AKRON METROPOLITAN AREA TRANSPORTATION STUDY

AMATS

MICROMOBILITY REPORT

March 2026

Table of Contents

Chapter 1—Overview

Introduction

The emergence of micromobility and its popularization over the past decade has arguably been one of the most significant changes to urban transportation of this generation. What started around 2010 as a new concept to North American cities has continued as a fast-growing, quickly changing, and sometimes indispensable part of urban transportation systems.

This relatively new form of transportation has resulted in increased flexibility and convenience for users in urban areas, college campuses, areas of high tourism, and even some small towns. Micromobility options can assist with closing gaps within fixed-route public transit systems, offer compelling alternatives to the inconvenience and cost of personal-use vehicle parking, significantly broaden the pedestrian shed, and have the potential to serve as a mobility solution to underserved populations. Like any form of transport, micromobility also brings a host of challenges and potential issues for communities and other users of transportation networks.

Definition and Usage

Because micromobility is still a relatively new and emerging mobility option, there are various definitions in place. The Federal Highway Administration (FHWA) broadly 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."

In many cases, micromobility is operated through private companies that own fleets of e-scooters (or e-bikes) that are rented for short-to-middle distance individual trips. Trips are accessed/purchased through individuals' smartphone applications. Some companies offer docking stations for drop-off and pickup, while an increasingly large percentage of the market is operated through dockless fleet management. There are several models for how these systems are managed and the scooters operate under the same traffic rules as bicycles. Regardless of operational details, these services are sometimes referred to as **Shared Micromobility**.

For purposes of this report, AMATS mostly excludes bicycles from the micromobility definition, primarily because bicycles are covered in detail within AMATS' Active Transportation Plan. This report primarily centers on e-scooters, although much of what applies to e-scooters within this report is also applicable to other lightweight, wheeled electric personal transportation devices such as self-balancing one-wheel skateboards and monowheel scooters. While much of this report centers on emerging shared micromobility operations and fleets, it should also be recognized that personally owned e-scooters have gained popularity and comprise a significant proportion of the micromobility market.

Micromobility devices typically use the same facilities as bicycles: shared-use paths and bicycle lanes, or when those facilities do not exist, the street itself. Generally, they are also allowed on sidewalks, although many communities have encountered problems with scooters sharing space with pedestrians. Many communities have laws prohibiting or regulating their usage on sidewalks.

Scooters are usually parked on the sidewalk. Regulations typically prohibit the parking of scooters where they are in the path of pedestrians, including at curb ramps, driveways, building entrances, and crosswalks. Generally, when not parked at designated bike racks or docking stations, scooters should be parked in an out-of-the-way location, such as near the edge of sidewalk, to not encroach upon a clear 4' path required for pedestrians using wheelchairs.

In most states, including Ohio, a person must be at least 16 years old to rent or use a shared micromobility device. Some other states require such users to be at least 18 years old. Those restrictions do not typically extend to personally owned scooters. Some state regulations, though not Ohio's, also require a valid driver's license to operate a shared micromobility device. Such requirements tend to be for age-related (younger or older riders) or speed-related (required for faster devices) purposes.

Purpose and Organization of This Report

This report attempts to explore the rapidly changing nature of micromobility, its trends, and to provide useful information about how to deploy micromobility options throughout the region in a safe and efficient manner. Although AMATS' regional 2024 Active Transportation Plan (ATP) discusses micromobility at a general level, this report was written to introduce a mode of transportation not yet understood by the mass population.

Chapter 2 of the report explores the micromobility landscape and trends as an alternative transportation mode. Various partnerships and providers in the deployment of shared fleets are discussed at a general level, by recognizing the importance of regulatory structure and other general considerations. Key trends and recent developments are discussed at a high level.

Chapter 3 of the report identifies and discusses local examples of micromobility. Currently, a single provider of shared micromobility exists in two cities within the greater Akron area. This section of the report explores the history and usage of micromobility within the cities of Akron and Kent.

Next, the benefits of micromobility are identified (*Chapter 4*), as are the challenges that exist with micromobility (*Chapter 5*).

A list of recommendations is then provided (*Chapter 6*) that take into consideration the aforementioned benefits and challenges that affect communities and users of the transportation system.

Chapter 2—Micromobility Trends and Evolution

Trends in Micromobility

Technology advancements in electric micromobility devices including E-scooters and bikes allowed for the first shared micromobility system in Montreal, Canada in 2009, creating an example and opportunity for shared micromobility systems to emerge in large city centers, college campuses and certain business centers throughout North America. The micromobility landscape is constantly changing with new trends and developments emerging regularly, driven by advancements in technology, growing demand, and evolving regulations. As micromobility continues to grow, the current trend is towards increased e-scooter sharing programs in urban areas, along with personal e-scooter ownership and a focus on safety and sustainable practices.

A look at some of the key trends occurring in the micromobility industry include:

Rise of Shared Mobility

The majority of shared micromobility trips are taken by e-scooters (compared to dockless bike share systems) which are contributing to the increased broader trend of shared mobility. Many cities are partnering with private companies to offer e-scooter rental options. E-scooter sharing programs are particularly popular for their ease of use and ability to fill first mile/last mile gaps in public transportation and can be used as a complement to certain transit systems.

Increase In Personal Ownership

E-scooters are becoming more affordable and readily available, leading to a rise in personal ownership. This shift indicates a growing acceptance of e-scooters as a regular form of transportation.

Technological Advancements

Battery technology is improving, allowing for longer distances and faster charging times. Safety features are also advancing, including better brakes, lighting, and user-friendly controls, which can also account for the rise in popularity.

A Focus on Safety and Regulation

As e-scooter use grows, there is a growing emphasis on safety regulations and measures. Many areas are implementing rules and regulations to ensure safe riding practices, such as helmet requirements, speed limits, and designated riding zones. Municipalities are instituting bans or restrictions on e-scooter use in certain areas due to safety concerns or complaints about visual clutter.

Sustainability and Environmental Impact

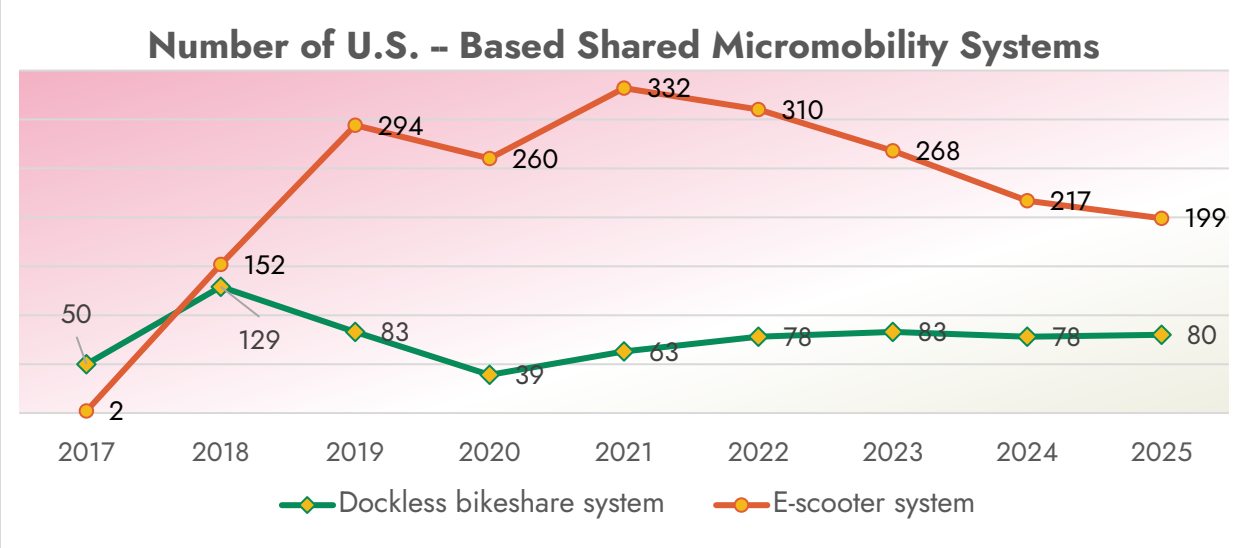
The trend towards sustainable materials and design in e-scooter manufacturing is growing. E-scooters are increasingly becoming more popular for short trips as an alternative to traditional cars in densely populated major cities or in a university campus setting. In certain areas shared micromobility systems may assist in reducing traffic congestion and emissions.

Market Growth

The global e-scooter market is experiencing significant growth, driven by increasing adoption and technological advancements. In the US, e-scooter sharing is expected to continue to grow, with a projected market volume reaching $10.55 billion by 2029, according to Statista. This represents a compound annual growth rate (CAGR) of 2.95% between 2025 and 2029.

Recent Developments

The January 2026 report of the United States Department of Transportation (USDOT) Bureau of Transportation Statistics shows that As of June 30, 2025, there were 80 dockless bikeshare systems and 199 e-scooter systems (not counting systems limited to college or employer campuses) in the United States. From 2024 to 2025, the number of dockless bikeshare systems increased slightly while the number of e-scooter systems continued to decrease. Significantly, shared e-scooter systems are at about 60% of their high value in 2021.

