



130 MILLION



TRIPS

Across the U.S. and Canada in 2022

730 million trips on shared bikes
and e-scooters in the U.S. and
Canada since 2010.

125
MILLION TRIPS
in 2021

130
MILLION TRIPS
in 2022



Cover picture: Pittsburgh
Photo: POGOH

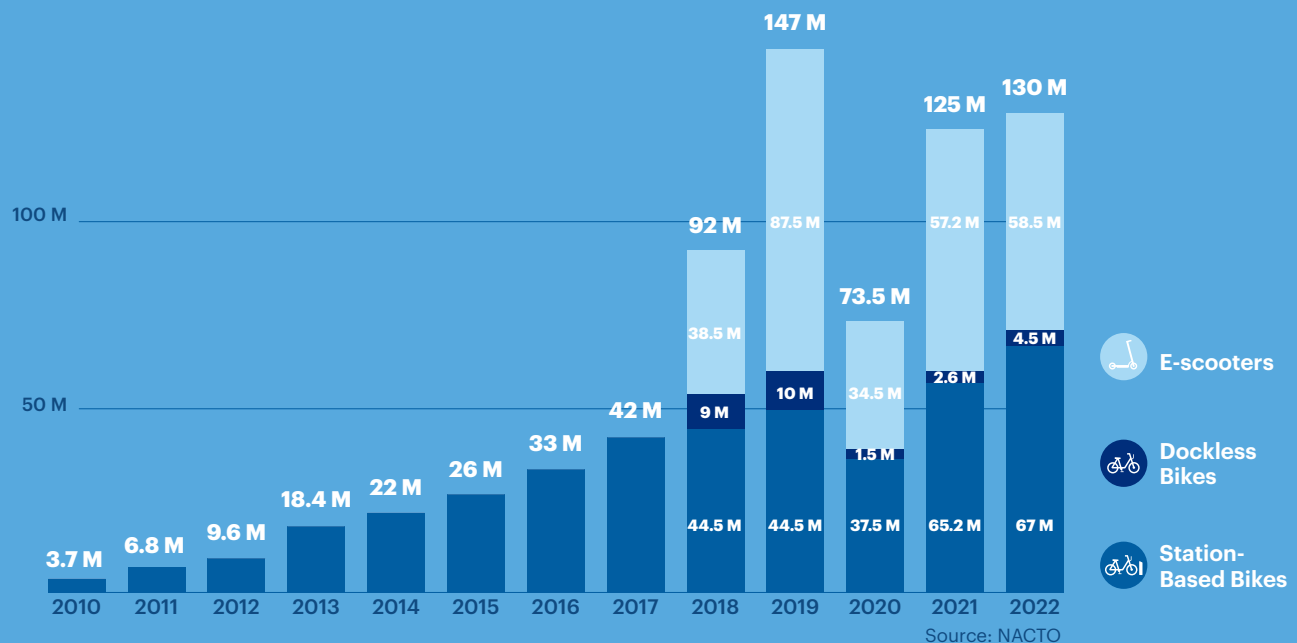
On this page: Montreal
Photo: BIXI Montreal

Bike and scooter share saw record-breaking ridership in cities across the U.S. and Canada.



