's warranty. Once your warranty is voided, you will not be able to receive covered repairs or replacement parts from the manufacturer.[10] [11]

Devices are not designed to exceed speed limitations: Because e-bikes and e-scooters are built with maximum speed limits in mind, removing speed limiters can degrade performance and negatively impact safety.[12]

Loss of control: E-bikes and e-scooters can become difficult to maneuver when traveling at speeds higher than intended, increasing the likelihood of a crash.

Decreased braking efficiency: E-bike and e-scooter brakes are designed for certain speeds. Exceeding those speeds can result in longer stopping distances and a decreased ability to respond to sudden obstacles.

Mechanical strain: Higher speeds require a device's electric motor to work harder than intended, resulting in greater wear on component parts and increased risk of a breakdown.

Reduced battery life: Higher speeds also place greater demand on an e-bike or e-scooter's battery. This can shorten a battery's lifespan and limit the distance that can be traveled on a single charge.

Manufacturers build micromobility devices with a maximum speed in mind, so it is best to leave speed limiters as they are for the safety of both yourself and those around you.

Some manufacturers sell micromobility devices that are capable of achieving higher speeds without modification. It is important to know that any device that can exceed the speed limits set in Title 39 (19 mph for e-scooters, 20 mph for Class 1 and 2 e-bikes, and 28 mph for Class 3 e-bikes) may fall outside legal definitions and therefore cannot be ridden on public roads in New Jersey.

Shared Micromobility Services

Shared micromobility services provide short-term access to small, lightweight vehicles available for public use, generally for one-way trips. Typically, third-party service providers contract with local governments to maintain a fleet of bicycles, e-bikes, and e-scooters for a trip-based, daily, monthly, or annual fee.[13][14]

Just like privately-owned micromobility, shared services support increased mobility, provide first- and last-mile connectivity to transit, and help reduce greenhouse gas emissions by replacing motor vehicle trips. Shared micromobility services can also address equity concerns by providing transportation options for those who cannot own their own micromobility device due to financial or space constraints. The City of Newark's shared-mobility program, NewarkGo, also provides discounts for low-income individuals and requires service providers to deploy at least 15% of dockless devices in designated Equity Zones, defined by median income, average commute times, and distance to rapid rail transit.[15] Through an intentional focus on equity, local governments and service providers can help ensure that those with the greatest transportation needs enjoy the benefits of shared micromobility services.

Dockless shared micromobility services will often provide marked areas along streets or sidewalks where devices should be parked. (NJDOT Bicycle and Pedestrian Resource Center)

Slow Areas and No-Ride Zones for Shared Micromobility

When using e-scooters that are part of a shared-mobility service, it is important to be aware of geofenced areas where restrictions on speed or riding may be automatically enforced using a device's GPS. These may be called slow zones, no-ride zones, or no-park zones, and vary by shared-mobility provider. When you enter a slow area or no-ride zone, the e-scooter will automatically decelerate or come to a stop.

Slow areas and no-ride zones may be located in areas with high levels of pedestrian traffic (such as school zones, main streets, or public housing complexes) or where riding may pose a safety concern (such as near water or high-speed roadways). The app for the shared-mobility service should clearly show where these areas are located. Check ahead of time whether the route you are taking passes through a slow area or a no-ride zone.

Parking Shared Micromobility

Shared-mobility services will generally provide either docked or dockless parking areas for devices. In addition, some shared services will designate certain areas as no-park zones, where you will not be able to end your ride and park your device. Before you ride, consult the app for the shared service you are using to ensure you know where you can and cannot park your rented e-bike or e-scooter. For more information on parking, see the section on **Securing and Parking Devices.**

Preventing Lithium-Ion Battery Fires

With the rapid expansion of electric bike and scooter usage, there is a need to understand the developing issue of lithium-ion battery fires.[16] While e-bikes and e-scooters have revolutionized personal mobility, offering a sustainable and efficient alternative to traditional transportation methods, their surge in popularity has brought to light multiple incidents involving battery fires. Fortunately, evidence shows that following best practices and undertaking preventative measures can nearly eliminate the risk of a battery fire.

Lithium-ion batteries are currently the most common choice for e-bikes and e-scooters due to their high energy density, lightweight construction, and relatively long cycle life. However, battery quality is an important factor when it comes to fire risk. Generally, **good batteries aren't cheap and cheap batteries aren't good**. Owning and riding an e-bike can be perfectly safe if you buy a bike with a battery that complies with UL standards (see below) and follow the manufacturer's basic instructions.