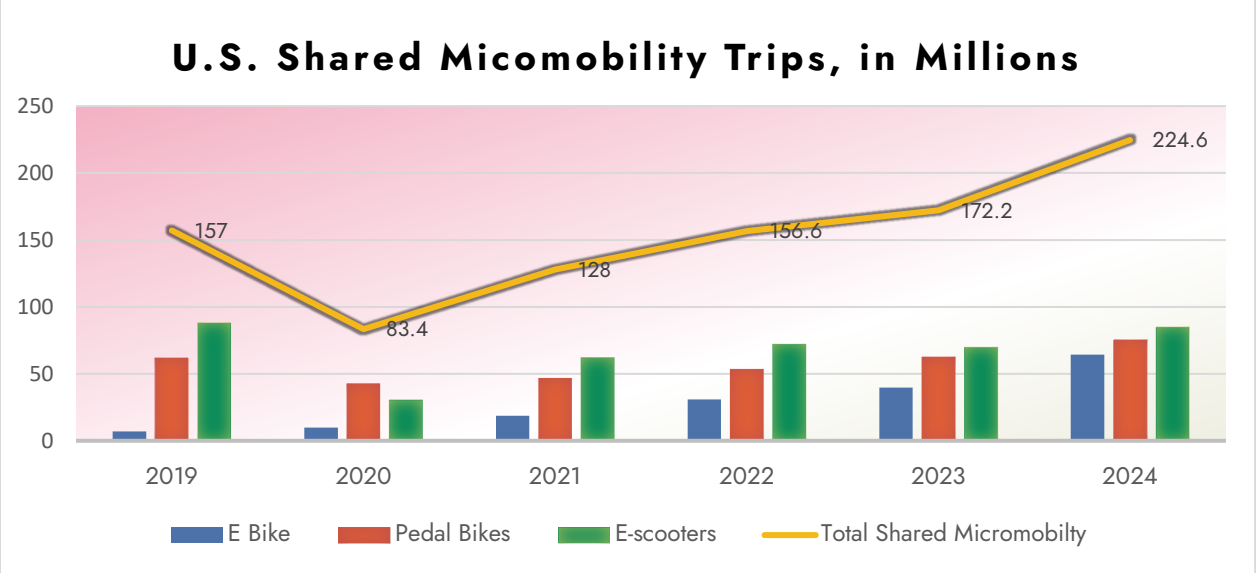


According to the same US DOT Bureau of Transportation Statistics report, many systems serve the same city. As of June 30, 2025, dockless bikeshare systems serve 63 cities and e-scooters serve 133 cities. In 2025, the number of cities with a dockless bikeshare system was up (at 63 cities) from the 2020 low of 36 cities but down from the all-time high level of 94 cities in 2018. For additional details on system suspensions and closures in 2020, see US DOT Bureau of Transportation Statistics webpage .

Questions still center around how these new systems, which are typically run by private operators, interact with existing laws and regulations. According to the National League of Cities-Micromobility History and Policy Overview report, "the regulatory system in many cities surrounding these new modes are not yet settled, as companies lobby to create new laws that allow them to operate unhindered. Many places have figured out the interplay between the operators and the regulators, but there are still quite a few cities working through these questions."

National Ridership

According to the 2024 North American Bike Share Association (NABSA) annual Shared Micromobility State of the Industry Report states there were a total of 224.6 million trips taken in the United States by shared micromobility devices, which includes, shared e-bike, pedal bikes and e-scooter programs and 84.9 million of those trips were taken by a shared e-scooters. The e-scooter market was at its peak in 2019 at 88 million trips and reached a low amount in 2020 at 30.6 million trips followed by a recovery in 2021 (62.2 million trips) and 2022 (72.2 million trips) before taking a slight dip in 2023 (69.8 million trips) among U.S. trips.



One of the major providers of shared mobility throughout the US is the company *Spin*, which was founded in January 2017 in San Francisco, gained popularity and ridership through their bikeshare program that they initially launched in Seattle**.** The new and unstable market of micromobility has seen many changes in the past five years as the company *Bird* acquired *Spin* in September 2023 becoming North America's largest micromobility operator by market share. Then shortly after Bird filed for bankruptcy and on April 5, 2024, re-emerged from Chapter 11 bankruptcy under a newly organized private parent company, Third Lane Mobility, Inc. With *Spin* is now a wholly owned subsidiary of *Bird Rides*. Other key shared micromobility players in the U.S. market include *Lime*, *Yellow Scooters*, and *Jump* (a subsidiary of *Uber*).

Three of the primary shared micromobility providers in the U.S., clockwise from upper left: *Bird, Spin* and *Lime*. (all images from Adobe Stock Images)

Chapter 3—Micromobility on a Local Scale

To date, the entirely of the shared micromobility market within the greater Akron region has been operated by *Spin*, a subsidiary of Bird Global, Inc., which is North America's largest shared micromobility provider. *Spin*, has partnered with several communities in Northeast Ohio. In August 2020, *Spin* partnered with the City of Akron to deploy e-scooters throughout the city and on the University of Akron (UA) campus. Similarly, in 2022, *Spin* partnered with Kent State University (KSU) and the City of Kent to provide e-scooters and e-bikes on campus and in surrounding neighborhoods.

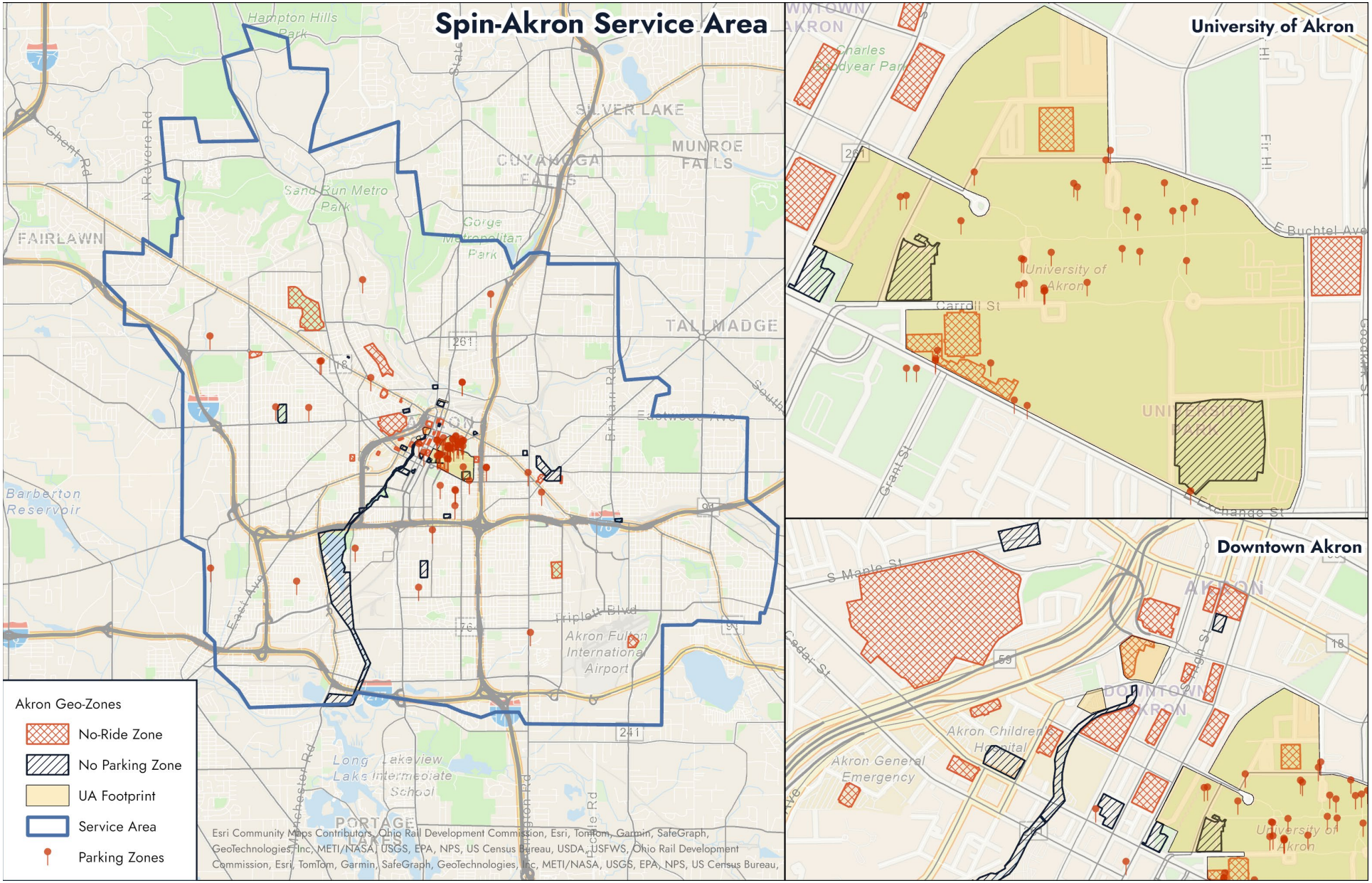
Akron and the University of Akron (UA)

In August 2020, *Spin* and the City of Akron established a partnership at no cost to the city, the university, or taxpayers. This partnership aligns with the Great Streets Akron 2025 mission, which aims to support and develop walkable, vibrant neighborhoods. All equipment and operations, including repairs, cleaning, charging, and general maintenance are fully managed and funded by *Spin*.

