Safer Streets with Micromobility

Identifying & Addressing Safety Risks

Task: Educational Curriculum Guide

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Authors: Emmaline Shields, M.P.H., & Troy Walden, Ph.D.

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Texas A&M Transportation Institute

Save a Life™
Texas Department of Transportation

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OVERVIEW

This guide is written to provide a possible format for presenting this information. The guide includes:

- Course goal
- Learning objectives
- Presentation – PPT & Teachable
- Suggested script for the instructor

COURSE GOAL

The goal is to increase awareness of micromobility laws and safety risks for both the general public and law enforcement.

LEARNING OBJECTIVES

Following the trainings attendees will be able to:

- Identify shared micromobility vehicles and associated laws.
- Assess the impact of shared micromobility on vulnerable road user safety through injury and fatality data.
- Implement the proper safety precautions while using shared micromobility vehicles.
- Implement strategies to effectively engage with riders, drivers and pedestrians to promote safely sharing the road.
- Understand the importance of addressing shared micromobility in vulnerable road user safety programs.

CURRICULUM OUTLINE

- Part 1: Introduction
    - Introduction & overview of training
    - Agenda
- Part 2: Micromobility 101
    - Definitions
        - Define Micromobility & Common Micromobility Devices
            - Electric Bicycle
            - Powered Self-Balancing Board

            - Powered Non-Self-Balancing Board
            - Powered Skates
            - Powered Seated Scooter
            - Powered Standing Scooter
    - Shared Micromobility
        - What is shared micromobility?
        - Evolution of shared micromobility
        - Shared micromobility growth (charts)
        - Shared micromobility markets
        - Advantages & Disadvantages of Micromobility
    - Texas Micromobility Rules and Regulations
        - Intro to Texas Transportation Code
        - What does the TTC say about micromobility?
            - Electric Bicycle
            - Electric Scooter
            - Electric Personal Assistive Mobility Device
- Part 3: Safety Facts
    - Injury & Fatality Data Sources
    - Consumer Product Safety Commission Report
        - E-Scooter/E-Bike/Hoverboard injuries and fatalities
    - Austin, Texas E-Scooter Case Study
    - More studies!
- Part 4: Identifying and Addressing Micromobility Safety Challenges
    - Public Education
    - Enforcement
    - Infrastructure
- Part 5: Final Tips & Takeaways
    - Safety Tips
    - Thank you!

PRESENTER SCRIPT:

*** Note: Tailor the Slides/Script based on the target audience. Slides can be hidden/removed as applicable.

Slide 1: Title Slide

WELCOME: My name is__________ and… (provide presenter's background. Today we will be talking about micromobility devices and associated safety risks and precautions. (If virtual training: Please keep your cameras on today as it promotes discussion and interaction).

Slide 2: Agenda

This is the agenda that we will following today. This training is divided into four major sections – an overview of micromobility, safety facts and figures, safety challenges and solutions, and safety tips.

Section 1: Micromobility 101

Slide 3: Micromobility 101

In this section, we will define micromobility and common micromobility vehicles. We will review the advantages and disadvantages of micromobility. You will learn about the field of shared micromobility. Finally, we will review the Texas Transportation Code and what it says about micromobility vehicles.

Slide 4: Micromobility Defined

The Federal Highway Administration defines micromobility as any small, low-speed, human or electric-powered transportation device, including bicycles, scooters, electric-assist bicycles (e-bikes), electric scooters (e-scooters), and other small, lightweight, wheeled conveyances.

The Society of Automative Engineers further defines powered micromobility vehicles as those with a top speed of less than 30 mph and a curb weight of less than 500 pounds.

The most common powered micromobility vehicles include:

- Electric bicycles;
- Powered Self-Balancing Board;
- Powered Non-Self-Balancing Board;
- Powered Skates;
- Powered Seated Scooter; and
- Powered Standing Scooter.

The next slides will define these common powered micromobility vehicles according to the Society of Automotive Engineers.

References:

[J3194_201911: Taxonomy and Classification of Powered Micromobility Vehicles - Recommended Practice (sae.org)]

[Micromobility Fact Sheet (dot.gov)]

Slide 5: Electric Bicycle

An electric bicycle is a two- or three-wheeled vehicle with fully operable pedals and an electric motor of less than 750 watts (1 h.p.), whose maximum speed on a paved level surface, when powered solely by such a motor while ridden by an operator who weighs 170 pounds, is less than 20 mph. There are three classes of electric bicycle; the majority of states use this three-tier class system, including Texas.

The first class is called “Pedal Assist”. This class of electric bicycle is equipped with an electric motor that provides assistance only when an operator is pedaling; an has a motor that ceases to provide electrical assistance when the e-bike reaches the speed of 20 mph (32 km/h).

Class 2 electric bikes are referred to as “Throttle on Demand”. Class 2 electric bikes are equipped with an electric motor that may be used exclusively to propel the e-bike with a throttle; and have a motor that ceases to provide electrical assistance when the e-bike reaches the speed of 20 mph (32 km/h).

The third class of electric bicycled, called “Speed Pedelec”, is equipped with an electric motor that provides assistance only when an operator is pedaling; has a motor that ceases to provide electrical assistance when the e-bike reaches the speed of 28 mph (45 km/h); and is equipped with a speedometer.

References:

J3194_201911: Taxonomy and Classification of Powered Micromobility Vehicles - Recommended Practice (sae.org)

Slide 6: Powered Self-Balancing Board

A powered self-balancing board is a wheeled vehicle that:

- May have a center column with handlebar;
- Is controlled by the operator manipulating controls on a center column and/or the operator distributing their weight for speed and steering;
- Has a foot platform or footpegs for the operator;
- Is powered solely by a motor;
- Is manufactured primarily for transportation of not more than one person;
- Is not statically stable and uses a self-balancing mechanism; and
- Has one wheel or two wheels in parallel.

These vehicles are often to referred to as “electric personal assistive mobility devices”. A common example of a powered self-balancing board is a segway.

References:

J3194_201911: Taxonomy and Classification of Powered Micromobility Vehicles - Recommended Practice (sae.org)

Slide 7: Powered Non-Self-Balancing Board

A powered non-self-balancing board is a wheeled vehicle that:

- Has neither a handlebar nor a center column;
- Is controlled by the operator using a handheld device or sensors on the foot platform for speed and is steered by the operator shifting their body and/or feet position;
- Has at least one foot platform for the operator to stand on;
- Is powered partially or fully by a motor;
- Is manufactured primarily for transportation of not more than one person;
- Is statically stable; and
- Has two trucks and at least three wheels.

An electric skateboard is a common example of a powered non-self-balancing board. Please note that this classification of micromobility vehicle is not found in the Texas Transportation Code.