Underwriters Laboratories LLC (UL) is a global science safety organization that conducts testing, inspection and certification services for a range of products. A UL certification indicates that a product has met a certain safety standard. Three specific UL certifications are particularly relevant for e-bikes and e-scooters: **UL 2271** for lithium-ion batteries in light electric vehicles (LEVs), **UL 2849** for the electrical systems of e-bikes and electrically power-assisted cycles (EPACs), and **UL 2272** for the electrical systems of personal e-mobility devices, including e-scooters, e-skateboards, and hoverboards.

A lack of mandatory federal safety standards has resulted in the proliferation of low-quality, unsafe devices and batteries. Manufacturing defects, such as faulty cells or poor assembly, can contribute to battery malfunctions and fires. The recent popularity of e-bikes, particularly during the COVID-19 pandemic, has resulted in an influx of low-cost, often low-quality devices and batteries without adequate regulation and oversight of manufacturing and quality control.

When purchasing a new micromobility device, prioritize choosing an e-bike or e-scooter that uses lithium-ion batteries from reliable producers who follow relevant safety regulations. (NJDOT Bicycle and Pedestrian Resource Center)

Primary Causes of Lithium-Ion Battery Fires

1. **Use of low-quality batteries and chargers**: The biggest lithium-ion battery fire risk stems from low-quality batteries and chargers. Most high-end electric bikes have a Battery Management System (BMS) to help keep battery cells from being overcharged or overdrained. Because lower quality batteries may lack a BMS, they are at higher risk of overcharging and overheating.[17] Low-quality batteries may also have design flaws that make them more susceptible to fire, such as poor heat management or inadequate venting.

2. **Improper charging practices, including overcharging and incompatible replacement of batteries and chargers:** Low-quality batteries have an increased risk of fire when they are left to recharge unattended overnight.[18] If they overheat, the batteries can explode, causing a fast-moving fire that is difficult to extinguish. Additionally, when a charger or battery is replaced, there is a risk of incompatibility between the new and old parts. Using mismatched chargers or overcharging can result in overheating, which can start fires.

Thermal Runaway Phenomenon

The lithium-ion batteries used in many micromobility devices are vulnerable to a phenomenon called **thermal runaway**.[19] Thermal runaway is a condition in which damage to one lithium-ion battery cell can cause the overheating of nearby cells. The phenomenon is triggered by battery defects or issues with chargers, causing an uncontrollable release of stored energy, which can result in an explosion or fire.[20] Because the battery system fails gradually, the fire produces a lot of heat over time, which can be dangerous, especially in residential settings. Thermal runaway events can also produce toxic gases which endanger people and property.

Other, less common causes include:

3. **Improper battery storage**: Storing multiple batteries together or near flammable objects can increase the risk of a fire. Storing or charging batteries in extremely hot or cold conditions can also affect their performance and safety.

4. **Battery tampering**: Incorrect refurbishing or reassembling techniques can make used batteries more susceptible to fires.

5. **Prolonged use**: Continuous use without proper cooling can increase the battery's internal temperature, leading to thermal runaway and fires.

6. **Age and degradation**: Lithium-ion batteries deteriorate with time, which can increase the risk of overheating. While they have a relatively long shelf life compared to other types of batteries, overcharging or exposure to extreme temperatures can speed up the degradation process within the battery and shorten its shelf life. **As a general guideline, manufacturers often recommend that lithium-ion batteries be stored in a cool, dry place at a partial state of charge if they are not going to be used for an extended period.**

7. **Poor maintenance**: Improper maintenance of e-bikes and batteries, such as not cleaning terminals or not checking for corrosion or wear on a regular basis, can increase the danger of fire because of deteriorating electrical connections.

How Can Consumers Prevent Lithium-Ion Battery Fires?

1. ***Buy high-quality batteries:*** When purchasing a new micromobility device, prioritize choosing an e-bike or e-scooter that uses lithium-ion batteries from reliable producers who follow relevant safety regulations. Consumers can rely on a variety of resources to help identify high-quality batteries.

    - Look for **positive customer reviews** and testimonials on reputable e-commerce platforms, manufacturer websites, or independent review sites to determine if a product is reliable.