Shared Micromobility Ridership in the U.S. and Canada, 2010-2022

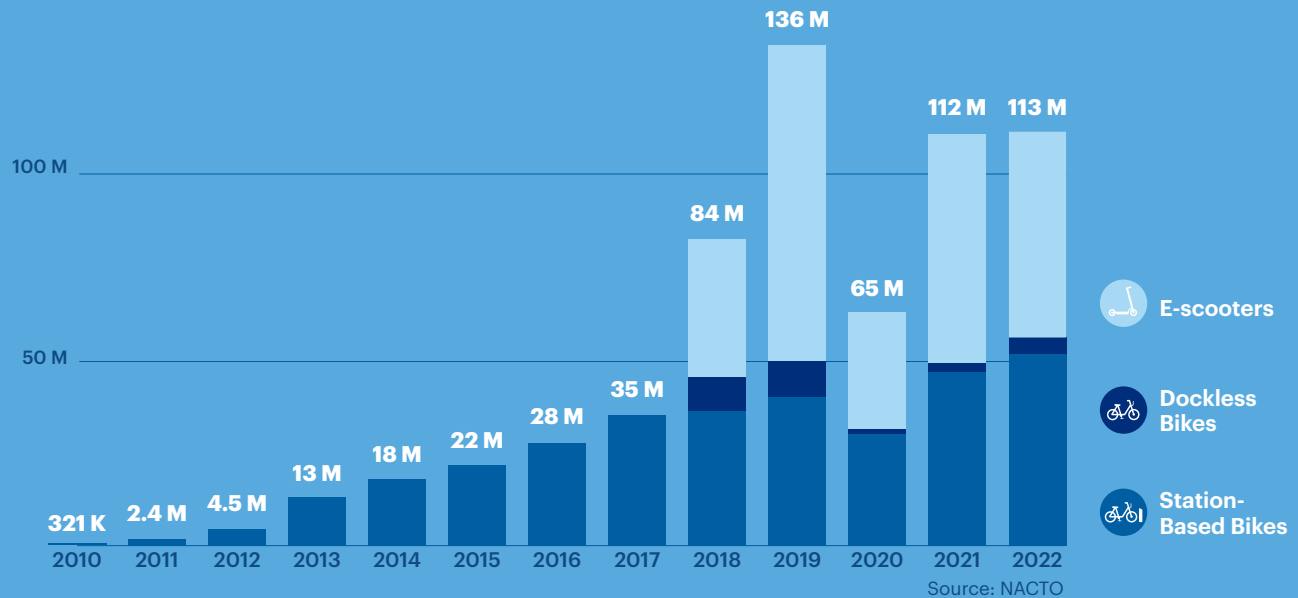
IN MILLIONS OF TRIPS



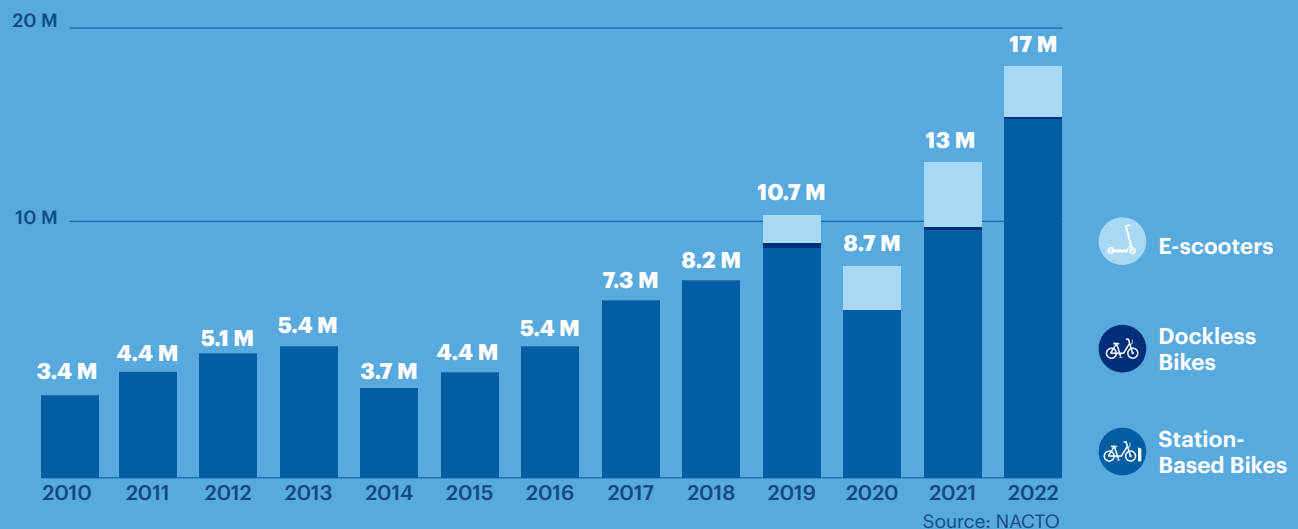
Bike and scooter share is an increasingly vital part of the transportation mix in North America, with record-breaking ridership in many cities across the United States and Canada last year. Overall, riders took **130 million** total trips on shared bikes and e-scooters in the U.S. and Canada in 2022. Shared micromobility trips are up by 40% since 2018, and have increased 35-fold from 2010. **113 million** of these trips were taken in the U.S., and **17 million** were taken in Canada. Since 2010, people have taken **730 million** trips on shared micromobility in the U.S and Canada.



Shared Micromobility in the U.S. Continued its Pandemic-Era Recovery...