The deployment focused on Akron's key corridors and the entirety of the UA campus, with priority placement near parking decks, residence halls, and academic buildings. Under the agreement, up to 400 e-scooters may operate within the Akron area. A central goal of introducing micromobility on campus is to encourage students to explore areas of Akron beyond the university. While promoting local exploration, UA also emphasizes that e-scooters should be operated under the same traffic laws as bicycles, including using bike lanes when available and avoiding sidewalks when possible.

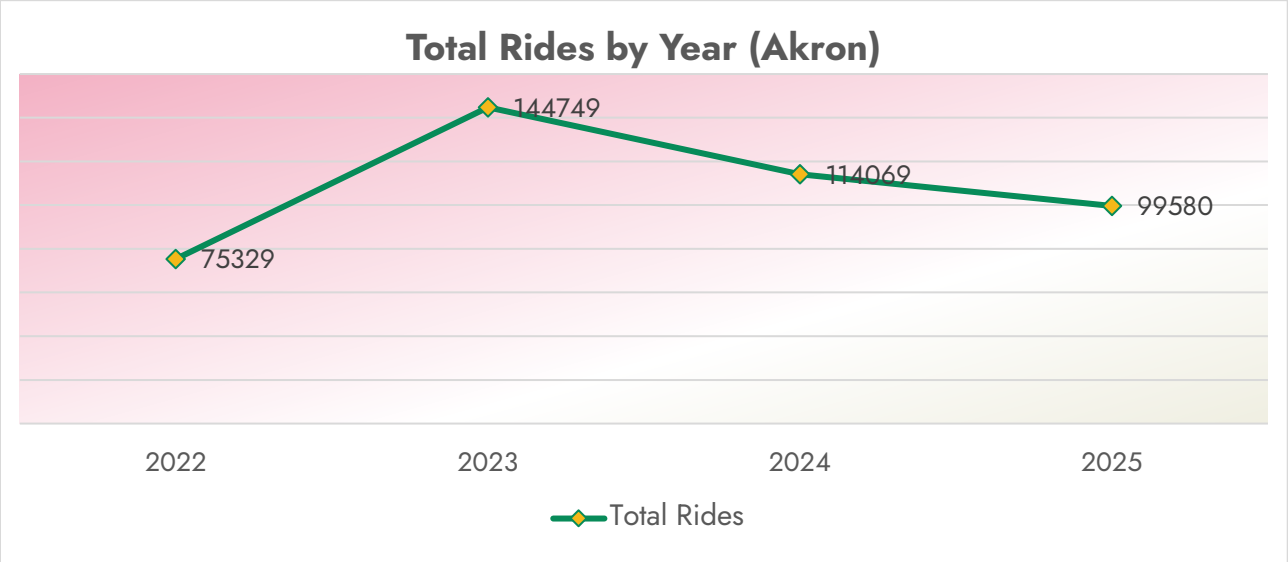
City of Akron photos—Top: S. Main Street near University Avenue; bottom: E. Mill Street at S. Broadway Street

Spin e-riders are designed to be easy to use and affordable. Riders pay a $1 unlock fee, followed by a per-minute cost ranging from $0.29 to $0.39. The *Spin* mobile application provides clear instructions for use, safety guidelines, and a map displaying available scooter locations, parking zones, slow zones, no-parking areas, and no-ride zones.


Spin-Akron Service Area
University of Akron
Downtown Akron
Akron Geo-Zones
No-Ride Zone
No Parking Zone
UA Footprint
Service Area
Parking Zones
Esri Community Maps Contributors, Ohio Rail Development Commission, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Ohio Rail Development Commission, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau,
Hampton Hills Park
SILVER LAKE
MUNROE FALLS
CUYAHOGA FALLS
Sand Run Metro Park
Gorge Metropolitan Park
FAIRLAWN
TALLMADGE
Barberton Reservoir
Akron Fulton International Airport
Long Lake Intermediate School
Lakeview
PORTAGE LAKES
Charles Goodyear Park
E Buchtel Ave
University of Akron
Carroll St
Grant St
E Exchange St
S Maple St
Cedar St
Akron Children's Hospital
Akron General Emergency

Akron Shared Micromobility by Year

Year	Total Rides	Total Ride Time (min)	Average Ride Time (min)	Total Distance Traveled (mi)	Average Distance Traveled (mi)
2022	75329	1383764.00	16.56	115763.06	1.33
2023	144749	1557400.29	10.54	94666.10	0.71
2024	114069	1460544.00	11.86	97963.59	0.93
2025	99580	994452.18	9.23	59300.81	0.57



Kent and Kent State University (KSU)

In 2022, the City of Kent and Kent State University partnered with *Spin* to introduce both e-scooters and e-bikes. According to reporting by *The Kent Stater*, KSU invited multiple companies to submit proposals, with student groups, faculty, and community members ultimately selecting *Spin* as the best fit. The partnership includes 100 e-bikes and 300 e-scooters available across the KSU campus and surrounding areas of Kent.

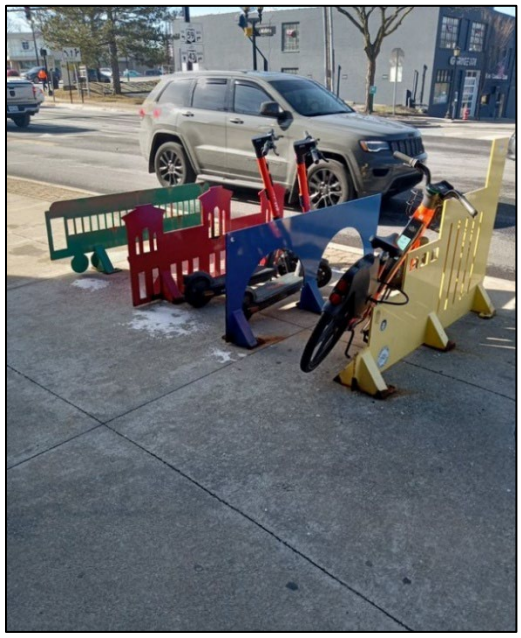
These e-riders have expanded mobility options not only on campus but also off campus, making it easier for students and residents to access essential destinations such as grocery stores and other local infrastructure.

Safety is a major focus of the Kent and KSU program. Users are encouraged to complete a *Spin* safety quiz, and riders who score 100% receive $5 in *Spin* credit. Riders are required to follow the same traffic laws as bicycles, with additional rules such as limiting vehicles to one rider and prohibiting headphone or earbud use while riding. KSU also urges users to be aware of designated no-ride zones, no-parking zones, and slow zones.

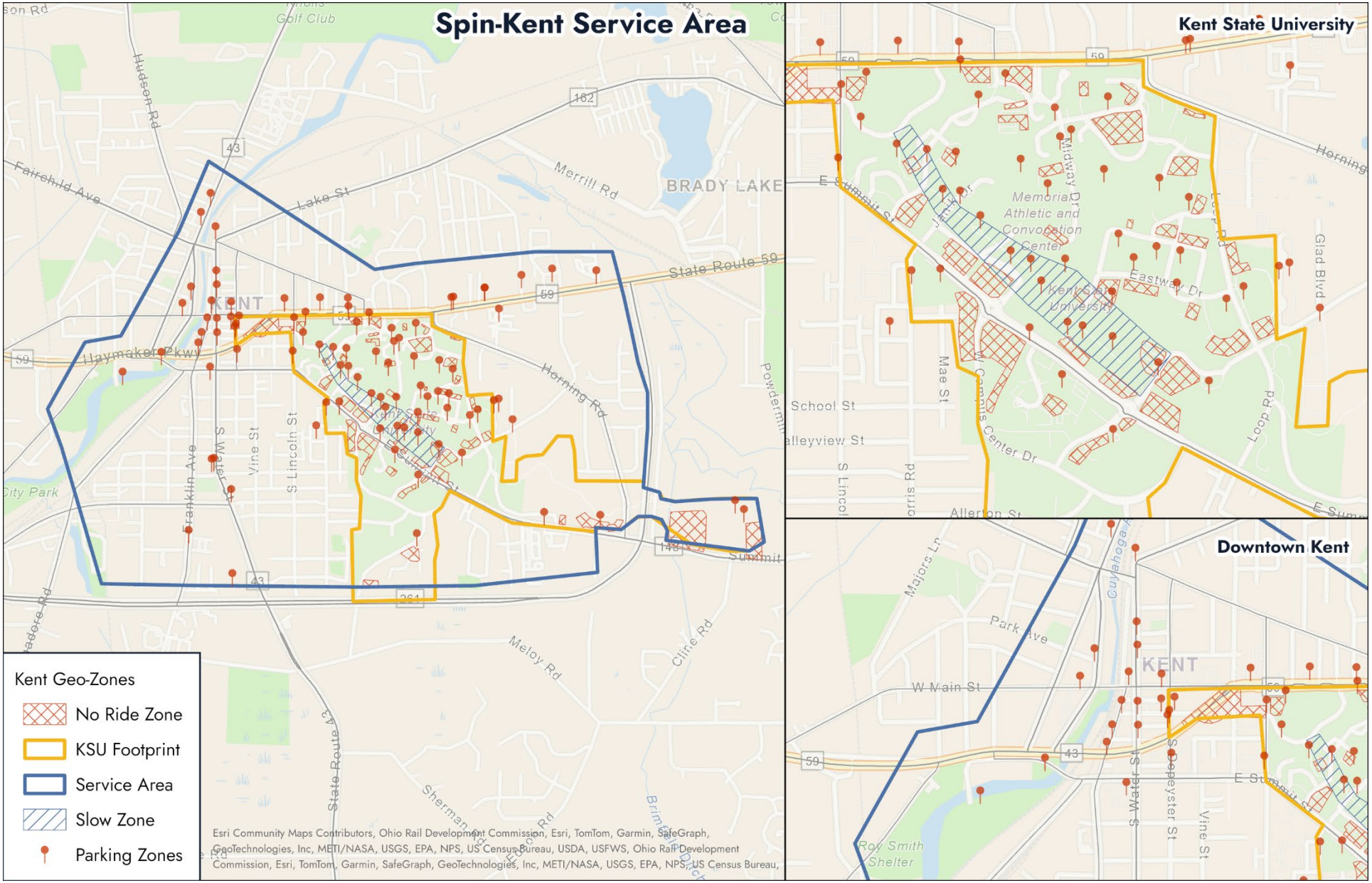
E-scooters and e-bikes are prohibited inside campus buildings; however, outdoor parking zones are widely available. If a device is parked improperly, users can contact a designated number and *Spin* personnel will relocate the equipment to an approved parking area. The *Spin* app provides a comprehensive map of all geofenced zones. Additionally, devices are deactivated during designated curfews, periods of inclement weather, and holidays.