References:

J3194_201911: Taxonomy and Classification of Powered Micromobility Vehicles - Recommended Practice (sae.org)

Slide 8: Powered Skates

Powered skates are a wheeled vehicle that:

- Has two separate units, one for each foot of the operator to stand on;
- Is controlled by the operator distributing their weight by for speed and steering;
- Is powered solely by a motor; and
- Is manufactured primarily for transportation of not more than one person.

A hoverboard is a common example of powered skates.

References:

J3194_201911: Taxonomy and Classification of Powered Micromobility Vehicles - Recommended Practice (sae.org)

Slide 9: Powered Seated Scooter

A power seated scooter is a wheeled vehicle that:

- Does not have operable pedals;
- Has a center column with a handlebar;
- Is controlled by the operator using the accelerator/throttle and brakes for speed and is steered with handlebar;
- Has a foot platform(s) and/or footpegs and seat(s) for the operator (and passenger);
- Is powered partially or fully by a motor;
- Is manufactured primarily for transportation of not more than one person, except for specifically designed vehicles with multiple seats;
- Is composed of two or three wheels held in a frame in the longitudinal direction of travel.

References:

J3194_201911: Taxonomy and Classification of Powered Micromobility Vehicles - Recommended Practice (sae.org)

Slide 10: Powered Standing Scooter

Lastly, a powered standing scooter is a wheeled vehicle that:

- Has a center column with a handlebar;
- Is controlled by the operator using the accelerator/throttle and brakes for speed and is steered with handlebar;
- Has a foot platform for the operator (and passenger) to stand on;
- Is powered partially or fully by a motor;
- Is manufactured primarily for transportation of not more than one person, except for specifically designed vehicles; and
- Is composed of two or three wheels held in a frame in the longitudinal direction of travel.

These vehicles are commonly referred to as an electric scooter.

References:

J3194_201911: Taxonomy and Classification of Powered Micromobility Vehicles - Recommended Practice (sae.org)

Slide 11: Shared Micromobility

Micromobility devices may be individually owned; however, the recent surge of devices in cities is due primarily to the deployment of shared fleets by private companies.

- Shared micromobility systems are deployed in targeted service areas with the usage intended for short trips such as "first-and last-mile" connections to complete trips made via other modes including transit.
- Shared fleets provide users with on-demand access to devices. These fleets are most commonly parked in the public right-of-way, either grouped at a dock or as "dockless" devices. Users typically unlock the devices using a smartphone application.

Since the introduction of shared micromobility, the use of these devices, especially e-devices, has grown exponentially.

References:

Micromobility Fact Sheet (dot.gov)

Slide 12: Evolution of Shared Micromobility

Let's take a closer look at the evolution of shared micromobility, which will show just how fast ridership has grown.

The first docked bikeshare system was introduced in the US in 2008. Docked bikeshare refers to pedal-bikes stationed at technology-enabled bicycle racks. The rented bike must be returned to another docking station or bike rack within the system.

In 2013, the first dockless bikeshare pilots begin in cities nationwide. As the name suggests, dockless bikeshare does not require a docking station — an expense that sometimes limits the number of bikes a city can afford. With dockless systems, bicycles can be parked within a defined district at a bike rack or along the sidewalk. Dockless bikes can be located and unlocked using a smartphone app.

In 2017, e-scooters began appearing overnight on city streets. These dockless vehicles (unlike docked vehicles, these do not have a fixed home location and may be dropped off and picked up from arbitrary locations) quickly overtook station-based bike share and established micromobility as a legitimate, albeit controversial, transport. As a result, some bike share systems have gone dockless—and electric.

By 2018, 84 million shared micromobility trips were taken annually on docked and dockless bikeshare systems, including both traditional pedal-bikes and electric-bikes, and scooter share systems.

By 2022, the number of shared micromobility trips taken annually had increased to 128 million trips. There are also new micromobility devices being incorporated into shared micromobility systems, such as seated electric scooters.

References:

Micromobility Fact Sheet (dot.gov)ped

Shared Micromobility in 2022 | National Association of City Transportation Officials (nacto.org)

GHSA_MicromobilityReport_Aug31Update.pdf

Slide 13: The Numbers

In 2022, the most recent year data is available, at least 128 million shared micromobility trips were taken in 363 cities across the U.S. Systems are expanding as well, with the highest number of deployed shared micromobility vehicles to date – 250,000. Overall, shared micromobility trips have increased 35-fold since 2010 in the U.S.

References:

Shared Micromobility in 2022 | National Association of City Transportation Officials (nacto.org)

Slide 14: Markets

The Bureau of Transportation Statistics (BTS) tracks bikeshare and scootershare systems in the U.S. In Texas, there were twelve cities with shared micromobility systems in 2023. The primary service operators in Texas include Jump, Bird, Lime, LINK, and B-Cycle.

Please note that there are more cities than the one's listed on the screen with bikeshare and scootershare systems. For systems serving multiple cities, the Bureau of Transportation Statistics only shows the name of the largest city served by the system. Also, the Bureau of Transportation Statistics does not count systems limited to college or employer campuses.

References:

Bikeshare and e-scooters in the U.S. (bts.gov)

Slide 15: Advantages vs Disadvantages

The term micromobility is starting to become common in urban transport. Many believe that it is the next step to transforming the transport sector. In fact, the global micromobility market is expected to reach nearly $200 billion by 2030.

Here in the US, the 2021 Infrastructure Law authorizes shared micromobility infrastructure—which can include vehicles, docking stations, protected lanes for bikes and scooters, or apps and websites for public access to shared networks—and operations funding. The most significant change in the infrastructure law on this count was to expand the eligibility of numerous programs to include micromobility – a small but notable step to recognize the dramatic changes in our mobility landscape over the last decade.

So, why is there such a big push for micromobility expansion? And, is it really a good thing for cities? Let's review some advantages and disadvantages to micromobility.

We will start with the pros.

- As with any highly populated city, road congestion is a major challenge. One of the benefits of micro-mobility is that it helps to reduce road congestion by encouraging people to use micro-mobility devices instead of cars. With more micro-mobility devices on the road, there will be less need for people to use cars, especially for short-distance trips.
- Micromobility can also provide a first- and last-mile solution. For commuters, using personal micro-mobility devices will allow them to travel more seamlessly. With an e-scooter or an e-bike, commuters can go to nearby bus and subway stations without needing to use a car. Micromobility devices are also very portable, making them a convenient choice for those who need to use public transport after having used an e-scooter or an e-bike. Overall, the use of such devices makes commuting more efficient.
- Micromobility may help reduce air pollution. Micromobility devices are one of the green transport ideas that are being proposed in countless cities globally. Since they produce no pollution, they help to reduce emissions from cars and other fossil fuel-powered vehicles on the road. For example, a study by e-scooter sharing company Lime found that the city of Paris was able to save a significant amount of emissions by implementing shared e-scooter schemes within a year. If more people will use micromobility systems, it will help reduce air pollution, especially in highly congested cities.
- Micromobility offers affordable personal transport to commuters. Compared to buying and owning a car, micromobility devices are relatively affordable. Aside from the lower upfront costs, these devices do not need fuel or major maintenance, which lowers the cost for users. Shared e-scooters and e-bikes are also affordable, as it is cheap to unlock and use the devices. For short trips, shared micro-mobility systems are cheaper to use than public transport. Overall, they provide low-income commuters with an affordable and efficient mode of transport.