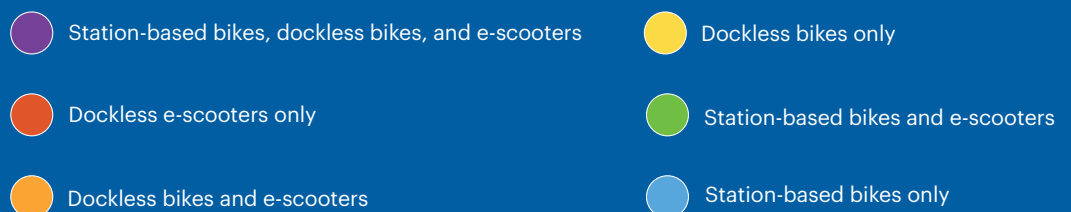
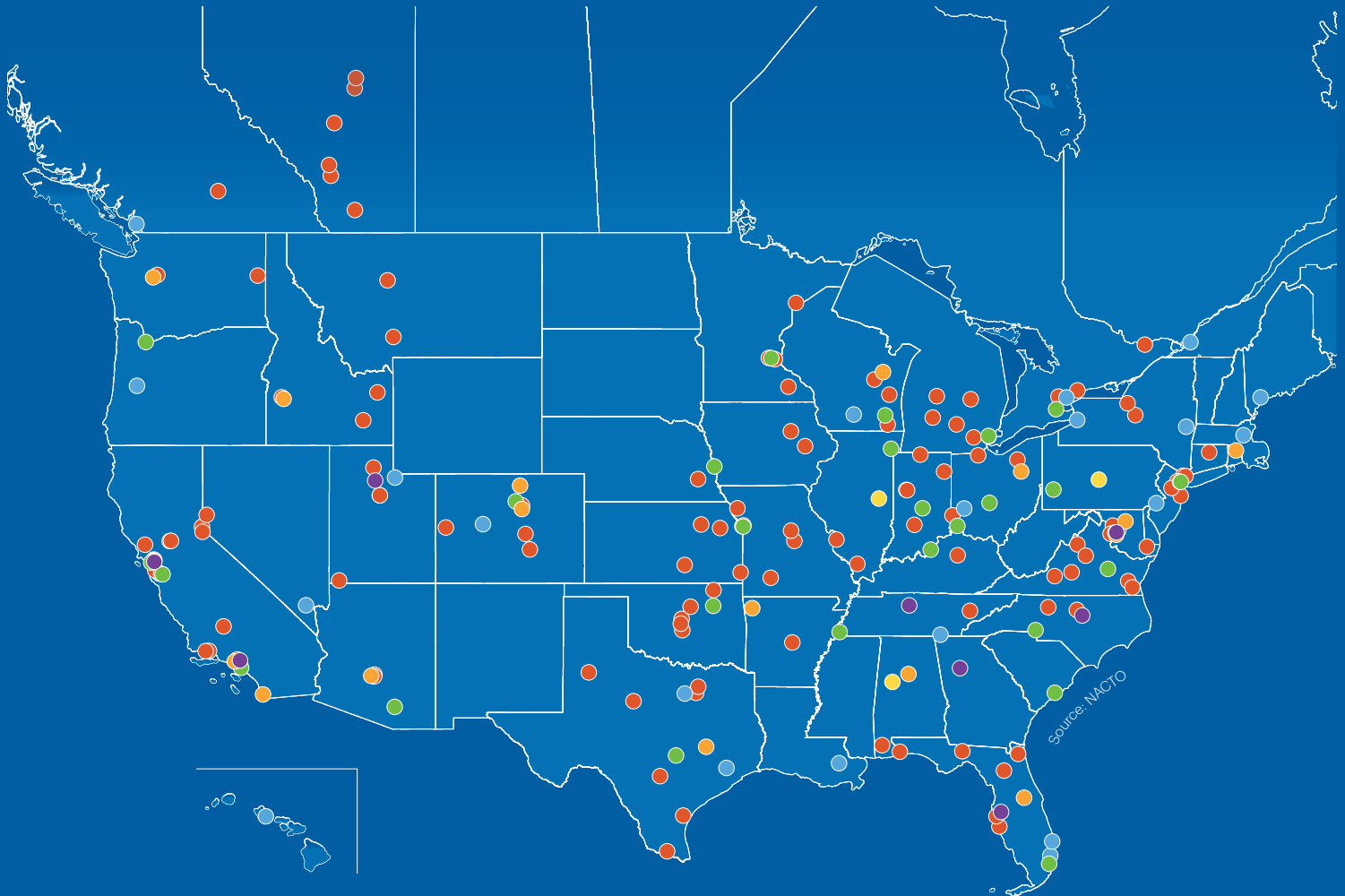


... While Ridership in Canada Blew Past Pre-COVID Highs



Shared Micromobility Across the U.S. and Canada

AS OF JANUARY 1, 2023





Station-based bike share systems continued to see robust and increasing ridership with 67 million trips taken in 2022, a 17% increase from the previous year. 52 million of those trips were taken in the United States, and **15 million** were taken in Canada.

Station-based bikes made up a third of shared micromobility devices available in the U.S. and Canada, yet accounted for over 50% of all shared bike and e-scooter trips. Continued expansion of the largest systems, particularly in Canada, and a sustained interest in e-bikes (see [It's electric: the e-bike boom continues](#) below) drove much of the station-based bike share ridership growth in 2022.