Multiple payment options are available to users in the Kent area. Standard pay-as-you-go pricing includes a $1 unlock fee and $0.43 per minute of riding time. Kent State University Recreation and Wellness Services also offers several ride pass options:

- 1 Ride Pass: $9.99 (up to a 30-minute ride), valid for 24 hours
- 2 Ride Pass: $15.99, valid for 72 hours
- 3 Ride Pass: $22.99, valid for 5 days
- Monthly Pass: $5.99, including free unlocks and the first 3 minutes of each ride free for 30 days



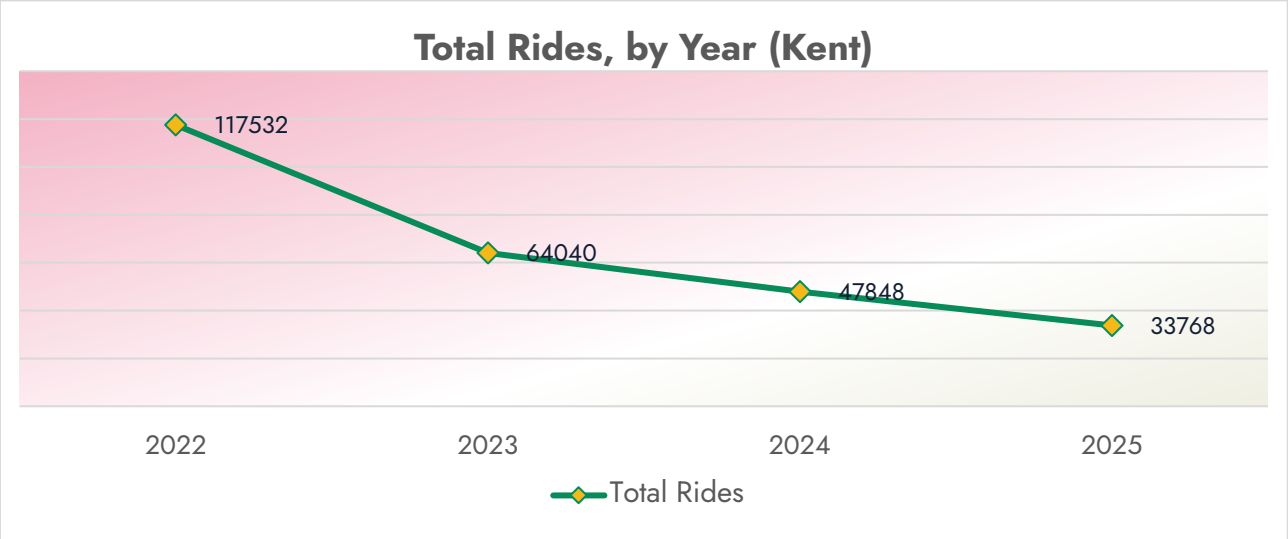
City of Kent Photos—Left: E. Erie Street near S. Depeyster Street; Right: S. Water Street at College Street


Spin-Kent Service Area
Kent State University
Downtown Kent
Kent Geo-Zones
No Ride Zone
KSU Footprint
Service Area
Slow Zone
Parking Zones
KENT
BRADY LAKE
State Route 59
Horning Rd
Merrill Rd
Lake St
Haymaker Pkwy
Meloy Rd
Cline Rd
Memorial Athletic and Convocation Center
Eastway Dr
Glad Blvd
School St
Allerton St
Park Ave
W Main St
Roy Smith Shelter
Esri Community Maps Contributors, Ohio Rail Development Commission, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Ohio Rail Development Commission, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau,

Note: because Kent's Spin data does not break down rides and mileage by mode, the data below includes rented scooters and bicycles.

Kent Shared Micromobility by Year

Year	Total Rides	Total Ride Time (min)	Average Ride Time (min)	Total Distance Traveled (mi)	Average Distance Traveled (mi)
2022	117532	1613564.00	13.90	149095.08	1.29
2023	64040	733084.00	11.56	73785.13	1.15
2024	47848	506782.65	10.34	11148.51	0.48
2025	33768	321048.32	9.92	16601.07	0.49



Chapter 4—Benefits

Within the right context—primarily mid-to-high density urban neighborhoods, sizeable central business districts, and other areas of high walkability such as college campuses—micromobility can be an ideal form of transportation, offering several benefits. The bullet points below describe some of the primary benefits that can be considered both locally and at a broader scale.

Convenience

Scooters and other small personal transportation conveyances offer **point-to-point transportation.** Although the travel-shed of micromobility devices is typically limited to 1-2 miles, the freedom of going where one wants to matches the convenience of personal vehicles. Within congested or high-vehicular-traffic areas, micromobility can provide faster transportation than vehicular trips. Because micromobility is most often utilized within city centers and college campuses—places where paid (vehicular) parking is usually required—the costs of renting a shared mobility device have the potential to be lower than or comparable to the cost of parking a vehicle.

In any given urban environment, there are areas that are unserved or underserved by transit and other mobility options. Even excellent fixed route transit services have limitations in how many people they can serve when considering a typical walk shed (the distance an average American is willing to walk to reach a transit option) is somewhere between one-quarter and one-half of a mile.

Micromobility helps to **fill the first mile/last mile gap.** Many people that choose to commute via car may do so because their residence or destination is outside of a comfortable walking distance from public transportation. Bikes and scooters have the potential to increase the walk shed distance and solve a city's first and last mile problems.

Powered and adaptive micromobility devices may also have the potential to **increase mobility** for individuals with disabilities, as they are less strenuous to operate than traditional bicycles or scooters.

Modal Shift and Traffic Congestion Mitigation

Micromobility in densely populated areas can help to **reduce single-occupant car trips** and can even provide a viable alternative to ride sharing services such as Uber and Lyft within cities. To date in the United States, micromobility has rarely been deployed at a scale for a significant shift in transportation modes to occur, but the potential exists.

If enough vehicular trips are shifted to micromobility vehicles, there can even be a **reduction in vehicular congestion.** However, like modal shift noted above, the current share of micromobility trips in most cities is nowhere near providing measurable reductions in congestion.

Environmental Benefits and Efficiency

When travel on electric micromobility devices replace trips that would have otherwise been made with a gasoline-powered car, the potential exists to **reduce carbon emissions** in cities. While the production of electricity is not often an environmentally friendly process, a growing reliance on renewable energy sources such as solar, wind, and hydropower demonstrate a slow shift toward more sustainable production of electricity.

The precise environmental benefit of e-scooters is debatable, much like the argument often made for electric vehicles compared to those with an internal combustion engine. A 2019 MIT Technology Review article attempted to consider the total life-cycle carbon footprint of an e-scooter, and found that many industry claims are overstated. Notably, the article cites another 2019 study from Environmental Research Letters, that found a minority (34%) of micromobility trips replaced what would have otherwise been a vehicular trip (personal vehicles and ride-sharing services combined). The remaining micromobility trips replaced other modes of transportation which generally carry a smaller carbon footprint: taking public transit, walking, or bicycling.