Now, let's move on to some of the concerns surrounding micromobility.

- Micromobility devices come with major safety concerns, which is why many cities and governments are still hesitant to promote them. Since micromobility devices do not offer protection, unlike the airbags in a car, some consider the use of such devices unsafe.
- One of the biggest challenges in front of micromobility is that certain cities simply lack the infrastructure that's needed to accommodate the vehicles. Bike lanes are the only viable solution, as riding a micromobility vehicle in fast lanes (truck-, car- and bus-dominated) or on sidewalks (pedestrian-dominated) poses a significant danger to all participants in traffic.
- Ideally, micromobility could replace individual car trips rather than walking or public transit trips. However, it's not clear that this is the main pattern.

While there are inherit challenges with these new transport modes, the growing demand for micro-mobility devices makes it clear that it is not just a passing trend.

References:

The benefits and challenges of micro-mobility - European Commission (europa.eu)

Micromobility Fact Sheet (dot.gov)

Transportation For America What does the new infrastructure law mean for micromobility? - Transportation For America (t4america.org)

Slide 16: Texas Transportation Code

Now, let's talk about the Texas Transportation Code and what is says about micromobility vehicles. The Texas Transportation Code (TTC) comprises the laws governing all types of transportation in Texas. These laws apply to airways, roadways, railroads, and waterways and cover a wide range of subjects such as vehicles, people, animals, and goods. There are seven titles under TTC, which include General Provisions, General Provisions Relating to Carriers, Aviation, Navigation, Railroads, Roadways, and Vehicles and Traffic.

If you want to learn about the laws governing micromobility vehicles in Texas, you may want to check out Title 7 of the Texas Transportation Code. Specifically, most of these laws are in Chapter 551 of Subtitle C, which covers the "Rules of the Road" for the "Operation of Bicycles and Mopeds, Golf Carts, and Other Low-Powered Vehicles".

When reviewing the TTC, it is important to note that local ordinances pre-empt state law. So, some municipalities may have additional micromobility regulations, such as helmet requirements. It is also possible for municipalities to prohibit the operation of a micromobility vehicle on a street, highway, or sidewalk if it is determined that the prohibition is necessary in the interest of safety.

References:

TRANSPORTATION CODE CHAPTER 551. OPERATION OF BICYCLES AND MOPEDS, GOLF CARTS, AND OTHER LOW-POWERED VEHICLES (texas.gov)

Slide 17: TTC & Electric Bike

According to Texas Transportation Code, a vehicle must meet three criteria to be considered an electric bike:

1. The bicycle must have fully operable pedals. This sets it apart from other motorized vehicles like scooters, mopeds, or motorcycles.
2. The bicycle must have an electric motor with a maximum power of 750 watts.
3. The bicycle's maximum assisted speed can't exceed 28 miles per hour (mph). (This doesn't mean that you can't pedal the bike faster than 28 mph — just that you can't go faster than a top speed of 28 mph with the motor engaged. You can only use human power to go that fast.)

Electric bicycles come in different classes. Understanding e-bike classes is important because the laws governing e-bike use depend on the class. For example, you might be able to ride a Class 1 e-bike on a bike path but not a Class 3 e-bike.

The class also tells you how powerful the e-bike motor is and whether the e-bike offers pedal and throttle assist. Pedal assist engages the motor while pedaling, helping propel you ahead. Throttle assist engages the motor even when you aren't pedaling.

Some states, like Pennsylvania, don't differentiate between e-bike classes. However, Texas has three categories of e-bikes:

Class 1 e-bikes have a motor that engages only when you're pedaling the bike. For this reason, they're sometimes referred to as pedelecs. A Class 1 e-bike can't go faster than 20 mph.

Class 2 e-bikes have a pedal assist and throttle assist system (so they can propel you forward even when you aren't pedaling). Like Class 1 e-bikes, Class 2 e-bikes can't go faster than a maximum speed of 20 mph.

Class 3 e-bikes are a bit speedier than the low-speed Class 1 and Class 2 bikes. They can go up to 28 mph. However, Class 3 e-bikes only have pedal assist, no throttle assist.

References:

TRANSPORTATION CODE CHAPTER 664. STANDARDS FOR ELECTRIC BICYCLES (texas.gov)

Slide 18: TTC & Electric Bike

Texas traffic law treats electric bicycles like normal bicycles. It calls for riding in the bike lane, giving way to pedestrians, and accepting all other traffic laws.

You can ride an e-bike on roadways. You also have to follow the rules of the roads that apply to motorists, like obeying traffic signals and lights. E-bikes are allowed on traditional bike paths, bike lanes, and bike trails unless noted otherwise. However, local authorities may have rules limiting using e-bikes in these areas.

Texas doesn't have any statewide helmet laws. However, some municipalities may have helmet laws. For example, the Dallas City Code requires anyone under 18 to wear a helmet. Even if you aren't obligated to wear a helmet, it's smart to do so. Helmets save lives, protecting against serious, potentially life-threatening brain injuries and head trauma.

You are allowed to ride a Class 1 or Class 2 e-bike if you can ride a bike and are aware of the regulations that control its use. Nonetheless, Class 3 e-bike riders must be 16 years old because they have a top speed of 28 miles per hour. Anyone under 15 cannot use a class 3 electric bike unless they are a passenger. Note that some shared micromobility providers, such as Lime, do require users to be 18 to create an account to be able to use their rentable vehicles.

References:

TRANSPORTATION CODE CHAPTER 551. OPERATION OF BICYCLES AND MOPEDS, GOLF CARTS, AND OTHER LOW-POWERED VEHICLES (texas.gov)

TRANSPORTATION CODE CHAPTER 502. REGISTRATION OF VEHICLES (texas.gov)

Slide 19: TTC & Electric Scooter

In Texas, electric scooters are classified as motor-assisted scooters. According to Texas Transportation Code, to be considered a motor-assisted scooter, a vehicle must be a self-propelled device with:

1. at least two wheels in contact with the ground during operation;
2. a braking system capable of stopping the device under typical operating conditions;
3. a gas or electric motor not exceeding 40 cubic centimeters;
4. a deck designed to allow a person to stand or sit while operating the device;
5. the ability to be propelled by human power alone; and
6. not falling within the definition of pocket bike or mini motorbike.

References:

TRANSPORTATION CODE CHAPTER 551. OPERATION OF BICYCLES AND MOPEDS, GOLF CARTS, AND OTHER LOW-POWERED VEHICLES (texas.gov)

Slide 20: TTC & Electric Scooter

These rules apply to both seated and standing electric scooters.