    - Check whether a battery has an appropriate **safety certification**. UL offers battery and e-mobility device safety certifications which manufacturers must undergo rigorous testing to obtain. The New York City Council's 2023 law on micromobility device and battery safety and the U.S. Consumer Product Safety Commission (CPSC) both cite three key certifications:

        » **UL2271** for lithium-ion **batteries** in light electric vehicles (LEVs)

        » **UL2849** specifically for the **electrical systems of e-bikes** and electrically power-assisted cycles (EPACs)

        » **UL2272** for the **electrical systems of personal e-mobility devices**, including e-scooters, e-skateboards, and hoverboards

    - Review a device or battery **manufacturers' product specifications**, which should clearly state whether their product meets industry standards and should provide clear documentation about the battery's construction and safety features. Look for products that incorporate these battery safety features:

        » **Battery Management System (BMS)**: A strong BMS can monitor your battery's voltage, current, temperature, and state of charge to avoid overcharging, overexerting, or overheating.[21]

        » **Thermal Management**: A battery pack with efficient thermal management technologies, such as cooling fans, thermal pads, or heat sinks disperses heat and prevents thermal runaway.

        » **Fault Tolerance**: To lessen the effects of component failures and avert catastrophic fires, higher quality batteries incorporate redundancy and fault-tolerant elements into the battery system.

    - Prioritize products with **a robust warranty** and accessible customer support channels to address any potential issues or concerns regarding battery performance and safety.

    - Research the **reputation of e-mobility device and battery manufacturers** before buying. Well-established companies tend to prioritize quality and safety in their products.

    - Explore **online forums** related to micromobility. They can provide information about other consumers' first-hand experiences, recommendations, and insights on product performance and safety.

Always follow the manufacturer's instructions when charging, storing, and maintaining your e-bike battery. (NJDOT Bicycle and Pedestrian Resource Center)

2. ***Charge safely:*** Always follow the manufacturer's instructions when charging, storing, and maintaining your e-bike battery.[22] Only use chargers authorized by the manufacturer and avoid overcharging. Avoid aftermarket or non-matching chargers.

    - Avoid charging batteries in higher risk locations, such as near flammable materials, and ensure that batteries are physically separated to prevent thermal runaway.[23]
    - Avoid charging overnight or leaving charging batteries unattended.[24] If the micromobility device is not going to be used for 12 hours or more, remove the battery from the device.
    - Avoid charging in parking garages or apartment entryways.
    - Do not charge damaged batteries or batteries that have been submerged in water for any amount of time.
    - Connect chargers directly to wall outlets. Do not use power strips or extension cords.
    - Use outlet timers or set a manual timer to remind yourself to disconnect a device when it is finished charging.[25]
    - Use fireproof battery bags made of glass fabric woven with steel threads that can contain fires if they occur. [26]

3. ***Store safely:*** Devices using lithium-ion batteries should be kept dry and cool, away from combustible objects. **Do not store e-bikes, e-scooters or their batteries in direct sunlight or where they may block the means of egress or fire escape routes.** For devices being stored indoors, consider options that offer containment in the event of a thermal runaway event. Seek storage options that are fireproofed and well-ventilated.

4. ***Inspect regularly:*** Check micromobility devices and batteries for wear and damage on a regular basis. If any problems arise, contact the manufacturer or a specialist with detailed documentation. Companies often replace faulty batteries under warranty, but tampering may void a warranty. Servicing and replacing cells should not be done by anyone without specific training on lithium-ion batteries.

5. ***Dispose safely:*** In addition to disposing of old batteries during replacement, damaged batteries should also be disposed of according to local regulations. When lithium-ion batteries are partially or totally submerged in water, they become significantly compromised, leading to safety and stability issues. Water exposure, especially salt water, can cause irreversible damage, elevating the risk of dangerous fires that are hard to control and can emit toxic gases.[27]

    - **Immediate Action:** If a device or its battery is suspected to have been submerged in water or otherwise damaged, promptly and carefully remove the battery from the device and place it in a safe, outdoor area away from flammable materials.
    - **Safe Disposal**: Damaged batteries should not be reused or recharged. Instead, they should be disposed of properly at a municipal household hazardous waste drop-off center. Proper disposal prevents environmental damage and reduces the risk of fire.
    - **Professional Guidance**: Consult a professional, such as the manufacturer or authorized repair center, while making any decisions regarding a potentially damaged lithium-ion battery.