The small motors and light weight typical of e-scooters make them extremely energy efficient from a kilowatt hour of energy perspective. An article from Wired points out that one kilowatt hour of energy allows an e-scooter to travel 82.8 miles, significantly higher than in electric vehicles (4.1 miles) and gasoline-powered vehicles (0.8 miles). However, factoring in all costs of energy—production, charging, and the typically short life cycle of an e-scooter—significantly reduces their true efficiency. The Environmental Research Letters study referenced above notes that the total CO2 output of scooters is about half that of the standard automobile—200 vs. 415 grams of CO2 per mile. The EPA states that the average passenger vehicle produces around 4.6 metric tons of CO2 every year.

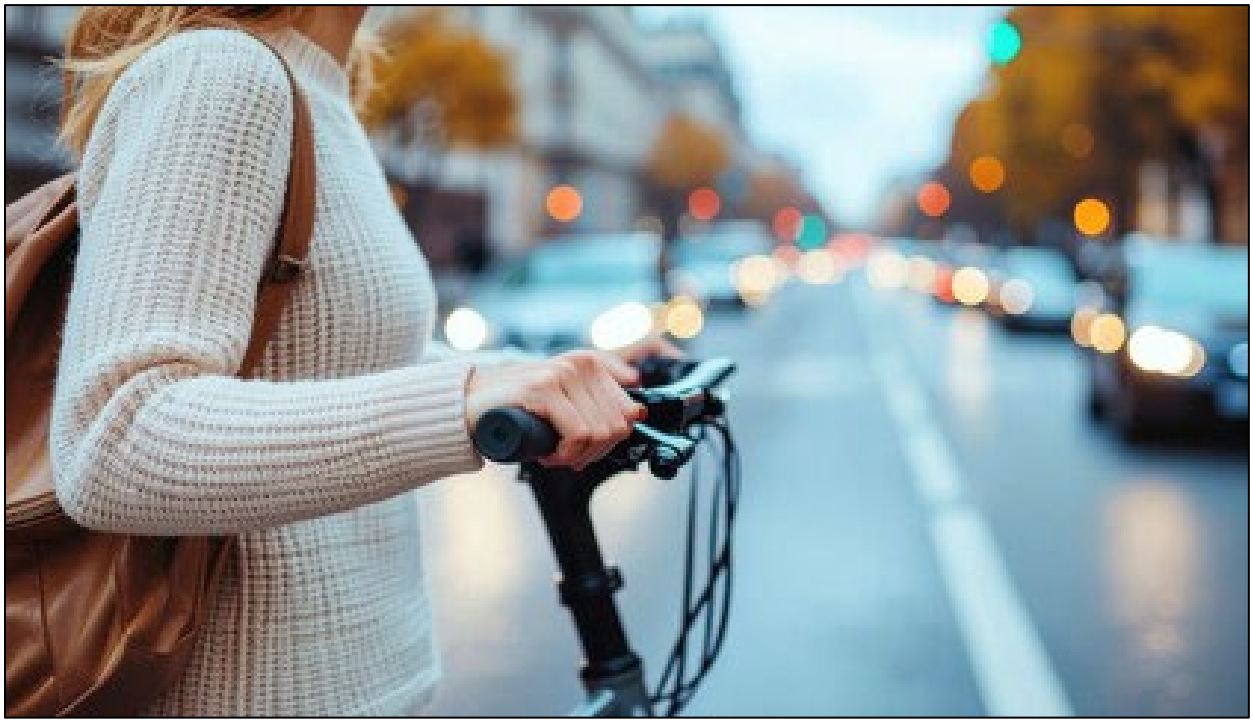
Quality-of-Life Improvements

Several other, more qualitative benefits can be realized through micromobility travel. Similar to bicycling or walking, e-scooters allow a heightened experience of the environment, allowing the traveler to feel connected to their surroundings. Whether because of its novelty or the fact that little personal energy is expended to ride an e-scooter, micromobility **travel can be enjoyable** and even fun.

Micromobility **can give residents more choice** and connect communities isolated by distance or poverty. It could also help to **reduce social and geographical isolation** as an additional first/last

mile mode, potentially increasing quality of life for citizens who have otherwise limited options for transportation.

Finally, because e-scooters are nearly silent, this mode of travel **does not contribute to noise pollution** in cities. Similar to some of the benefits mentioned above, a true, noticeable reduction in total noise pollution takes a certain critical mass of micromobility travel that does not currently exist in most cities.



Source: Adobe Stock Images

Chapter 5—Challenges

Despite the growth of micromobility in the Greater Akron area and worldwide, there are still numerous challenges that communities, providers, and riders must work through. Community leaders must ensure that devices are able to operate safely, that parking and storage are regulated, and that companies are protecting citizens data through a rapidly changing market. Some of the most important challenges of micromobility will be explored in this section.

Safety

One of the main concerns surrounding the introduction and deployment of micromobility, specifically e-scooter programs, is safety. Scooters can reach speeds of around 20 mph, exposing users to potentially serious crashes. Research on vehicular safety has shown that the likelihood of injury in any crash increases with faster speed or larger speed differential between the bodies that intersect paths. **Speeds** can change depending on the context, such as whether the scooter is riding in the roadway or on a sidewalk. Scooter operation on sidewalks presents a safety hazard when dockless e-scooters are left on sidewalks and other public spaces. Crashes between pedestrians and riders have resulted in injuries and have raised concerns in regions about liability. Some recent reports explain the misuse of the dockless vehicles can be surmised as a users' unfamiliarity with the vehicles and the city's regulations or lack thereof.

Another safety challenge highlighted by the National League of Cities (NLC) reports about micromobility usage is the **lack of infrastructure** that is needed to accommodate alternative modes. Drivers are not accustomed to sharing the road with unprotected scooters and bikes traveling in the same areas as cars have resulted in crashes and fatalities. Building the necessary infrastructure to support micromobility such as painted bike lanes or shared use paths can help alleviate this issue. Many of the complex rules for shared scooters have been driven by a need to prevent conflicts over where to ride and park the e bikes and scooters. The same NLC report on micromobility options includes adding bike lanes as viable solution to increasing safety for all roadway users. Several local cities, including Akron, have added bike lanes in spaces previously dedicated to curbside parking spots or have even created road barriers between bike lanes and vehicle lanes. By adding lanes for people to safely ride bikes and scooters, conflicts can be avoided without complex rules and enforcement.

Source: Adobe Stock Images

Another important safety challenge that providers and regions are struggling with is **helmet usage.** Many scooter-related injuries are directly tied to riders not

wearing helmets. Shared systems give pedestrians the opportunity to use an e- bike or scooter on a whim, which can leave riders susceptible to more serious injuries. It is less likely for a casual rider of an e-bike or scooter to have access to a helmet, than a personal micromobility user operating their own device. Most micromobility providers publicly state the *urging* of customers to wear helmets but do not mandate them as a requirement for operation, as would potentially disincentivize the ease of use for these shared mobility devices**.**

Access and Parking

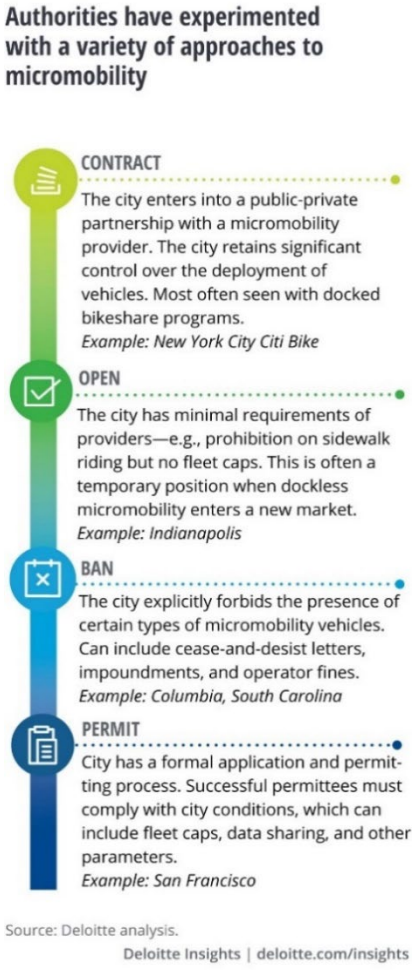
Shared micromobility devices can cause problems in their operation and parking within the public right-of-way when other transportation modes are prevented from moving in a typical fashion. Devices can not only present general safety issues but can cause compliance issues with the Americans with Disabilities Act (ADA) by **blocking sidewalks** and muti-use paths with abandoned shared mobility devices.

Recent reports suggest that some cities and providers require users to leave their vehicles in locations that do not block foot traffic or access points. This can be difficult to enforce, and many services lack a required verification method to make sure users are parking vehicles legally. Furthermore, since these companies do not require stations, drop-off and parking after use is subject to a rider's discretion, which usually means leaving it in an undesirable location for other vehicles or pedestrians.

Regulation

Because of the rapid rise in shared micromobility, many communities are in the position of **imposing regulations** from a reactive standpoint. Such growing pains are typical of any newer industry, although communities can rely on a growing number of best-practice regulations written by various associations and agencies representing national and state levels of government. Some of these resources are discussed and linked within the Recommendations Chapter.