While a driver's license, registration, or insurance is not required, there are restrictions on where they can be operated. Generally, e-scooters are allowed on streets where the speed limit is 35 mph or less, and within designated bicycle lanes. E-scooter may also be ridden on sidewalks.

Riders must follow the same traffic laws as bicycles.

Local jurisdictions may impose additional restrictions, such as prohibiting scooters on sidewalks or requiring helmet use in certain areas.

References:

TRANSPORTATION CODE CHAPTER 551. OPERATION OF BICYCLES AND MOPEDS, GOLF CARTS, AND OTHER LOW-POWERED VEHICLES (texas.gov)

TRANSPORTATION CODE CHAPTER 502. REGISTRATION OF VEHICLES (texas.gov)

Slide 21: TTC & EPAMD

An electric personal assistive mobility device is designed for transporting one person and is described as:

- two wheeled non-tandem;
- self-balancing;
- propelled by an electric propulsion system with an average power of 750 watts or one horsepower.

The TTC definition is board enough to include both powered self-balancing boards and powered skates.

References:

TRANSPORTATION CODE CHAPTER 551. OPERATION OF BICYCLES AND MOPEDS, GOLF CARTS, AND OTHER LOW-POWERED VEHICLES (texas.gov)

Slide 22: TCC & EPAMD

In Texas, EPADMs are allowed to be operated on residential streets, roadways, and public highways with a speed limit of 30 miles per hour or less.

They can be used to directly cross a highway in a marked or unmarked crosswalk, in the absence of a sidewalk, or when directed by a traffic control device or law enforcement officer. EPAMDs can also be operated on paths designated for exclusive bicycle use.

When using EPAMDs on roads, riders must stay as close as possible to the right-hand edge. Additionally, EPAMDs are permitted on sidewalks. The operation of EPAMDs is subject to the same provisions as bicycles, unless stated otherwise.

References:

TRANSPORTATION CODE CHAPTER 551. OPERATION OF BICYCLES AND MOPEDS, GOLF CARTS, AND OTHER LOW-POWERED VEHICLES (texas.gov)

TRANSPORTATION CODE CHAPTER 502. REGISTRATION OF VEHICLES (texas.gov)

Section 2: Safety Facts

Slide 23: Safety Facts

In this module, we will discuss safety concerns surrounding micromobility vehicles.

Slide 24: Data sources

But first, let’s start by talking about where micromobility safety data comes from, as well as limitations of these data sources.

At present, hospital data is considered the best source of local micromobility-related crash, injury and fatality data. But this data also can be problematic, since it is dependent on hospital personnel properly coding the rider’s/ patient’s injuries. For researchers and others interested in studying micromobility, there is no consistent terminology or easy way to search for micromobility-related injuries. To address this problem, the National Center for Health Statistics approved the use of new ICD-10-CM (International Classification of Diseases, 10th Revision, Clinical Modification) external cause codes in October 2020. This will provide health care practitioners the means to differentiate micromobility-related injuries (referred to as pedestrian conveyance accidents) by device (i.e., e-scooter, e-skateboard, hoverboard) and cause (i.e., collision with a pedestrian, pedal cycle, two or three-wheeled motor vehicle, car, pick-up, van, heavy transport vehicle, bus; fall from a device; collision with a stationary object). The intention is to code to the greatest level of granularity possible.

The current lack of a standardized reporting mechanism for micromobility-related crashes coupled with underreporting on the part of law enforcement makes it difficult to understand micromobility’s impact on traffic safety. This should not be construed as the fault of law enforcement, as a rider may choose not to report a crash, the crash may not involve a motor vehicle or meet the state’s reportable standard or it could have been misclassified. If reference is made to a micromobility on a crash report, it is typically included in the narrative. A micromobility element for non-motorists was included in the latest update to the Model Minimum and Uniform Crash Criteria (MMUCC).

Shared micromobility vehicles generate a lot of vehicle data, which are collected and maintained by the micromobility providers. These data can be used by communities with shared mobility programs to help them make better management and planning decisions—including bolstering safety. The challenge though is to receive the data from different providers in a standardized format. Additionally, providers are reliant on users to report a crash incident via the application. Some do, especially if the vehicle is damaged, but it is not common practice.

Crowdsourced data—data collected and reported via technology by a user community—to better understand what is occurring in an area and where interventions (i.e., enforcement, outreach, infrastructure improvements) might be helpful. Crowdsourced data is a convenience sample, so there is the potential for sampling bias. However, when it is combined with other data sources, it can provide a deeper and more nuanced understanding of an issue or problem.

The Infrastructure Investment and Jobs Act requires agencies to collect more robust data on micromobility devices, specifically e-scooters and e-bikes, and provides some guidance about how to do so. Improving data quality leads to better decision-making about how to improve safety for e-scooter and e-bike riders. Accurate data can provide useful information to help us identify safety trends and patterns, gain insights into safety and usage, make comparisons with other transportation modes, evaluate policy, and educate the traveling public.

References:

GHSA_MicromobilityReport_Aug31Update.pdf

Micromobility: Data Challenges Associated with Assessing the Prevalence and Risk of Electric Scooter and Electric Bicycle Fatalities and Injuries (ntsb.gov)

Slide 25: CPSC Report

While micromobility vehicles have many benefits, such as reduced carbon emissions and traffic congestion, there are serious concerns with injuries and fatalities associated with micromobility use. Research studies examining medical records and emergency room data show that micromobility vehicles are involved in crashes and people are injured and killed while using these devices.

Today, we will review the U.S. Consumer Product Safety Commission (CPSC) report on the latest available statistics on injury estimates, fatalities, and hazard patterns associated with three micromobility products: e-scooters (including dockless/rental e-scooters), hoverboards, and e-bikes. The timeframe covered is 2017 through 2022.

CPSC's national estimates of injuries are based on injury data collected by CPSC's NEISS, which is a nationally representative stratified probability sample of hospitals in the United States and its territories. The fatality statistics, as well as the hazard pattern review staff presents in this report, are based on incidents reported to CPSC through the CPSC's Consumer Product Safety Risk Management System (CPSRMS).

References:

Micromobility Products-Related Deaths Injuries and Hazard Patterns 2017-2021 (cpsc.gov)

Slide 26: CPSC Data Overview

This slide is an overview of the injury and fatality findings from the most recent CPSC report on micromobility product-related deaths and injuries.

CPSC staff estimates 360,800 injuries related to all micromobility products were treated in U.S. emergency departments over the 6-year period 2017 through 2022. CPSC staff is also aware of 233 fatalities related to micromobility products that occurred in the United States during the 6-year timeframe, 2017 through 2022.

References:

Micromobility Products-Related Deaths Injuries and Hazard Patterns 2017-2021 (cpsc.gov)

Slide 27: Injuries on the rise!

This figure shows the national annual estimates of ED-treated micromobility injuries and product types from 2017 through 2022. Staff estimates that 169,300 injuries related to e-scooters, 1368,400 injuries related to hoverboards, and 53,200 injuries related to e-bikes were treated from 2017 through 2022.