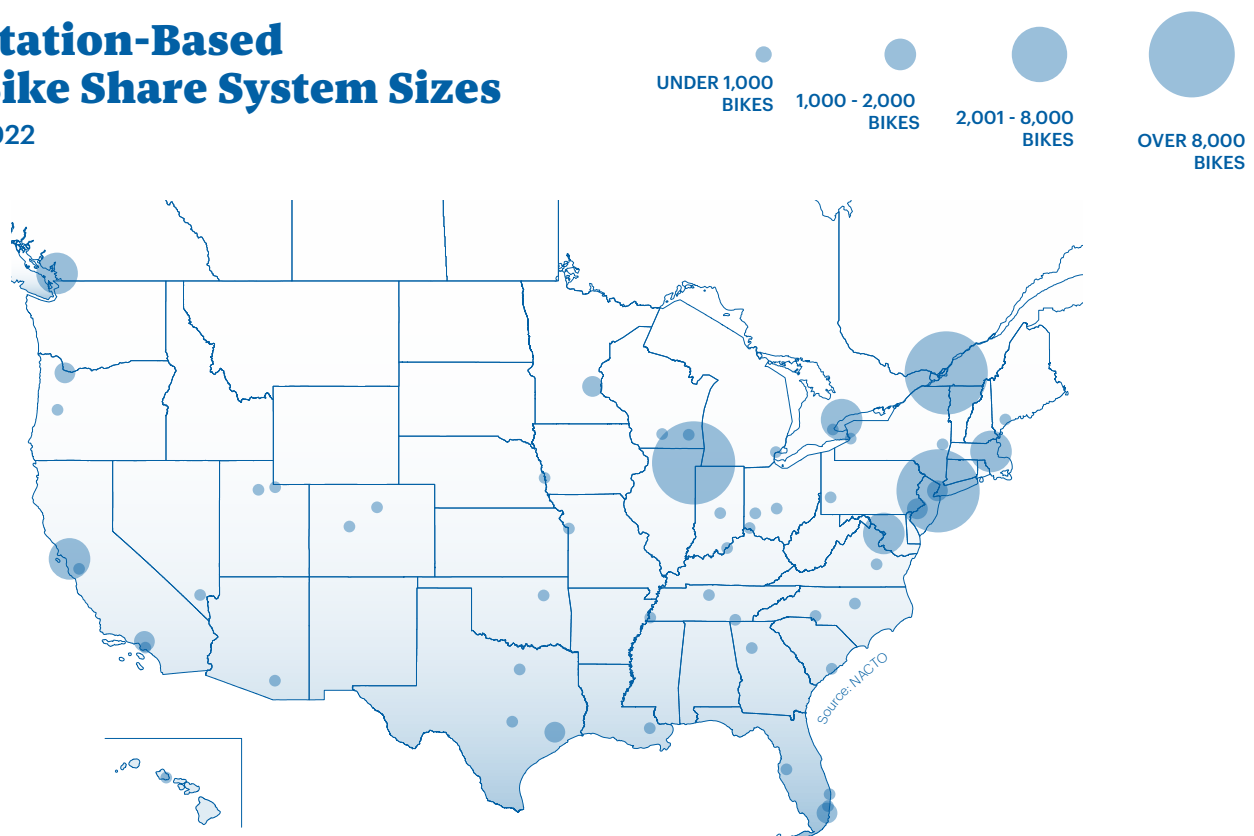
Ten major station-based bike share systems in Canada and the U.S. accounted for 82% of the increase in trips from 2021: Bay Wheels in the San Francisco Bay Area, Bike Share Toronto, Biki in Honolulu, BIXI Montréal, Bluebikes in greater Boston, Capital Bikeshare in greater Washington, D.C., Citi Bike in New York City, Divvy and Chicago, Indego in Philadelphia, and Mobi in Vancouver, BC.

Canada's four major station-based systems saw a 47% increase in trips from the previous year. From 2021 to 2022, trips in Montréal increased by 55% to **9 million** rides; in Hamilton by 47% to **230,000** rides; in Vancouver by 35% to **930,000** rides; and in Toronto by 29% to **4.6 million** rides. All four cities expanded their systems throughout 2022 [by adding new stations](#), [expanding their service areas to new neighborhoods](#), and [offering more electric vehicles](#) or [adaptive bikes](#) to their fleets.

In the United States, station-based bike share trips increased by 11% overall from the previous year. Among large station-based systems, trips in the San Francisco Bay Area increased by 30% to **2.7 million** rides; in greater Boston by 28% to **3.8 million** rides; and in greater Washington D.C. by 26% to **3.4 million** rides.