Communities must decide to what level they wish to regulate the operation of micromobility in general, and shared micromobility services specifically. Some communities choose to heavily regulate or even outright ban shared micromobility operations within their jurisdiction, while others intentionally allow companies to exist with little regulation. Regardless of a community's stance on



shared micromobility, it is essential that micromobility providers establish strong community partnerships from the beginning to ensure smooth deployment and public acceptance.

Security and Data Sharing

With electric scooter growth, requirements have also expanded for operators of shared vehicle fleets to provide cities with data and information. These requirements help policy makers more effectively manage their streets and public spaces. The development and adoption of data specifications permit cities to **require access to data** from private mobility operators more easily.

Among the data collected about trips is data that can potentially be used to identify the whereabouts of specific individuals. This has raised **privacy concerns** and raises the issue of what role communities should play in reviewing companies' individual privacy safeguards to ensure the public is safe from data breeches.

Weather

Source: Adobe Stock Images

Micromobility transportation is best tailored for fair weather riding. In the rain and snow, riding conditions can become dangerous and accidents can increase. Cold temperatures are also not as conducive to micromobility trips and ridership tends to decrease significantly. For all but the most ardent riders, micromobility **transportation tends to be highly seasonal**. Shared micromobility service providers must decide whether they can be profitable in areas where their services have low ridership for significant portions of a given year.

Theft and Vandalism

Source: Adobe Stock Images

The theft and vandalism of bikes and scooters can be a nuisance to communities and a major barrier to the costs of doing business for micromobility companies. Technology, such GPS tracking and alerts, allows providers to respond quickly to potential theft and unauthorized use of e-scooters, but this cannot suppress all incidents. Scooters are sometimes dumped into bodies of water, set on fire, or smashed with blunt instruments like hammers. Mischievous users have been known to leave rented scooters in unusual places, often on private property. The problem of theft and vandalism can affect significant proportions of some fleets. While most of this liability is absorbed by shared micromobility providers, damaged and stolen units can have detrimental effects on a community's acceptance of micromobility.

Life-Cycle/Sustainability

According to 2018 data points from the initial micromobility deployment in Louisville, the lifespan of a shared mobility e-scooter was 28 days. Such a **short lifespan for a scooter** is not a sustainable business model; with everything included—revenue from each scooter, minus licenses, operational city fees, customer support and cost of repairs—the average revenue per scooter/per day was roughly $2.32. Since then, e-scooter battery life and models have improved, and newer generations of e-scooters are lasting much longer. A more recent article noted that the lifespans of current e-scooter fleets are much longer. Improved hardware on scooters and better operational practices had extended lifespans of e-scooters to several years. The article referenced that the shared micromobility operator Dott reported that 90% of one of its models was still deployable after 4 years, far exceeding its estimated life expectancy of 18 months. Another provider—Voi—reported that its primary e-scooter model had an average lifespan of over 6 years.

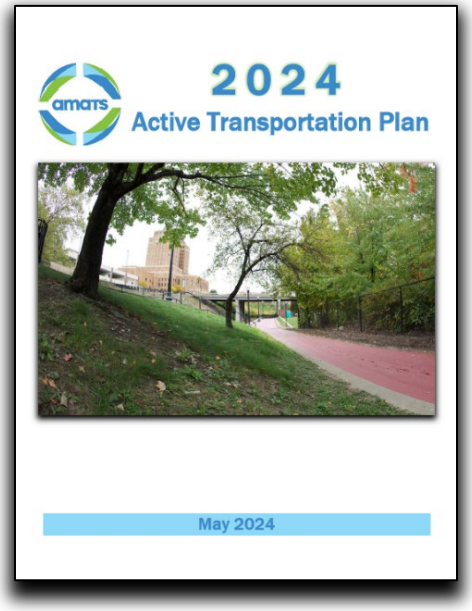
Even with increased potential lifespans, **environmental sustainability** is still in question on how these mobility devices are disposed of. A recent *News 5 Cleveland* article from January 2024 shows around 8,000 de-commissioned or broken scooters from around the area ending up in an Akron waste facility. Each one of the e-scooters contains a lithium battery and locals are worried about lithium seeping into the local water system. A local company is attempting to refurbish and sell many defunct scooters, but the task might be too burdensome to manage effectively. Properly understanding the environmental impact is another challenge that faces municipalities when considering introducing these mobility devices for shared public use.

Summit e-Waste estimates it has about 8,000 Spin scooters to refurbish. *Source: News 5 Cleveland*

Chapter 6—Recommendations

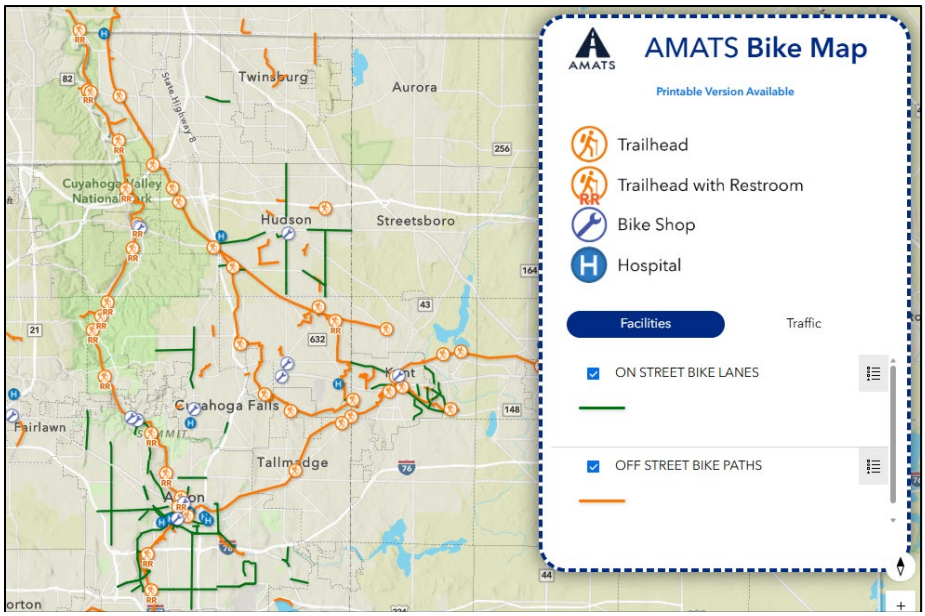
Active Transportation Plan Recommendations for Micromobility

The AMATS 2024 Active Transportation Plan (ATP) serves as an overarching, guiding document for implementing several regional recommendations relating to all active transportation modes, including micromobility. The ATP recommends a variety of goals and strategies grouped into two categories: *Infrastructure related* and *Outreach and Engagement related*. Within this framework, the ATP's goals and strategies directly pertinent to micromobility are listed on the following page.



Essentially, the primary recommendations for region-specific micromobility involve building a network that allows e-scooters to safely, efficiently, and comfortably travel through the transportation system. The outreach and encouragement goals also play an important, albeit secondary, role in developing and promoting micromobility within the region.

The 2024 ATP denotes Greater Akron's network of shared-use paths and bicycle lanes, and this network has indeed grown incrementally since the publishing of this report. AMATS keeps an updated inventory of changes to these networks on their online AMATS Bike Map.



Left: AMATS' online Bike Map shows the area's network of shared-use paths (orange) and bike lanes (green)