From 2017 through 2022, a linear trend was detected for overall emergency department (ED) visits associated with micromobility, which is statistically significant (p-value < 0.01). Comparing 2022 to 2021, it reflects an increase of 21 percent from the 2021 estimate, which is statistically significant (p-value < 0.01).

References:

Micromobility Products-Related Deaths Injuries and Hazard Patterns 2017-2021 (cpsc.gov)

Slide 28: ER Visits by Sex

This figure shows the distributions of estimated micromobility-related injuries by product type and sex. Males experienced a higher percentage of micromobility-related, ED-treated injuries in e-scooters (65 percent) and e-bikes (76 percent) during the 6-year period. In contrast, females had a higher percentage (55 percent) of hoverboard-related, ED-treated injuries.

References:

Micromobility Products-Related Deaths Injuries and Hazard Patterns 2017-2021 (cpsc.gov)

Slide 29: ER Visits by Age

This figure shows the distribution of estimated micromobility-related injuries by age from 2017 through 2022, versus the general U.S. population distribution. CPSC obtained the population by age data from the U.S. Census Bureau, corresponding to the average of 6 years, 2017–2022.

The distributions of estimated injuries sustained by the 15-to-24 and 25-to-44 age groups were 25 percent and 40 percent, respectively, for e-scooters. These distributions were disproportionately high compared to their proportions in the general U.S. population (13 percent and 27 percent, respectively).

Similarly, the percentage of estimated hoverboard-related injuries for the 5-to-14 age group (67 percent) was disproportionately high, compared to its proportion in the general U.S. population (12 percent).

The percentage of estimated e-bike related injuries for the 65 and over age group (11 percent) was disproportionately high compared to other micromobility product types (3 percent for e-scooters and 1 percent for hoverboards)

References:

Micromobility Products-Related Deaths Injuries and Hazard Patterns 2017-2021 (cpsc.gov)

Slide 30: ER Visits by Race

This figure presents the distribution of estimated micromobility-related injuries versus the general U.S. population distribution by race/ethnicity from 2019 through 2022. The population data corresponding to the average of the 4 years, 2019–2022, are from the U.S. Census Bureau.

As the figure shows, the proportion of estimated injuries sustained by Black consumers was 29 percent for overall micromobility, 32 percent for both e-scooters and e-bikes. These injuries seem disproportionately high compared to the proportion in the general U.S. population (13 percent Black Americans).

References:

Micromobility Products-Related Deaths Injuries and Hazard Patterns 2017-2021 (cpsc.gov)

Slide 31: Injury patterns

The CPSC found that injury patterns did not vary much by micromobility product type.

Fractures, followed by contusions/abrasions, are the two most common diagnoses.

The most frequently injured body parts are the upper and lower limbs, as well as the head and neck.

Overall, 88 percent of the injured are treated and released from the EDs. About 8 percent are treated and admitted or transferred to another hospital. Disposition of the remaining 4 percent of injuries included “left without being seen,” “held for observation,” as well as fatalities.

References:

Micromobility Products-Related Deaths Injuries and Hazard Patterns 2017-2021 (cpsc.gov)

Slide 32: Fatalities

Now, let’s take a closer look at the 233 micromobility-related fatalities known by the CPSC.

The figure shows the fatality data for micromobility products by incident year from 2017 to 2022. E-scooter-related fatalities represent 111 (18 were dockless e-scooter-related) out of 233 (48 percent) total fatalities. E-bikes account for 104 (45 percent) of total fatalities, increasing substantially during the 6-year timeframe. CPSC staff is aware of 18 fatalities involving hoverboards during the same period.

References:

Micromobility Products-Related Deaths Injuries and Hazard Patterns 2017-2021 (cpsc.gov)

Slide 33: Fatalities by Sex

The distribution of decedents by product type by gender distribution is presented in table shown. Among the 233 micromobility-related fatalities, 178 were male decedents, 43 were females, and sex was unknown for the remaining 12 decedents.

Decedents were males in most of the fatalities related to e-scooters (89, including 16 dockless e-scooter fatalities, out of 111), and e-bikes (84 out of 104); of the 18 hoverboard-related fatality victims, 11 were females.

References:

Micromobility Products-Related Deaths Injuries and Hazard Patterns 2017-2021 (cpsc.gov)

Slide 34: Fatalities by Age

This table presents the fatality data for micromobility by product type and age group of the deceased from 2017 to 2022. Staff included the general U.S. population distribution corresponding to the average of 6 years, 2017–2022. One hundred and ninety-eight out of 233 total reported micromobility fatalities provided age information.

Of the 198 fatalities, 79 (40 percent) were 25-44 years old which was disproportionately high, compared to its proportion in the general U.S. population. Of the 79 fatalities in the 25-44 age group, 41 involved e-scooters, 36 e-bikes, and 2 hoverboards. Of the 32 fatalities within the 65 and older age group, 23 (72 percent) involved e-bikes.

References:

Micromobility Products-Related Deaths Injuries and Hazard Patterns 2017-2021 (cpsc.gov)

Slide 35: Fatality hazard patterns

This slide breaks down micromobility-related fatalities by product and hazard types. The most common hazards for micromobility users include motor vehicle accidents, control issues, and falls.

Other notable hazards include collisions with pedestrians, where the pedestrian stuck is the decedent, as well as fires due to device battery malfunctions.

References:

Micromobility Products-Related Deaths Injuries and Hazard Patterns 2017-2021 (cpsc.gov)

Slide 36: ATX case study

Austin, Texas was one of the first cities to embrace micromobility. In early April 2018 e-scooters first appeared in Austin, Texas. From September 5 through November 30, 2018, a total of 936,110 e-scooter trips were taken. These trips were associated with 182,333 hours of e-scooter use and 891,121 miles ridden on e-scooters.

Concurrently with this appearance, doctors at local hospitals and the local emergency medical services began observing injuries associated with this emerging mode of transportation. This was not unique to Austin. In January 2019, researchers from Los Angeles, California published findings characterizing injuries associated with e-scooter use among patients seen at two emergency departments.

To advance knowledge on the public health impact of e-scooter use, the Austin Public Health Department (APH), with assistance from the Centers for Disease Control and Prevention (CDC), launched an epidemiological investigation to collect data on injuries involving rentable e-scooters in Austin, Texas. This study is believed to be the first to conduct interviews with injured e-scooter riders.

References:

[APH_Dockless_Electric_Scooter_Study_5-2-19.pdf (austintexas.gov)]

Slide 37: ATX case study

Potential e-scooter related injury incidents occurring in Austin, Texas between September 5, 2018 and November 30, 2018 were identified by using two data sources: (1) Austin-Travis County Emergency Medical Services (ATCEMS) incident reports, and (2) Emergency Department (ED) syndromic surveillance chief complaint data from nine area hospital.