Station-Based Bike Share System Sizes

2022



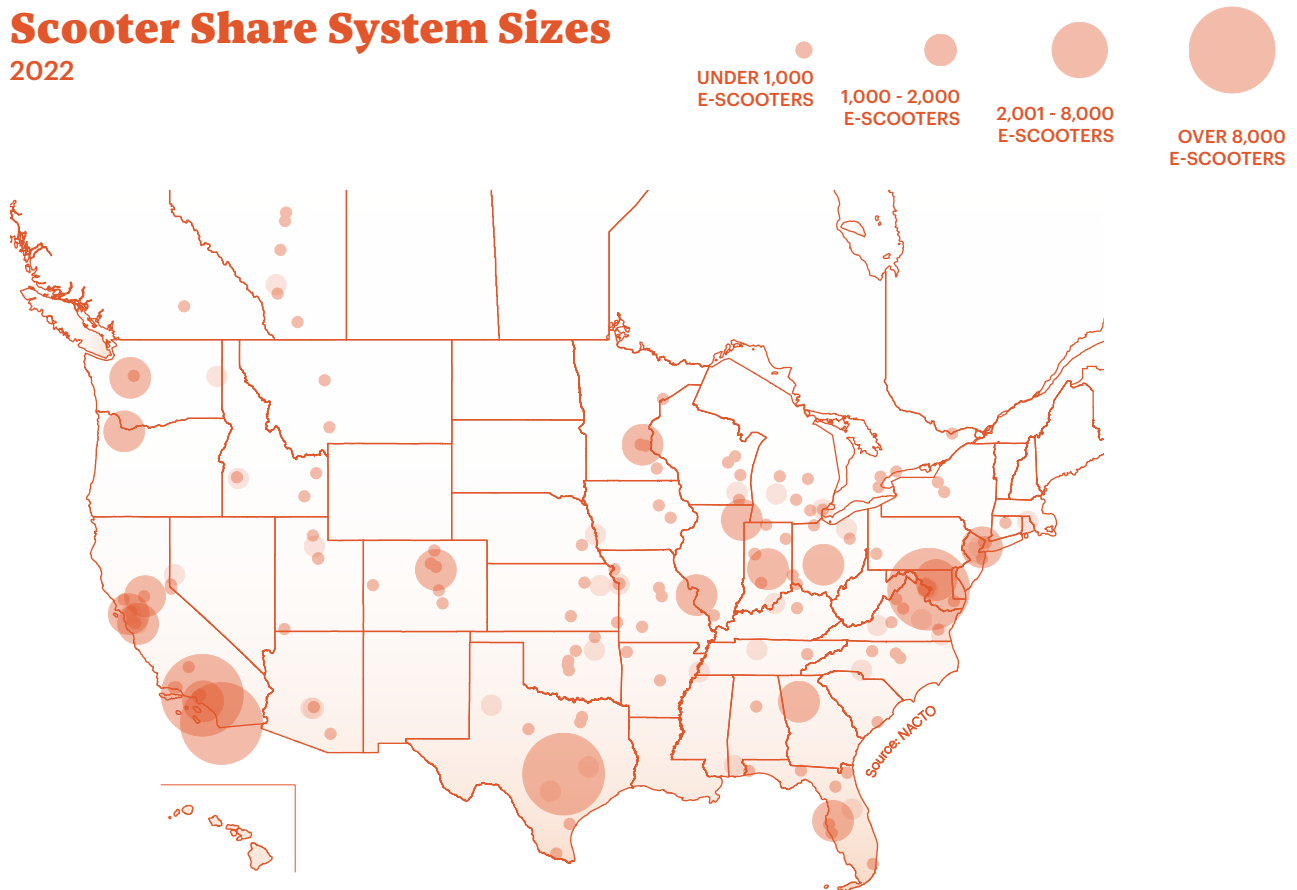


Dockless e-scooter trips dropped by 10% in 2022 as a number of companies shuttered operations in their North American (and European) markets. These

closures were largely due to ongoing financial struggles or a shift in company-wide operating priorities. People took **58.5 million** trips on dockless e-scooters in 2022, compared to **65 million** in 2021. **56.5 million** of those trips were taken in the United States, and **2 million** were taken in Canada. Dockless e-scooters accounted for nearly two-thirds (64%) of all devices, but made up less than half of total trips (45%) taken on shared micromobility. This is a shift from the previous year, when e-scooter trips made up 56% of all shared micromobility trips.

Scooter Share System Sizes

2022

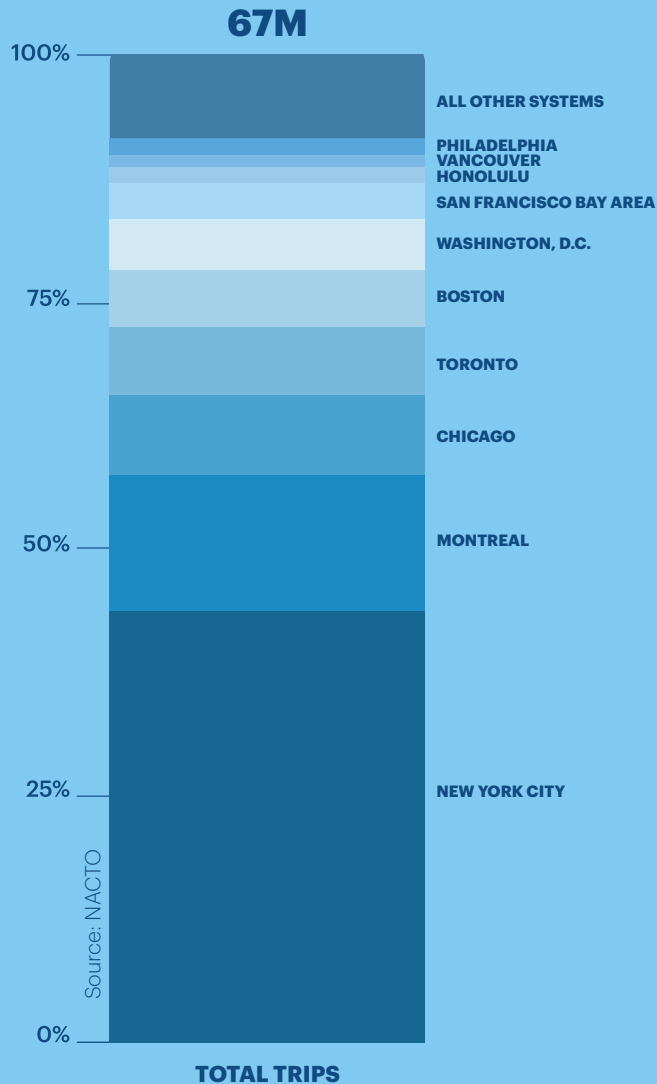


There were 4.5 million total trips on dockless e-bikes, a 73% increase from 2021.