After a lithium-ion battery fire is extinguished, firefighters place the battery in a 55-gallon drum filled with CellBlockEX to prevent reignition. The above photos were taken in a firehouse. (Stephen Dunn)

How Can Property Owners and Managers Prevent Lithium-Ion Battery Fires?

Property owners and managers in large buildings may benefit from providing a safe, separate location for micromobility battery charging and storage. Often the best option is to provide separate charging facilities away from residences where it is possible. Still, properties with insufficient space to provide optimal separation can designate a safe space outside residences where a fire can be properly contained, reducing the risk of damage and injury to residents in the case of a fire.

New York City's "Charge Safe, Ride Safe" Pilot Program

To improve safety around lithium-ion battery usage in e-bikes and e-scooters, New York City Mayor Eric Adams announced in 2023 "Charge Safe, Ride Safe: New York City's Electric Micromobility Action Plan." The plan addresses fire risks by promoting safe usage, raising awareness, pushing for federal regulation, and stepping up enforcement against illegal devices. The plan also recognizes the vital role that micromobility devices serve in offering affordable and practical mobility options for New Yorkers, including many delivery workers. Through pilot initiatives, the creation of public charging infrastructure, and intensive safety education campaigns, the effort seeks to facilitate the shift to safer e-micromobility usage.

When providing a separate charging and storage space, consider the following:

Use approved chargers: Use or enforce the use of approved chargers made specifically for e-bike and e-scooter batteries. Avoid the use of low-quality or incompatible chargers that may be dangerous.

Designate fireproof storage locations: Construct or retrofit storage facilities, rooms, or physical barriers built in compliance with local construction requirements using fire- and blast-resistant materials.

Install fire and smoke detection systems: These systems reduce the likelihood of fires spreading undetected by signaling potential problems and allowing time to take action.

Ensure proper ventilation: Make sure charging infrastructure is equipped with proper ventilation if it is provided inside storage spaces.[28]

Install self-closing doors: While often required of owners of larger buildings, all property owners can benefit from installing self-closing doors that help prevent the spread of fires once they start

Remember: If a fire does start, leave the building immediately, closing doors behind you to prevent the fire from spreading. Once you are safely out of the building and away from the fire, call 911.

Riding on Trails and Other Off-Road Facilities

New Jersey is home to an array of off-road facilities built so pedestrians and micromobility users can travel, exercise, socialize, and explore both built and natural environments. The design of these facilities can vary greatly from natural surface dirt trails in protected forests to wide boardwalks along the shore. While State law includes references to natural surface trails and bicycle paths, it does not provide definitions for trails, bicycle paths, or shared use paths, meaning there is a lack of uniform guidance at the statewide level for which modes are allowed to use these types of facilities. In many cases, the counties and municipalities that own trails and off-road facilities provide their own set of regulations.

Natural Surface Trails (Including Bare Earth and Wood Chip)

Natural surface trails are intended for use by pedestrians and non-motorized vehicles. Title 39 defines natural surface trails as those which have "a natural surface tread made by clearing and grading the soil and no surfacing materials have been added."[29] By default, conventional bicycles are the only form of micromobility allowed on natural surface trails. However, you should always check the rules provided by the government entity or agency which maintains the trail to confirm that bicycles are allowed.

According to Title 39, low speed e-bikes and e-scooters are prohibited from natural surface trails.[30] However, the law does allow the local government entity or State agency with jurisdiction over a trail to permit low-speed e-bikes and e-scooters. Since regulations will vary from trail to trail, always check local signage and regulations before riding.

In national forests and grasslands managed by the National Forest Service, conventional bicycles and all classes of e-bikes are allowed on motorized trails and roads.[31] E-bikes are generally not allowed on non-motorized trails, except where local Forest Service officials have permitted them. It is important to note that micromobility devices, including conventional bicycles, are never permitted off-road within designated wilderness areas (Brigantine and Great Swamp).[32]

Paved Bicycle Paths

Title 39 also refers to "bicycle paths" and situations where a bicycle is operated on "any path set aside for the exclusive use of bicycles."[33] [34] However, the vehicle code never defines this term. A bicycle path is also not defined in the NJDOT Roadway Design Manual.