The study identified 190 people who suffered injuries from potential e-scooter related crashes from September 2018 to November 2018.

> 55 percent of the injured riders were male.
>
> The majority of riders were between the ages of 18 and 29 years old. The median age was 29 years.
>
> The injured riders were predominately White (65%), followed by individuals who identified as Hispanic/Latino (22%)
>
> Sixty percent of the riders resided in Austin at the time of their injury. For the one-third of riders who resided outside of Austin, 22 riders resided in other Texas cities, 37 were from 22 other states, two were from international countries, and one individual's residence was unknown.

Patients were contacted to request an interview via telephone calls, text messages, and mailed letters. An interviewer-administered questionnaire collected information on confirmation of rentable, dockless electric scooter use, demographic characteristics, types of injuries, situational factors associated with the injury incident, and e-scooter use history.

It is important to note that this study likely underestimates the prevalence of e-scooter related injuries. This study was limited to investigating only those injured e-scooter riders and non-riders who sought care at a hospital emergency department or had care provided by emergency medical services. These riders are believed to experience more severe injuries compared with injured e-scooter riders whose injuries did not require care from a hospital emergency department or EMS.

References:

[APH_Dockless_Electric_Scooter_Study_5-2-19.pdf (austintexas.gov)]

Slide 38: ATX case study

Of the 190 injured riders, nearly half (48%) had injuries (e.g., fractures, lacerations, abrasions) to the head. In addition, 70% sustained injuries to the upper limbs (hands/wrist/arm/shoulder), 55%

to the lower limbs (leg/knee/ankle/feet), and 18% to the chest/abdomen; multiple injuries across body regions were possible. Many individuals sustained injuries on their arms (43%), knees (42%), face (40%), and hands (37%).

Over a third (35%) of the injured riders sustained a bone fracture(s) (excluding nose/fingers/toes). Among this group, 19% had bone fractures (excluding nose/fingers/toes) involving multiple body regions. A high number experienced fractures on their arms and legs. Notably, six persons (3%) had fractures involving the head.

Almost half (80) of the injured riders had a severe injury. The severe injury for these riders included:
1. bone fractures (excluding nose/fingers/toes) (84%),

2. nerve, tendon, or ligament injuries (45%),

3. spending more than 48 hours in the hospital (8%),

4. severe bleed (5%), and

5. sustained organ damage (1%).

Traumatic brain injuries include concussions and other forms of altered mental status or bleeding such as subarachnoid hemorrhage and subdural hematoma. Fifteen percent of riders had evidence suggestive of a traumatic brain injury. Less than one percent of individuals was wearing a helmet at the time of injury.

References:

APH_Dockless_Electric_Scooter_Study_5-2-19.pdf (austintexas.gov)

Slide 39: ATX case study

Injured riders were also asked about where the accident occurred.

More than half (55%) of the interviewed riders were injured in the street; one-third (33%) were injured on the sidewalk. Eight individuals were injured in a path where no motor vehicle was allowed, four were injured in a parking lot, and one was injured in a parking garage. Two individuals did not know the type of surface they were on at the time of the injury.

Sixteen percent of the incidents with injured riders involved a motorized vehicle. These incidents include colliding and swerving, stopping, and jumping off the scooter to avoid a collision.

Nearly two-thirds (65%) of interviewed riders were traveling on a level surface, 24% were traveling downhill, and 6% were traveling uphill. Among interviewed riders, 50% believed surface conditions like a pothole or crack in the street contributed to their injuries.

References:

APH_Dockless_Electric_Scooter_Study_5-2-19.pdf (austintexas.gov)

Slide 40: ATX case study

Now, let’s review some key findings from the study.

A key finding is a third of the interviewed riders were injured during their first e-scooter ride. Overall, 63% of the injured riders had ridden an e-scooter nine times or fewer before injury. While most (60%) of the riders in this study received training on using the e-scooter via a phone application, additional training may be necessary.

A perception is that excessive e-scooter speed contributes to injuries. This perception may be true. More than one-third (37%) of injured riders reported that excessive e-scooter speed contributed to their injury.

Perceptions may be that most e-scooter riders are injured because of collisions with motorized vehicles. The findings of this study does not support that perception. While more than half of the interviewed riders were injured while riding a scooter in the street, few (10%) riders sustained injuries by colliding with a motor vehicle. Nevertheless, continuing education for motorized vehicle drivers and e-scooter riders is needed to prevent collisions.

Almost half of the injured riders in this study sustained an injury to the head. A traumatic brain injury was experienced by 15%. These injuries may have been preventable. Only one of 190 injured scooter riders was wearing a helmet. Studies have shown that bicycle riders reduce the risk of head and brain injuries by wearing a helmet. Helmet use might also reduce the risk of head and brain injuries in the event of an e-scooter crash.

References:

APH_Dockless_Electric_Scooter_Study_5-2-19.pdf (austintexas.gov)

Slide 41: More data

Are you interested in more micromobility-related studies? Click on these links!

Section 3: Identifying & Addressing Safety Challenges

Slide 42: Identifying & Addressing Safety Challenges

As we discussed earlier, micromobility has many benefits, but also challenges. Let's discuss how we can address these challenges as traffic safety stakeholders.

Slide 43: Public Education

Education is essential for ensuring micromobility users operate devices safely and respectfully and other road and sidewalk users are accepting of this mode. But public outreach is resource intensive and cannot be the sole responsibility of cities and/or providers. Other partners must be tapped to help foster widespread public engagement.

Educational materials should address a handful of tips such as conducting a pre-ride check, following the rules, yielding to pedestrians, wearing a helmet and parking properly.

Other road users (motorists, pedestrians and bicyclists) should also be educated about micromobility. Motorists, especially, need to understand what these devices are and how they operate; the disparity in size and weight between micromobility devices, motor vehicles and others on and near the road; and the danger of speeding and impairment caused by alcohol, and other drugs, drowsiness, and distraction.

References:

GHSA_MicromobilityReport_Aug31Update.pdf

Slide 44: Success Stories

Let's take a look at how some cities are educating the public.

Some cities, such as Austin, Portland, and Chicago have developed colorful posters, in multiple languages, to illustrate the do's and don'ts of safely e-scootering.

Arlington, VA, which uses a multi-modal campaign to encourage everyone to be a PAL—predictable, alert and lawful. Educating micromobility riders about the importance of being predictable, so other modes have a better idea of what they are going to do next and can react accordingly, is essential. This also speaks to the need for educating all road users about micromobility and why riders may switch from the sidewalk to the street to a protected bike lane (i.e., poor pavement conditions, local restrictions, preference) all in the same trip.

References:

GHSA_MicromobilityReport_Aug31Update.pdf

Slide 45: Success Stories

Shared micromobility programs are frequently used by out-of-towners and/or tourists but educating these users can be a challenge. Santa Monica, CA, for example, found nearly 30 percent of the people using its micromobility program lived outside the county, making it challenging to convey the rules of the road and safety information.