This substantial growth in dockless e-bike trips suggests the popularity of e-bikes is widespread across shared micromobility users. However, despite the large percentage increase in trips on dockless e-bikes, they remain a small portion of total shared micromobility trips, making up only 3% of all shared micromobility trips and 6% of shared micromobility devices in 2022.



Station-Based Bike Share Ridership, U.S. and Canada, 2022

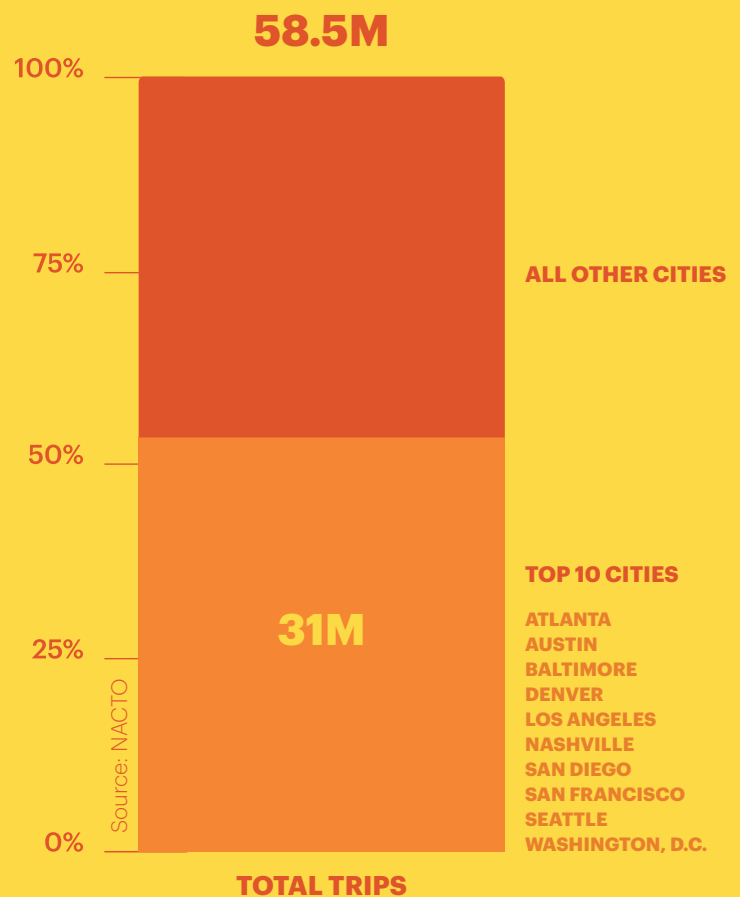


Trips were concentrated for dockless e-scooters as well, with 53% of all dockless e-scooter trips taken in just ten cities (representing 6% of all e-scooter systems in the U.S. and Canada).

90% of station-based bike share trips were taken in just ten cities with exceptionally high ridership. While there are 56 station-based bike share systems in the U.S. and Canada, trips are heavily concentrated among ten cities and regions.



Dockless e-Scooter Ridership, U.S. and Canada, 2022





How a system is designed, how accessible it is, and how well the availability of bikes and scooters align with where a rider wishes to go create vastly different outcomes in daily use from city to city. Average utilization—the average number of rides taken on a shared device each day—shows some broad trends, but there is substantial variation due to local operating conditions and system make-up. On average, shared micromobility devices see 1.1 rides per vehicle per day (r/v/d), but this rate ranges from as low as 0.1 r/v/d in some cities to as high as 8.0 r/v/d.



Station-based bikes overall had an average of 1.9 r/v/d, with e-bikes generally seeing higher utilization at an average of 2.2 r/v/d. Montréal's BIXI and New York City's Citi Bike have extremely high ridership on e-bikes, with averages of 8.0 e-bike r/v/d in both cities. Between 2021 and 2022, both cities increased the number of e-bikes in their fleets by 50% or more. Madison, WI, which was the first U.S. city to shift to an entirely electric station-based system in 2019, has a high average of 3.0 r/v/d. However, cities like Boston and Honolulu—large systems that currently do not offer e-bikes—also see high use of their pedal bikes, with averages of 3.4 r/v/d in Boston and 2.6 r/v/d in Honolulu.



Dockless e-scooters are used around 0.6 times per day and dockless e-bikes 0.8 times per day, although some cities see ridership as low as 0.1 r/v/d. Denver, CO and Austin, TX—which have two of the most-used dockless e-scooter systems in North America—stand out for e-scooter rides per vehicle per day compared to peer cities. In Denver, e-scooters are used at an extremely high rate of 7.1 r/v/d, while e-scooter use in Austin is 2.7 r/v/d.