According to State law, a low-speed electric bicycle or low-speed electric scooter may be operated on bicycle paths, though local governments and State agencies are allowed to prohibit these devices

Paved bicycle path in Camden, NJ. (NJDOT Bicycle and Pedestrian Resource Center)

on bicycle paths under their jurisdictions. Always refer to signage posted on or along the path to confirm what the local rule is. Title 39 does not clarify whether motorized bicycles are allowed or prohibited on paved bicycle paths.

Shared-Use/Multi-Use Paths

A shared-use or multi-use path is one designed to be shared by pedestrians, bicycles, scooters and other human-powered recreational vehicles. While Title 39 does not provide a statewide definition for shared-use paths, there are often local ordinances defining these facilities and governing their use. For example, Jersey City defines a shared-use path as "any paved pathway in the public right-of-way that supports multiple recreation and transportation opportunities, such as walking, bicycling, and inline skating, excluding trails and walkways located in City parks."[35]

Typically, signs and/or pavement markings will indicate which types of micromobility are allowed. However, some jurisdictions have blanket restrictions on the use of bicycles or e-scooters on paths or trails within parks. Similarly to Jersey City, Essex County prohibits the use of bicycles on all non-paved roadways within County parks unless otherwise expressly permitted or specifically designated by signage.[36]

Because this space is shared, users operating human-powered or low-speed electric micromobility have to yield the right-of-way to pedestrians.[37] Instead of posted speed limit signs, shared-use paths typically trust that riders will use their judgement to regulate behavior. The City of Hoboken states that bicyclists and e-scooter users must "travel at a rate of speed which is reasonable and prudent under the conditions at the point of operation, taking into account the amount and character of pedestrian traffic, grade and width of path, and condition of surface."[38]

Bicycles and other forms of micromobility yield to pedestrians on trails and shared-use paths. All users must yield to horses. (NJDOT Bicycle and Pedestrian Resource Center)

Local regulations for micromobility on boardwalks typically establish rules that vary by the time of year, day of the week, and time of day. (NJDOT Bicycle and Pedestrian Resource Center)

Some shared-use paths also host equestrian traffic. As horses can be easily spooked, they always have the right of way over all other trail users. Municipalities may further regulate how users of shared-use paths may act. For example, Jersey City ordinances hold that operators of e-scooters must yield to bikes in bicycle lanes and shared use paths.[39]

Boardwalks

The Jersey Shore is home to many popular boardwalks. Due to the seasonal popularity of these facilities, local regulations typically establish rules that vary by the time of year, day of the week, and time of day. For example, Seaside Heights does not limit bicycle use on boardwalks between November and March. However, between April and October, bicycles are not allowed on the boardwalk during weekends after noon. Further restrictions are in place during weekdays from June 15 to Labor Day.[40]

Municipalities may also place restrictions that differ between busier and quieter sections of boardwalks. Atlantic City, for example, does not allow bicycles on the boardwalk between noon to 4:00 p.m. year-round, except on a section between Connecticut Avenue to Gardner's Basin where riding is always allowed.[41]

Regulations surrounding electric-powered mobility also vary by municipality. Due to the emerging popularity of e-powered devices, it is likely that municipalities will continue to modify their ordinances in the coming years. You should always check municipal websites for guidance on local rules.

Securing and Parking Devices

Bicycles and Low-Speed E-Bikes

Choosing a Lock

Locking your bicycle or e-bike is critical to ensuring that your device is secure from theft and does not pose an obstacle to other bicyclists or pedestrians. The two most common types of bicycle locks are U-locks and cable locks.

U-locks are sturdier and harder to break than cable locks, making them the safer option for securing a bicycle. However, U-locks can be heavy and usually require a separate key, which could be misplaced. U-locks are also less flexible than cable locks, meaning they might not fit when parking in a crowded bicycle rack.