Some highway safety offices have created a video reminding micromobility riders to familiarize themselves with local laws since they can change from one city to another.

Other cities convey safety tips and information about where not to ride to visitors and locals through on-device and on-street messaging. The city of Boise, Idaho affixed panels to the baskets on Boise's shared bikes advising riders about pricing as well as safe riding practices and where to ride.

Street signage, sidewalk decals, digital message boards and billboards are also likely to be seen by out-of-towners, while blog posts, community emails and social media notifications can be used to reach residents.

References:

GHSA_MicromobilityReport_Aug31Update.pdf

Slide 46: Success Stories

As I mentioned earlier, education cannot be the sole responsibility of cities. The micromobility providers' role in delivering safety training and information cannot be overstated. Cities recognize it, expect it and are awarding permits to those providers with strong education and public outreach plans.

Providers understand the impact concerns about safety have on mass adoption of the mode and have been taking steps to address rider inexperience and behavior. In addition to establishing safety advisory boards in 2019, both Bird and Lime were engaged in extensive rider education initiatives prior to the pandemic.

Bird's S.H.A.R.E. campaign was designed to bring neighborhoods together to learn about micromobility, the importance of helmet use (including free fittings), rules of the road, parking best practices, sober riding and how to share the road with all modes. Like Bird, Lime was partnering with communities to provide opportunities for people 18 and older to learn about the mode and how to ride and park safely through its free First Ride Academy.

All providers require riders to review onboarding messages (i.e., safety tips, localized rules and restrictions) on their apps before gaining access to a vehicle. Providers also use their apps to address impairment, helmet use and safe routes.

- Lyft added protected bike lanes and bike-friendly routes, designated by dark green and dotted green lines, respectively, to its app to encourage their use.
- Bird updated its app to invite riders to submit photos (at the end of their trip) showing themselves wearing a helmet to earn incentives such as ride credits.
- And providers, in certain cities, require all new riders to complete an in-app safety quiz before starting their first trip.

References:

GHSA_MicromobilityReport_Aug31Update.pdf

Slide 47: Success Stories

Research shows that inexperience is a leading contributing factor to micromobility-related injuries. Just like novice drivers, new micromobility users need to build skill through behind the handlebar practice.

Some cities such as Chicago and Washington, DC use ambassadors to engage with riders and the public. The DC Bike Ambassadors, funded through a partnership with the city's DOT, interact with residents and visitors on street corners and adjacent to transit stations and at street fairs and community events. Their goal is to encourage more people to try bicycling and micromobility; educate them about safe road, sidewalk and trail use; provide resources to make non-motoring travel easy and safe; and model safe and respectful road use behavior. They also offer group rides.

References:

GHSA_MicromobilityReport_Aug31Update.pdf

Slide 48: Enforcement

Most cities require providers to inform riders about safe operating rules, but enforcement of those rules is the responsibility of local law enforcement officials. That effort, however, may be hampered by the lack of a state micromobility statute and/or local ordinance and little or no officer training. In cities with micromobility systems, it is recommended that officers:

1. Know all micromobility-related state laws AND local ordinances;

2. Receive training, resources, and support;
3. Help educate riders; and
4. Utilize geofencing as an enforcement tool, when available.

References:

GHSA_MicromobilityReport_Aug31Update.pdf

Slide 49: Local ordinances

Texas has established micromobility regulations, with the caveat that local governments can enact additional rules based on local conditions. Local ordinances are often enacted after, rather than before, shared devices appear on city streets and sidewalks and in response to public complaints.

Typically, they address where a micromobility device may and may not be operated, underage riding, speed limits, helmet and/or cell phone use and other safety issues. Most cities require providers to inform riders about the rules through their apps, but enforcement of these rules ultimately falls to police and municipal code enforcement officers.

So, it is essential for law enforcement to be at aware of local micromobility ordinances.

References:

GHSA_MicromobilityReport_Aug31Update.pdf

Slide 50: Officer training

In addition to having a clear understanding of Texas laws and local ordinance that define the rights and responsibilities of micromobility users, law enforcement officials also need to be educated on micromobility devices. Specifically, officers should be trained on micromobility typology and how these devices operate; how to identify them in crash reports, especially if there is no unique identifier for micromobility devices; safe riding practices; and how can they help educate riders, drivers and pedestrians about safely sharing the road.

References:

GHSA_MicromobilityReport_Aug31Update.pdf

Slide 51: Officer training

There are several examples of how police departments are addressing micromobility training for officers.

1. Every officer tasked with enforcing Austin's ordinance received training that included riding a standing and seated scooter, vital for creating empathy. The APD also issued a training bulletin addressing how to enforce the city's micromobility ordinance.
2. Atlanta's ordinance regulating shareable dockless mobility devices (e-bikes and scooters) was passed by the City Council in January 2019. Move Smart: An Enforcement Officer's Guide to Creating Safer Streets for People Who Walk, Bike or Scoot in Atlanta was developed to help officers enforce the new ordinance along with other state and city codes applicable to vulnerable road users (pedestrians, bicyclists and PTD users). In addition to

listing the applicable ordinance or code for violations and allowed actions, the three panel brochure provides guidance for properly identifying and coding scooters, pedal and e-bikes and pedestrians on crash reports.

3. Baltimore, MD, launched a six-month e-scooter pilot program in August 2019 that was made permanent in early 2020. The Baltimore Police Department's Training Unit recommended officers give warnings to riders, rather than tickets during the first year. To ensure officers were fully versed in the city's scooter laws and new bicycle infrastructure, information was included in one of the BPD's monthly online service trainings. Patrol officers must click through a series of slides and pass an online quiz, with the results recorded to ensure completion by all personnel. The BPD also developed a business card-sized educational piece that patrol officers can easily carry and use to start a conversation with riders.
4. Some cities have developed reference guides to help officers cite the appropriate statute or ordinance associated with a micromobility violation. Oregon's pocket guide, which addresses seven devices including e-scooters and e-bikes, was originally developed in 2002 by the SHSO and state licensing agency and is updated whenever there is a legislative change, or a new device is added. It lists the applicable State Vehicle Code for easy reference along with the minimum operator age; license, registration, insurance, helmet and lighting requirements; maximum capable and allowable speeds; where it may be ridden (sidewalk, bike path, crosswalk); and if passengers are permitted and a DUII (Driving Under the Influence of Intoxicants) charge is possible. While it is designed for law enforcement, the handy reference is also used by the courts, legislators, community advocates, and city council members, and frequently cited by the media.
    - As part of this project, we have created a micromobility reference guide for Texas law enforcement. It can be found on the Safer Streets with Micromobility webpage.

References:

GHSA_MicromobilityReport_Aug31Update.pdf

Slide 52: Educating riders

Law enforcement officials in some cities play an active role in educating micromobility users about local ordinances as well as safe riding practices. Both roles are especially important when shared mobility programs first get underway.