What We Saw In 2022

COLLABORATION IS KEY FOR AN EQUITABLE AND RESILIENT SHARED MICROMOBILITY PROGRAM

Shared micromobility systems that see consistent growth and equitable outcomes are typically municipally-owned or closely managed through long-term partnerships with private operators. Long-term contracts have resulted in more sustainable results for ridership and the durability of systems. The enduring viability of private sector operators remains uncertain, especially as companies with short-term permits respond to financial troubles by pulling out of cities—often abruptly—together. Shared bikes and e-scooters can and should be integral parts of a city's transportation network, but that is only possible if they are consistently available and resistant to the volatility of market conditions. Partnership models where local governments have greater involvement in their shared micromobility programs generally lead to better outcomes, like more equitable pricing structures, greater investment in historically underserved communities, and ultimately, a greater likelihood of long-term viability.

The five longest-running and most heavily-used shared micromobility systems in the U.S. and Canada—BIXI (Montréal), Bluebikes (greater Boston), Capital Bikeshare (greater Washington D.C.), Citi Bike (NYC, Jersey City, and Hoboken), and Divvy (Chicago and Evanston)—have successfully operated as public-private partnerships (or in the case of BIXI, a city-run non-profit) for over a decade. Shifting priorities amongst private-sector operators, however, have raised questions about the durability of the current operating model of some systems.

Other cities have begun to refine the management and ownership structures of their shared micromobility programs in an effort to ensure accessibility and long-term viability. Most recently, New Orleans, Pittsburgh, and Denver completely restructured their shared micromobility programs with these priorities in mind, aiming for more sustainable operations, equitable distribution of devices, and affordability—especially with the rising costs of electric bikes and e-scooters (See The Average Trip below).



New Orleans
Photo: Blue Krew

NEW ORLEANS

After multiple changes in ownership and a suspension of operations, the City of New Orleans canceled its contract with a for-profit private provider in 2020 and switched to the community-based non-profit Blue Krew to operate its station-based bike share system, Blue Bikes. Partnering with a local non-profit allows the City to focus on equitable distribution and offer more affordable pricing, which is especially important as the new Blue

Bikes program features an entirely electric fleet of 800 pedal-assist bicycles, which tend to be more expensive. The formation of the non-profit also created 20 full-time local jobs with benefits, establishing an equitable labor model for bike share operations. Since the program's relaunch in August 2021, Blue Bikes saw nearly 300,000 trips through the end of 2022.



Denver
Photo: NACTO

DENVER

Denver Bike Sharing, the non-profit that managed Denver's legacy station-based bike share system, ended its decade-long partnership with its previous station-based operator in early 2020. The stations and bikes in the existing system were long overdue for an upgrade, and an evaluation of local needs, including public funding availability, led the City of Denver to create a dockless Pilot Program. Following the success of the Pilot Program,

Denver sought out two exclusive, long-term contracts with shared micromobility companies to operate dockless bikes and e-scooters. These companies are closely monitored by the city, which requires operators to deploy a minimum number of bikes alongside e-scooters, invest in parking corrals for devices, and offer reduced pricing in "opportunity areas". Shared micromobility ridership in Denver has since exploded; the city registered 5 million trips on shared bikes and e-scooters in 2022, nearly 13 times its station-based system's peak ridership in 2014.



Pittsburgh
Photo: Better Bike Share Partnership

PITTSBURGH

The City of Pittsburgh Department of Mobility and Infrastructure (DOMI) launched Move PGH in July 2021, a groundbreaking pilot program to coordinate transportation services through a collective partnership of city and private mobility providers. The Pittsburgh Mobility Collective was formed to demonstrate how collaborative public-private partnerships can operate successful multi-modal transportation options that

center sustainability, affordability, and equitable access. Under Move PGH, Pittsburgh operates a single bike share system managed by a local non-profit, POGOH, and recently piloted a single dockless e-scooter system. The City designed equitable deployment zones and offered discounted rides to ensure the availability and affordability of e-scooters, and implemented low-fare membership programs for both programs. Move PGH also sought to colocate all modes at "mobility hubs" and integrated fare payments in the Transit app. Just over a year after its launch, the Move PGH program shifted over 300,000 miles of travel from motor vehicles to bikes and e-scooters.

INVESTMENTS IN INFRASTRUCTURE, LIKE DEDICATED BIKE LANES AND ADAPTIVE BIKE OPTIONS, PAY OFF

Studies from across the U.S. and Canada show that more people ride when cities build high quality, protected bike lanes.

Montréal has set the standard as North America's top biking city. The 140-square-mile city boasts 560 miles of bikeways, with approximately 80% (445 mi) available all year—even through the snowy winter. Since the launch of Bixi in 2009, the city has seen steady year-over-year growth of bike share ridership in the millions with almost 9 million trips in 2022, an increase of over 3 million trips from the previous year.