U-locks and cable locks are two options for securing your micromobility device. (NJDOT Bicycle and Pedestrian Resource Center)

When locking your bike, try to find a dedicated bicycle rack instead of locking your bicycle to a tree or a fence. (NJDOT Bicycle and Pedestrian Resource Center)

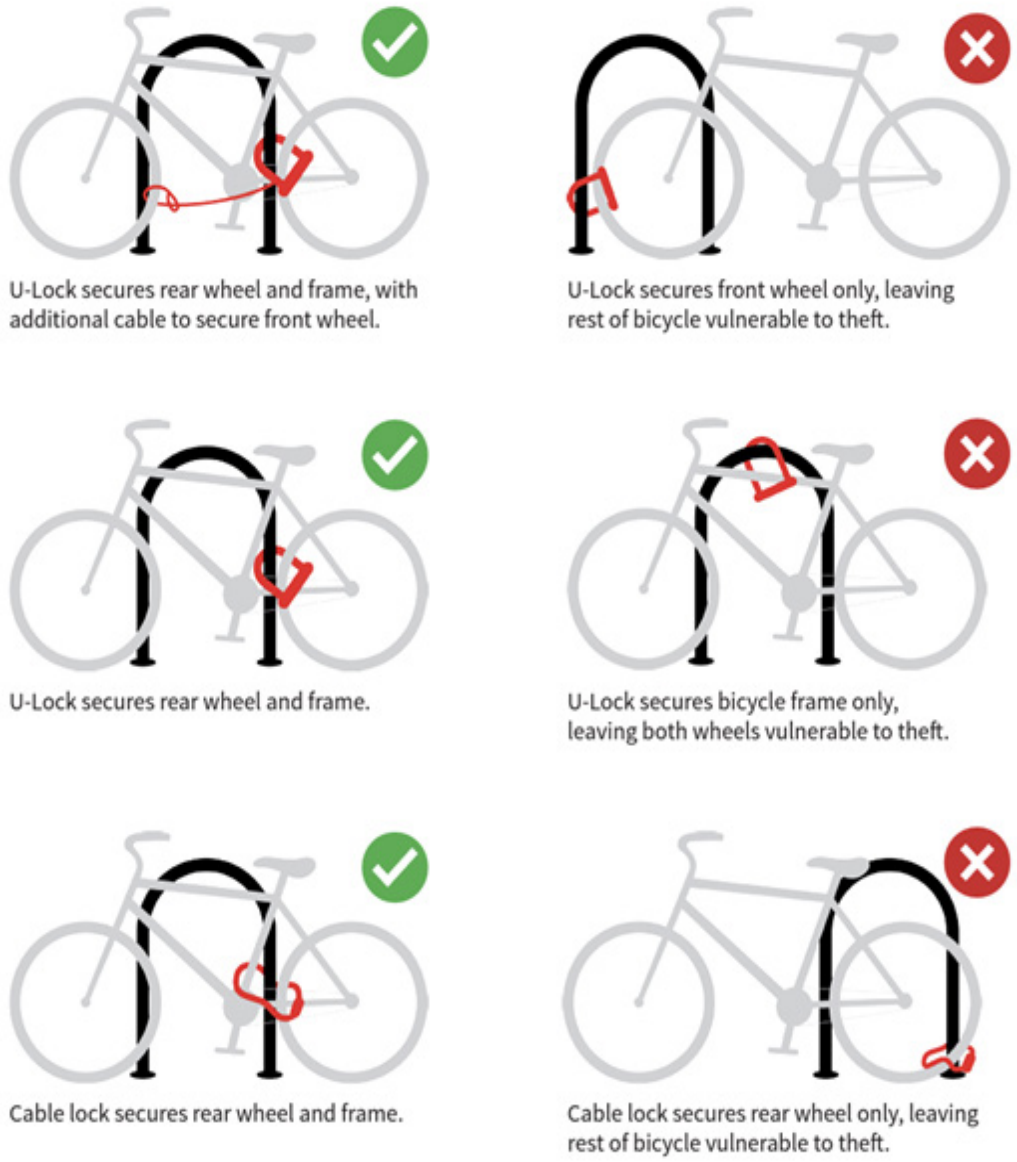
Cable locks, on the other hand, are flexible and usually use a combination lock rather than a separate key. For this reason, cable locks are a popular choice for children who are likely to be parking their bicycles on crowded school bicycle racks and don't want to keep track of a separate set of keys. However, cable locks are less sturdy than U-locks and, with the right set of tools, someone can cut through them with ease.

With benefits and drawbacks to each style, choosing the right lock is a matter of personal choice. Some people choose to use both a U-lock and a cable lock at the same time.

Locking Your Bike

Regardless of which lock you purchase, it's important to follow proper locking techniques. To do this, loop your lock through the frame of the bicycle and at least one wheel (preferably the rear wheel) before securing the lock to the rack. Make sure to bring any loose items, such as helmets or water bottles, with you when you leave. These might get stolen if you leave them unattended. Also, be careful not to accidentally loop your lock through an adjacent bicycle or lock. See the images to the right for guidance on proper and improper locking techniques.