AMATS Active Transportation Plan Recommendations Pertinent to Micromobility

	Strategy	Implementation		How To Do It
		Lead	Support	
Infrastructure Goals	**Construct Additional Shared Use Paths**	*Shared use paths separated from vehicular traffic significantly contribute to the comfort and safety of people using other modes of transportation.*		
	Apply to AMATS funding sources such as TASA, STBG, and CRP and ODOT Safety programs to construct new bicycle trails and/or shared use paths along roadways.	Municipal governments, park districts, transit agencies	AMATS, ODOT	Focus on recommended/future shared use paths identified in this ATP and/or future planning study recommendations (e.g. Connecting Communities plans).
	Increase the Number of Bike Lanes	*Constructing bike lanes along roadways provides a dedicated space for micromobility and some level of separation and added protection from vehicular traffic.*		
	Consider road diets (where appropriate), reducing travel lanes and reappropriating roadway space to bicycle lanes.	Municipal governments	AMATS	Refer to 2015 (and forthcoming) AMATS Road Diet Report for possible locations.
	Apply to AMATS funding sources such as STBG to construct bicycle lanes on roadway projects.	Municipal governments	AMATS, transit agencies	Focus on recommended/future shared use paths identified in this ATP and/or future planning study recommendations (e.g. Connecting Communities plans).
	Maintain Pavement in Good Repair	*Pavements in good and excellent condition are a prerequisite for safe and desirable places to ride bicycles and scooters.*		
	Continue investing in Pavement Condition Index (PCI) analysis that assesses the condition of road surfaces across the region. This allows communities to make wise decisions on how to maintain roadways.	AMATS members, AMATS		Support AMATS' continued investment in collecting this data and publishing reports/*Pavement Management Dashboard*.
	Apply to AMATS' Resurfacing Program and ODOT's Urban Paving Program to resurface key roadways, especially those conducive to safe bicycle transportation.	Municipal governments	ODOT, AMATS	Utilize the *Pavement Management Dashboard* to prioritize roadways for consideration.
	Improve Safety for Active Transportation	*Merely having micromobility amenities does not automatically make these users safe. Designing a system for safe travel for all users is important and necessary.*		
	Continue to support and work toward an areawide Vision Zero goal, which aims to significantly reduce and eventually eliminate roadway fatalities and serious injuries for all users.	AMATS members, AMATS	FHWA	Chapter 2 of AMATS' SS4A Action Plan decribes the *Vision Zero* commitment. Continuing the focus on FSI crashes via the SS4A Process and funding policy solidifies commitment.
	Consider FHWA's Proven Safety Countermeasures (PSCs) related to active transportation and implement as appropriate. PSCs can be incorporated systemically, as part of large projects, or as standalone improvements.	Project Applicants, AMATS	ODOT, FHWA	PSCs related to active transportation are listed and described in Chapter 6 (Safety). Also refer to Chapter 7 of AMATS' SS4A Action Plan.
	Focus on improving areas of known safety issues based on AMATS' Annual Crash Report (ACR) and the SS4A Action Plan. Apply for ODOT Safety funding or AMATS funding sources as appropriate.	Project Applicants, AMATS	ODOT, FHWA	Utilize SS4A Webapp and the ACR to understand where and why crashes are occurring. Identify any hotspots or patterns (AMATS staff can assist).
	Create Environments Conducive to Active Transportation	*Often an afterthought, it is imperative to thoughtfully consider the comfort and feel of an area in order for micromobility usage to realize its potential.*		
	Ensure that quality landscaping is incorporated into project designs. This may include shade trees for pedestrians' benefit and/or other aesthetically pleasing greenery to make the project area more attractive.	Municipal governments, landscape-related professionals	ODOT	Consult with landscape architects, certified arborists and other professionals to ensure that the appropriate species of plants are incorporated into a project's design.
	Focus on quality design elements within and adjacent to the public sphere (e.g. powerlines, distance between bikes/people and vehicles, crossing distances, what buildings look like and how they are situated).	Municipal governments	ODOT, utility companies, consulting engineers	Conduct planning activities. Ensure that subdivision/land dev. ordinances require quality development. Be mindful of how these elements affect overall design prior to construction.
Outreach and Encouragement Goals	**Spread Awareness/Education**	*Educating the public on how, why and where they can ride can yield health benefits and reduce private vehicle trips. Public buy-in can empower citizens and lead to strong partnerships.*		
	Conduct Bike-N-Brainstorm events that engage participants by giving them a voice in the planning process for potential improvements to the bicycle network.	Municipal governments, AMATS	Health agencies, CDCs, community institutions	Communities that want to improve bicycle infrastructure or obtain public input on current or future conditions should contact AMATS to plan an event.
	Continue to help fund and participate with other Ohio Large MPOs in the Gohio Commute program, which helps commuters across the region explore their commute options.	AMATS, Ohio Association of Regional Councils (OARC)		Visit Gohio Commute website or watch for future e-blasts or social media posts from AMATS.
	Help organize and/or participate in public events that help to promote active transportation as safe and healthy travel options.	Municipal governments, AMATS	Public health agencies	Communities interested in organizing an event can contact AMATS to help plan or participate. AMATS staff can likely attend and provide free giveaway items.
	Plan for Future Active Transportation Improvements	*Continued planning is necessary as the active transportation network expands and improves.*		
	Apply for Connecting Communities Planning Grants through AMATS to prioritize alternative transportation improvements that connect people and places and promote livable communities.	Municipal governments, transit agencies	AMATS	Watch for AMATS to release *Notice of Funding Availability* and apply for funding. Applicants can meet with AMATS staff at any time to discuss issues and goals.
	Prioritize active transportation by conducting community-led planning efforts such as comprehensive plans, corridor studies, or municipal-level Active Transportation Plans.	Municipal governments, agencies related to transit, health, and planning	AMATS	Advocate to make sure active transportation planning is a component of local planning studies and work to make sure recommendations are well thought-out and realistic.

Other Recommendations

There are some other, more specific considerations for city decision makers to keep in mind as they explore the new and changing regulatory environment and technologies surrounding micromobility. This list of remaining, complementary recommendations is limited to items a governing body can affect. These include several policy and regulatory recommendations and ideas cities can help to implement while working alongside micromobility providers.

1. **Create access to micromobility parking** Policies geared toward minimizing issues between cars and new modes such as e-scooters are helpful to consider.
    - Provide dedicated parking areas for e-scooters in higher density areas with both virtual (in-app) and physical markers.
    - Consider converting the empty space between pedestrian crossings and parking spots for e-scooters to enable orderly parking. The sidewalk "Buffer Zone" typically serves a wide range of amenities such as landscaping, street lighting, signage, benches, and traffic control devices. The buffer zone can be a dedicated area for bicycle and micromobility storage. Designers should follow the general design guidance provided in *ODOT's Multimodal Design Guide*.
    - Consider adding parking zones to meet the demand for parking and encourage users to park in an orderly fashion. A 2020 study from *Transportation Research Part A* on promoting considerate parking behavior found that monetary incentives and warnings can both be effective in encouraging orderly parking for dockless bicycle sharing. Similar methods might be considered to promote orderly parking for shared e-scooters.
    - Include other device parking options such as on-street corrals and docking points, guidance on providing safe places to ride, and deploying hubs. Hubs function more like a docked bike station. The scooters are placed into charging points and users are given a credit that may be applied to their next ride. The Hub accomplishes both keeping the scooters in an orderly and constant location while keeping them charged.
2. **Obtain and analyze data** Developing a plan and agreement for trip data can provide invaluable insights into how people move around cities and will help to identify mobility gaps and understand habits and safety issues with micromobility. Fleet data can also show the critical density of e-scooters necessary to make micromobility a viable transportation mode. Within the regional context, both Akron and Kent have such agreements in place to obtain useful data from *Spin* that can serve as a template if other providers come into the region or micromobility services are expanded.
    - Cities should ensure access to accurate, high-quality data while maintaining individual privacy.
    - Provide third party tools to help city stakeholders and regulators understand and manage the use of scooters – i.e., the number of trips, trip distance and duration, times of trips,

most used routes, etc. These tools can help communities make decisions about future policies and guide investment decisions to infrastructure.

3. **Proactively consider guiding principles for regulating micromobility** The rapid growth of shared micromobility trips and the introduction of e-scooters has required cities to focus new attention on how best to regulate these new services in order to achieve the best public outcomes.

   The wide variety of experiences that cities have had in regulating and managing shared micromobility has revealed some compelling conflicts and gaps in the legal and regulatory process. According to a 2020 study done by the Journal of Law and Mobility the most prevalent legal problems reveal the numerous inconsistencies and ambiguities in the laws regulating the use of micromobility. The study notes that:

   > [t]he wheels of transportation innovation turn much faster than the wheels of legislation. The legal system struggles, playing catch-up with industry changes. That alone does not necessarily constitute a problem. However, the lack of a legal infrastructure may threaten to stifle the innovation and undermine the potential benefits of [shared micromobility systems] in America.

   - The National Association for City Transportation Officials (NATCO) provides a useful overview of regulatory considerations in its 2019 *Guidelines for Regulating Shared Micromobility*. This guide outlines best practices for cities and public entities regulating and managing shared micromobility services on their streets. The document is meant to help cities establish guidelines for formal management of public-use mobility options that are not managed through traditional procurement processes.
   - For an Ohio-based overview, communities should refer to *Ohio's Bicycle, Pedestrian & Micromobility Law Guide*, which includes a consistent, statewide set of regulations governing micromobility. These guidelines cover where e-scooters can ride and park within Ohio, while noting that local laws may differ from the statewide guidance.
   - Local governments may want to develop regulations or ordinances in taking different approaches, particularly when more stringent regulations are needed because the usage and parking of e-scooters become a nuisance. The Ohio Department of Transportation's Office of Statewide Planning and Research commissioned a 2023 report entitled Synthesis of Ordinances/Practices on Micromobility Systems Within Ohio. This report takes a deep dive into the myriad ways Ohio communities have regulated micromobility. It contains a summary of ordinances across the state and involved practitioner interviews with 10 communities across the state, even including smaller cities and one village.

4. **Utilize pilot programs** Pilot programs allow cities to find a happy medium between welcoming providers with no regulation and cautious, aggressive approaches than ban or impound scooters. Pilot programs allow communities to experiment with many aspects of micromobility services Some aspects cities might consider during a pilot program include:

- **Right of Way Policies** – Exploring or amending right-of-way policy or related fees can help set formal boundaries with companies and for law enforcement and allow city departments of transportation time to incorporate curb space management into full deployment.
- **Cost Recovery Mechanisms** – Cities can use the revenue from scooters to fund a separate account dedicated to expanding alternative transportation infrastructure. Also, developing a clear plan for what a city will charge micromobility providers and how revenues will be distributed should be a key part of any pilot.
- **Sustainability** – Cities can use a pilot program to understand who is riding, how many bike/scooter trips are replacing car trips and other indicators that might be important to a city's sustainability goals.
- **Ability to Test-Out Different Providers** – A pilot program is an opportunity to explore every option and determine which of the many micromobility companies might be the best partner to meet a community's specific mobility needs.