For example, the Atlanta Police Department (APD) filmed a Public Service Announcement to help the public understand the city's new scooter ordinance. The 90-second PSA covers no sidewalk riding or cellphone use, riding with traffic and following traffic laws, giving pedestrians the right-of-way and parking do's and don'ts. Helmet use is recommended (but not required) and the PSA closes with a reminder to move to the street if you're not using your feet. The city also created "Never Ride on Sidewalks" and "Park Here" stickers to help reinforce two key provisions in the ordinance that often generate significant complaints when programs first get underway.

References:

GHSA_MicromobilityReport_Aug31Update.pdf

Slide 53: Geofencing

In some communities, micromobility devices are prohibited from riding and/or parking in certain zones or their top speed is restricted. Large fleets can make it difficult for police officers to address these violations.

More and more cities are requiring providers to use geofencing—a software feature that uses global positioning system (GPS) or radio frequency identification (RFID) to establish geographic boundaries—to supplement traditional enforcement. Using the micromobility devices' location, which is already monitored by GPS, providers can set triggers to alert riders when they enter or exit a slow zone or restricted area.

References:

GHSA_MicromobilityReport_Aug31Update.pdf

Slide 54: Infrastructure

Micromobility users rely on safe and connected bicycle and pedestrian facilities for travel. Unprotected or discontinuous bicycle and pedestrian infrastructure can lead to conflicts with other road users, increasing the risk of injury. Unfortunately, this is the case in many cities.

Separating transportation modes is the most effective way to reduce crashes. For cities with micromobility systems, there are several recommendations for infrastructure that will separate road users.

Cycle tracks, on-street bicycle lanes that are physically separated from motor vehicles by barriers such as curbs or bollards, are 89 percent safer than streets with parked cars and no cycling facilities.

When physical separation is not possible, reducing the distance or time bicycles (pedal-powered and/ or motorized) are exposed to risk is essential. This can be done through marked bike lanes, bicycle boulevards or greenways, bike boxes (pavement marking that features a stop line closer to the intersection to give bicyclist and PTD riders a head-start when the light turns green) and specially marked traffic lights that provide an advance green signal for riders.

References:

GHSA_MicromobilityReport_Aug31Update.pdf

Slide 55: Sidewalk Use

Many of the complaints about micromobility—and scooters, in particular—center around sidewalk parking and riding. Advocates argue if space is built to safely park and ride micromobility devices, these conflicts can be avoided along with the need for complicated laws and enforcement.

Because dockless vehicles can be left anywhere, concerns about vehicles blocking the right of way (a significant problem for people with physical, visual and cognitive impairments) and not being parked upright garnered significant media attention the past couple of years. Since then, many cities have taken steps to address the parking problem from posting signage and using stencils to demarcate parking spaces to developing apps to report improperly parked bikes and establishing micromobility parking corrals.

When it comes to addressing sidewalk riding, infrastructure is the fix. But funding and building it is not that simple. Micromobility vehicles make some pedestrians feel unsafe because they move at a higher rate of speed. But for those micromobility riders that do not feel safe on the adjacent street due to road conditions (i.e., uneven pavement, potholes, gravel, grates, sewer covers), traffic volumes and/or motor vehicle speeds, the sidewalk is often the best option. That is why organizations such as NACTO and NABSA are calling for more bike lanes and paths, bikeways and other clearly marked, comfortable and safe places to ride.

References:

GHSA_MicromobilityReport_Aug31Update.pdf

Section 4: Final Tips & Takeaways

Slide 56: Final tips & takeaways

As a vulnerable road user, there are also certain precautions that should be taken to protect yourself and those around you.

Slide 57: Be a champion of safety!

It is important to learn local laws if using a micromobility vehicle. Laws can differ from state-to-state and locality-to-locality. For example, in Houston sidewalk riding is prohibited, but it is allowed in Austin. In Dallas, e-scooters are not allowed to operate from 9pm to 5am, but no such restrictions exist in Austin or Houston.

Micromobility riders must obey the same traffic laws as motorists, unless directed otherwise by a police officer or traffic signals, street signs and facilities specific to bicycles and micromobility.

It is also important to remember that micromobility vehicles are not toys and serious injury can occur by attempting stunts. You should ride predictably and defensively to stay safe.

Slide 58: Be a champion of safety!

Before using a micromobility device on a crowded street or sidewalk, practice in a less dangerous area, such as an empty parking lot.

Take the time to familiarize yourself with the device's controls. Practice starting, stopping, and turning in a safe and secluded area away from traffic.

Slide 59: Be a champion of safety!

It is important to remain alert while using a micromobility vehicle and avoid distractions.

Some city streets or sidewalks may be uneven or have obstacles in the pathway. Try to avoid these areas.

Slide 60: Be a champion of safety!

For micromobility riders, reinforcing the importance of wearing a helmet is critical as the majority of shared bike and scooter riders do not wear helmets and are significantly less likely to do so compared to cyclists who own their bicycles. Micromobility providers urge riders via their apps and websites to wear helmets but they do not typically provide them at the time of rental. An evaluation of the barriers and facilitators to helmet use among bikeshare riders in Australia, where helmet use is mandatory, found that 61 percent cited helmet inaccessibility or the desire not to wear one as the main barriers to using the mode.

Collapsible and shareable helmets could encourage use among riders.

Slide 61: Be a champion of safety!

It is safest to ride in a bike lane or on a low traffic street. If riding on a sidewalk, be respectful of pedestrians.

Slide 62: Be a champion of safety!

Lastly…

Riding, scooting, or biking intoxicated is NOT the same as a sober ride. Please do not ride intoxicated.

Ride solo. Typically, micromobility vehicles are only made for one person.

Slide 63: Thank you!

When automobiles first appeared on city streets more than a century ago, they added even more chaos to a mix of pedestrians, bicyclists, children at play, horses, and streetcars. The U.S. is now experiencing another transformative moment in transportation. Today, a new micro mode—electric and motorized bicycles, scooters and other personal transportation devices, that some consider a god send and others a menace—have joined the mix. Regardless, micromobility is here and likely to stay. The mode's tremendous growth over the past couple of years—fueled by people seeking a more efficient, less costly and, in some cases, fun transportation alternative—cannot be ignored. And despite the pandemic's impact on travel that forced many shared systems to shut down, micromobility proved to be a lifesaver for essential workers in urban centers. The devices' utility even resulted in one state ending a long-held ban.

City officials, micromobility providers, law enforcement, public health officials and others working in traffic safety and injury prevention all have a role to play in helping address micromobility safety challenges.

Thank you for attending the Safer Steets with Micromobility training with funding provided by the Texas Department of Transportation. My name is __________ and… (provide presenter's background). My email address is listed on the screen (update email address in PPT). You may feel free to reach out if you have any questions about the material in this training. Otherwise, we hope that you have enjoyed the content and found it useful in understanding the field of micromobility.