When you reach your destination, try to find a dedicated bicycle rack instead of locking your bicycle to a tree or a fence. Whenever possible, leave your bicycle in a highly visible area where people are less likely to tamper with it. If your e-bike has a removable battery, consider taking it with you to avoid it being stolen.[42] Sheltered parking is also preferred to keep your bicycle dry in the event of rain. In New Jersey, bicycles and low-speed (Class 1 and 2) e-bikes are allowed to be parked on sidewalks as long as they are not blocking pedestrian access, though dedicated areas for bicycle parking are a better option when provided.



Techniques for locking a bike using cable locks and U-locks. (The School Bike Parking Guide prepared by the NJDOT Safe Routes to School Resource Center at Rutgers University)

E-Scooters

Some e-scooters come with built-in locking mechanisms or security measures that enable the user to turn the device on or off remotely with a key fob or app.[43] Even so, a physical lock can provide an additional level of security when parking your device.

High-quality U-locks offer the greatest amount of protection for e-scooters because they are difficult to cut through. At the same time, U-locks can be heavy and there may be cases when folding locks are a more convenient option. Because they are lightweight, folding locks can be more easily carried in a backpack or mounted to an e-scooter's stem. However, folding locks contain more weak points than U-locks and are therefore a somewhat less secure mechanism for locking an e-scooter.

When locking your e-scooter, it is important to thread the lock through a non-removable part of the device. The best locations on an e-scooter for locking are:[44]

- Around the stem
- Through the folding mechanism
- Through a carrying handle that is integrated into the frame

Poor locations for locking include:

- Through removable wheels
- Around the handlebars
- Through fenders or bolted-on accessories

When locking your e-scooter, it is important to thread the lock through a non-removable part of the device.

As with a bicycle or e-bike, it is safest to lock your e-scooter to a fixed object. Certain types of bicycle racks are better suited for locking e-scooters than others, particularly those which allow you to lock your e-scooter around the stem or other secure part of the frame.

When locking an e-scooter, it is important to thread the lock through a non-removable part of the device. (riderguide.com)

Some locations may offer racks that are designed specifically for e-scooters and allow you to lock the scooter's stem securely to a fixed structure.[45] While currently less common than bicycle racks, e-scooter-specific parking will likely become more prevalent as the popularity of e-scooters continues to increase. As traditional bicycles, e-bikes, and e-scooters compete for limited parking, municipalities, counties, and others who provide micromobility parking should consider installing racks designed specifically for e-scooters to accommodate the growing use of these devices.

While e-scooters are generally allowed to be locked to any bicycle rack, this is not always clear. In some cases, the inclusion of signage at bicycle parking facilities that specifically mentions e-scooters can help clarify where is best to park these devices.

As with bicycles and low-speed e-bikes, e-scooters are allowed to be parked on sidewalks as long as they are not blocking pedestrian access. If you are parking your e-scooter without locking it to another structure, seek out locations near bicycle racks where your device will not block walkways or building entrances.[46]

Secure parking designed specifically for scooters. (gogreenspoke.com)

Traveling with Micromobility on Transit

Micromobility devices allow people to go further distances without a car, and for many, these devices are the solution for getting to or from public transit facilities, such as train stations, bus stops, and light rail stations. Some transit agencies allow you to bring micromobility devices with you on the train, bus, or ferry; however, the rules vary considerably depending on the device, agency, day of the week, and even time of day. This section describes best practices for micromobility users to travel to, from, and on transit.

Transit agency rules about bringing micromobility on board ules vary considerably depending on the device, agency, day of the week, and even time of day. (NJDOT Bicycle and Pedestrian Resource Center)

General Rule #1: If you can, lock and leave it!

Taking your device with you may not always be the best choice. If your final destination is within a short walk from the end of your transit trip, it may be easier to park and lock your device before getting on the bus, train, or ferry. If you feel comfortable leaving your device locked at or near your origin station or bus stop, it can be more convenient to not have to travel with the extra responsibilities of properly stowing your device or the added risk that there will not be available space on your route.

For more information on how best to lock your device, see the best practices section on Securing and Parking Devices.

General Rule #2: Know before you go!