5. **Support safety efforts and invest in alternative mobility infrastructure** The responsibility to enforce safety standards is ultimately the responsibility of local governments. Understanding how to keep residents safe while allowing them to utilize these new services can be a significant challenge. Several things can be done by communities to foster safe usage of micromobility:

   - Examinations of how riders interact with sidewalks, bike lanes, roads, cars, pedestrians, potholes, and other parts of public infrastructure all factor directly into safety concerns.
   - Create protected and connected infrastructure, e.g., bike lanes and road diets (as noted in the ATP recommendations) for micromobility. This can dramatically increase adoption and safety of e-scooters, by separating cars from other modes.
   - Consider traffic calming measures, e.g., speed reduction, that will have a positive effect on micromobility safety. Geofencing technology could be used to reduce speeds. It is an invisible, geographical fence that uses GPS signals to create boundaries that restrict e-scooters from operating in specific areas. It can enforce speed reductions by either slowing down or completely stopping the rider. But while the technology has been used to enforce no-ride zones and virtual parking areas, it does not yet have the precision to prevent sidewalk riding.
   - Add detection technology (geofencing) to scooters to discourage sidewalk riding and promote safer operations. Geofencing technology is an invisible, geographical fence that uses GPS signals to create boundaries that restrict e-scooters from operating in specific areas where safety risks may be higher, such as dense urban areas, along highways, and areas of high tourism. The technology powers off a scooter when it is ridden in place where it is prohibited.
   - Designers should consider the context of the facility and identify the appropriate design speed for the project. Bicycle design speed can range from 8 mph to 30 mph

depending on the facility type and expected design user. By comparison, most e-scooter devices have a maximum speed of 15 mph.

- Cities should favor operators who invest in user awareness and safety events to foster responsible behavior.
- Cities can support and develop safety campaigns and help enforce sanctions for bad behavior such as drunk driving.

6. **Be creative in promoting micromobility** Most of the promotion of shared micromobility services is the responsibility of providers. They can employ various promotional tactics to encourage ridership including free rides and discounts of various types: flat-fee discounts, targeted discounts (such as to college students), and referral-based discounts. Providers can also utilize strategic in-app incentives to encourage orderly parking/drop-off and to build brand loyalty.

   However, communities can also do things to encourage ridership. Many cities have worked with providers to provide easier access for residents, particularly those with fewer resources:

   - Many communities have worked with providers to increase access to "unbanked" customers by creating discounted fare structures and providing credit-free access.
   - Communities can partner with local housing authorities and/or community development agencies to fund free or discounted fares. Like the provider-sourced incentives described above, the key difference here is that tactics are funded through public or foundational grants.
   - In some cases, communities and public transportation providers work together to create pilot programs in areas where access to public transportation is more challenging.

7. **Be proactive about learning from other cities** Micromobility is not unique to Greater Akron, Ohio, or even the United States. Cities throughout the world are adapting to shared micromobility services, some much more successfully than others. Applying best practices and ideas from other successful cities could help to spur micromobility standards across the country. In addition to the cities of Akron and Kent, several other nearby cities such as Canton, Cleveland, Cleveland Heights, East Cleveland, Lakewood, South Euclid, and University Heights have teamed with providers to bring shared e-scooter services to their cities.

Chapter 7—Conclusion

With an industry in its relative infancy, any report on shared micromobility will undoubtedly be a product of its time. This 2026 report is vastly different than a report written in 2022 would have been, just as a report four years into the future would reveal several different trends about a rapidly maturing sector of transportation.

We do not yet know the degree to which shared micromobility will influence urban transportation on local or national scales. Early data seem to suggest that the industry is still growing, modestly, on a national scale, and at least enduring on a local scale. There will inevitably be fine-tuning necessary to find viable services for the right market at an acceptable price point. Privately owned scooters will also continue to comprise a significant proportion of the market.

Technology has made it possible to produce affordable, lightweight, electric scooters and similar conveyances that will likely continue to be attractive transportation alternatives to other modes of transportation. Whether micromobility use remains a small niche of overall transportation, limited mostly to college campuses and central business districts, or becomes a more geographically widespread phenomenon, the goal is the same: Users of micromobility should be able to travel safely and efficiently within the existing transportation system.

Source: Adobe Stock Images

Appendix A: Monthly Ridership Data

The majority of the data received from Spin consisted of every single ride taken in a specific year. From the individual ride data AMATS' own summary statistics were calculated. Nonetheless, some data from Spin was given in already summarized tables without any further calculations needed.

Akron

2022

Month	Total Rides	Total Ride Time (min)	Average Ride Time (min)	Total Distance Traveled (mi)	Average Distance Traveled (mi)
January	853	11620	13.62	715.88	0.84
February	782	10541	13.48	709.76	0.91
March	4979	98863	19.86	6943.24	1.39
April	5152	99273	19.27	7198.56	1.40
May	9229	207156	22.45	17451.02	1.89
June	12179	270381	22.20	23099.64	1.90
July	8657	233018	26.92	18979.99	2.19
August	12299	202772	16.49	18317.63	1.49
September	10033	126806	12.64	11273.18	1.12
October	6923	78345	11.32	7125.09	1.03
November	3204	35135	10.97	3137.53	0.98
December	1039	9854	9.48	811.55	0.78

2023

Month	Total Rides	Total Ride Time (min)	Average Ride Time (min)	Total Distance Traveled (mi)	Average Distance Traveled (mi)
January	1036	8880.25	8.57	525.76	0.51
February	2058	19026.50	9.24	945.13	0.47
March	2959	27944.17	9.44	5002.13	1.71
April	6543	93564.26	14.30	3595.73	0.56
May	9992	132967.43	13.31	6090.37	0.61
June	17366	235106.47	13.54	11579.81	0.67
July	20267	257138.30	12.69	14006.56	0.70
August	22472	241085.04	10.73	14535.57	0.66
September	25576	236591.00	9.25	15464.23	0.62
October	20054	166455.82	8.30	12296.51	0.63
November	11106	91174.36	8.21	6995.57	0.64
December	5320	47466.69	8.92	3628.73	0.71

2024

Month	Total Rides	Total Ride Time (min)	Average Ride Time (min)	Total Distance Traveled (mi)	Average Distance Traveled (mi)
January	11	61.53	10.17	9.65	1.83
February	2868	30049.73	10.14	1804.52	0.63
March	4560	65892.02	13.82	3050.08	0.67
April	9337	135252.93	13.70	5436.08	0.58
May	11991	174795.83	14.37	8039.68	0.67
June	15206	234323.05	15.29	10403.54	0.68
July	16009	222421.43	13.86	10248.36	0.64
August	13819	204236.47	12.71	8729.59	0.63
September	16384	165838.15	10.19	21556.27	1.32
October	12870	123729.83	9.68	15802.01	1.23
November	8086	77057.47	9.06	9654.48	1.12
December	2928	26885.55	9.38	3229.32	1.12

2025

Month	Total Rides	Total Ride Time (min)	Average Ride Time (min)	Total Distance Traveled (mi)	Average Distance Traveled (mi)
January	1181	8221.85	7.46	532.23	0.45
February	2398	15334.75	6.54	1044.77	0.44
March	6688	66541.02	9.33	3752.76	0.56
April	8784	83448.50	9.25	4804.69	0.55
May	10578	117021.63	10.81	6354.65	0.60
June	13243	146098.00	10.86	7919.43	0.60
July	13507	144453.27	10.62	8846.03	0.65
August	15342	160950.50	10.46	9704.10	0.63
September	13453	125856.67	9.34	7880.09	0.59
October	9629	85960.73	8.80	5594.56	0.58
November	3710	31813.15	8.66	2220.74	0.60
December	1067	8752.12	8.57	646.77	0.61

Kent

2022

Month	Total Rides	Total Ride Time (min)	Average Ride Time (min)	Total Distance Traveled (mi)	Average Distance Traveled (mi)
January	853	11620	13.62	715.88	0.84
February	782	10541	13.48	709.76	0.91
March	4979	98863	19.86	6943.24	1.39
April	5152	99273	19.27	7198.56	1.40
May	9229	207156	22.45	17451.02	1.89
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November	3204	35135	10.97	3137.53	0.98
December	1039	9854	9.48	811.55	0.78

2023

Month	Total Rides	Total Ride Time (min)	Average Ride Time (min)	Total Distance Traveled (mi)	Average Distance Traveled (mi)
January	1563	16754	10.72	1490.12	0.95
February	3741	34079	9.11	3374.34	0.90
March	1737	15415	8.87	1558.00	0.90
April	5850	62402	10.67	6366.90	1.09
May	4306	76313	17.72	7161.78	1.66
June	5477	104974	19.17	9679.70	1.77
July	4303	82888	19.26	7935.38	1.84
August	10281	118403	11.52	11713.22	1.14
September	11677	107032	9.17	11546.28	0.99
October	8333	66129	7.94	7426.81	0.89
November	4846	34286	7.08	3915.45	0.81
December	1926	14409	7.48	1617.14	0.84

2024

Month	Total Rides	Total Ride Time (min)	Average Ride Time (min)	Total Distance Traveled (mi)	Average Distance Traveled (mi)
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