In New Jersey, there are a lot of different transit agencies and private companies that serve communities across the state, with NJ TRANSIT being the largest transit agency in the state. **Between the different services offered by NJ TRANSIT and the many other agencies and companies, the rules and regulations surrounding micromobility devices vary widely.** As such, it is important to check an agency's rules before beginning your trip.

For example, many NJ TRANSIT train lines in North Jersey do not allow non-folding micromobility devices during peak times. Additionally, PATH trains, which serve Newark, Harrison, Hoboken, Jersey City, and New York City, do not allow any electric micromobility devices at any time, and non-folding bikes are also not allowed during peak times. Peak times vary by agency and are subject to change based on the agency's judgment.

You should be prepared to stow your vehicle appropriately. On RIVER Line trains in South Jersey, all trains come with bike racks. Other trains in the state do not have dedicated racks but allow certain devices to be brought on board and stowed in wheelchair-accessible spaces on a first-come first-served basis. On trains where non-folding devices are permitted, single-level railcars can hold up to two devices per car, and multilevel railcars can hold up to eight devices per car based on crowding and the accessibility needs of other riders. You should stay with your device if it comes onboard with you in the passenger area.

NJ TRANSIT buses allow some folding micromobility devices on board; however, non-folding devices must be stored away from passengers. Some bus lines running low-floor (city-style) buses are equipped on the front with bicycle racks, which can fit low-speed electric bicycles and conventional bicycles. Coach-style commuter buses run by NJ TRANSIT allow some non-folding devices to be stored in the under-floor compartment. As always, space is limited and offered on a first-come first-served basis.

Amtrak trains require a reservation with a $20 fee per bicycle in addition to the cost of the ticket for the passenger. Bicycle space is limited and there are restrictions on the dimensions of bicycles that can fit based on the racks available on a given train. Check Amtrak's website for more details on the types of racks and how to bring your device on their trains.

Ferries operated by NY Waterway allow traditional bicycles, folding bicycles, e-scooters, and Class 1, 2, and 3 e-bikes provided they are not gas-powered. Motorcycles, gas-powered scooters, Vespa-style mopeds, electric skateboards, and segways are prohibited.

You should always be prepared to stow your device appropriately. (NJDOT Bicycle and Pedestrian Resource Center)

For more detailed information about which types of devices are allowed when and where, refer to the **Regulations by Device Type** section.

General Rule #3: No gas motors!

Without exception, transit agencies prohibit any gas-powered engines in stations, on platforms, or on buses, trains, or ferries. Gas vehicles emit fumes, sometimes even when the engines are not running. Gas engines are also at risk of spilling or leaking oil or gasoline while aboard a vehicle, which is a fire hazard and adds the risk of toxic fumes, unpleasant smells, and oil slicks on vehicles. For these reasons, you should never take a gas-powered device on transit.

General Rule #4: All that folds is gold!

Many transit agencies are more permissive of folding micromobility devices. This is often because they require less space and are easier to bring on board. Folding devices are more often treated like a carry-on item, because they can fit closer to you and away from the aisle. If you are purchasing a new micromobility device and expect to take it on transit where permitted—especially during rush hour—you should consider a device that folds.

General Rule #5: Courtesy can take you a long way!

Public transit is a communal experience, and everyone is entitled to their reasonable use of the services provided; however, it is very important to be conscientious of the comfort of your fellow passengers. Bulky micromobility devices are often not permitted on busy trains. Even so, if you are permitted to take your device on a train, bus, or ferry, follow the rules and be sure there is room for other passengers to move around you.

It is against the rules to ride any device in stations, on platforms, or aboard trains and buses. Space is limited in transit facilities and on vehicles. Walking or carrying your device through transit facilities is best not only because it reduces the risk of a fall or crash with another person, but also because it is courteous to others around you.

Being a courteous rider can help people get accustomed to seeing micromobility on their trip. (NJDOT Bicycle and Pedestrian Resource Center)

If trains and buses become crowded over the course of your trip, you should be cognizant of taking up any unnecessary space. While conductors and drivers should be familiar with the rules regarding what is and is not allowed, everyday riders may make different judgments. As such, it is important to remember that as a micromobility user, your behavior reflects on those of all micromobility users. Being a courteous rider can help people get accustomed to seeing micromobility on their trip and, as a consequence, they may even consider trying out and e-bike or e-scooter for themselves.

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