Between 2018 and 2021, **Austin, TX** built 100 miles of new bike lanes, including 22 fully or partially protected intersections. Austin continued to be one of the top U.S. cities for shared micromobility ridership in 2022, with 3.4 million trips on dockless bikes and e-scooters and over 300,000 trips on station-based bike share.

Jersey City and **Hoboken, NJ** saw an explosion in bike share trips just one year after Citi Bike expanded into Hoboken in 2021. Riders took over 875,000 trips in Jersey City and Hoboken in 2022, a 40% increase from the previous year. These neighboring cities have installed over 25 miles of on-street bike lanes, 12 miles of which are fully protected. In November of 2022, Jersey City and Hoboken jointly unveiled a new highly-visible, protected bikeway to formally connect their bike networks for better access.



The **District Department of Transportation** in **Washington, D.C.** built 20 miles of protected bike lanes between 2019 and 2022, adding to the nearly 200 miles of existing bike lanes and trails in the area. D.C. consistently ranks high for both station-based bike share and dockless e-scooter ridership; in 2022, the region registered 8.5 million total trips taken on shared micromobility, a 13% increase in trips from 2021.



Many cities across the U.S. and Canada also took steps to make shared micromobility more accessible by offering adaptive bike options. In December 2021, MoGo Detroit hosted a virtual adaptive bike share workshop in collaboration with the Center for Disability Rights. During the two-day convening, transportation workers shared best practices and learned how they—and shared micromobility programs—could better serve the disabled community. Throughout 2022, Seattle, Portland, OR, Reno, NV and Milwaukee expanded their existing adaptive bike options, while Hamilton, ON and San Francisco both launched their first adaptive bike share programs through joint partnerships with community organizations.



TO KEEP SHARED MICROMOBILITY AFFORDABLE, CITIES MUST SET CLEAR GOALS FOR PRICING AND PRICE EQUITY

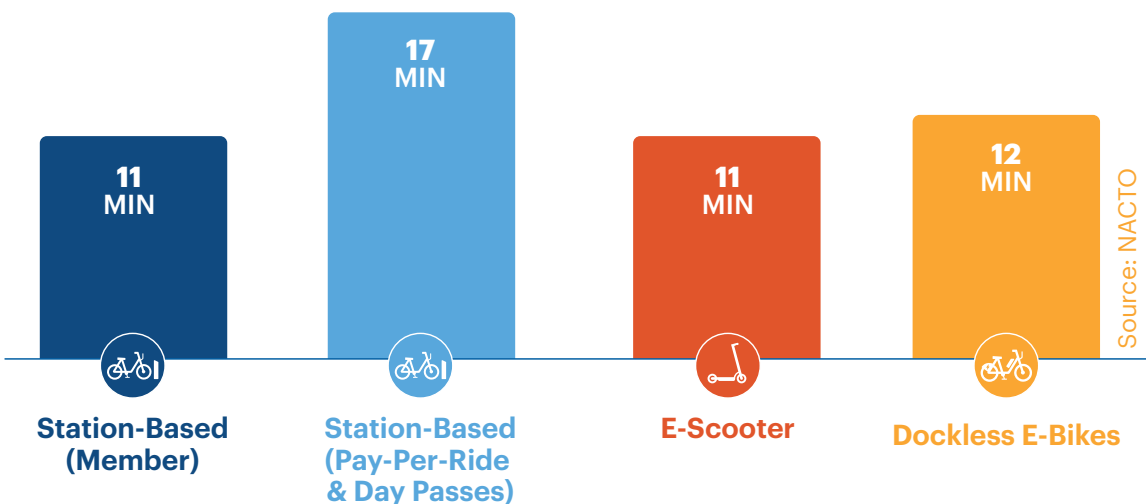
The cost to ride a shared bike or scooter continues to rise in numerous cities, posing a threat to affordability. In a year of widespread consumer price increases—including public and private transportation modes—shared micromobility was no exception. Annual membership hikes, alongside rising e-bike surcharges, led to a 70% increase in average per-trip costs for members of station-based bike share systems from the previous year. Pay-as-you-go trips on e-bikes or e-scooters were the most expensive, with average per-trip costs more than double the typical fare of a one-way trip on public transit in the U.S. and Canada.

These increases come alongside a trend of systems shifting from flat-rate pricing of \$2 to \$3 for 30-60 minute rides (or unlimited monthly pricing) to charging by the minute. **While a few cents a minute sounds cheap at first, the costs add up quickly: a 20-minute, one-way trip that may have cost \$2.50 a few years ago can now cost \$6 or more.**

Pay-as-you-go riders on dockless bikes and e-scooters paid, on average, \$0.20 cents more per-minute than station-based bikeshare members, resulting in an additional \$2.40 for a 12 minute trip. For longer trips, the differences in price are even more stark: A 30-minute trip of 2-4 miles would cost, on average, \$2.30 for members of a station-based bike share system (\$6.80 on an e-bike), \$4.80 for non-members (\$8.60 on an e-bike), and \$12.00 on a dockless bike or e-scooter.

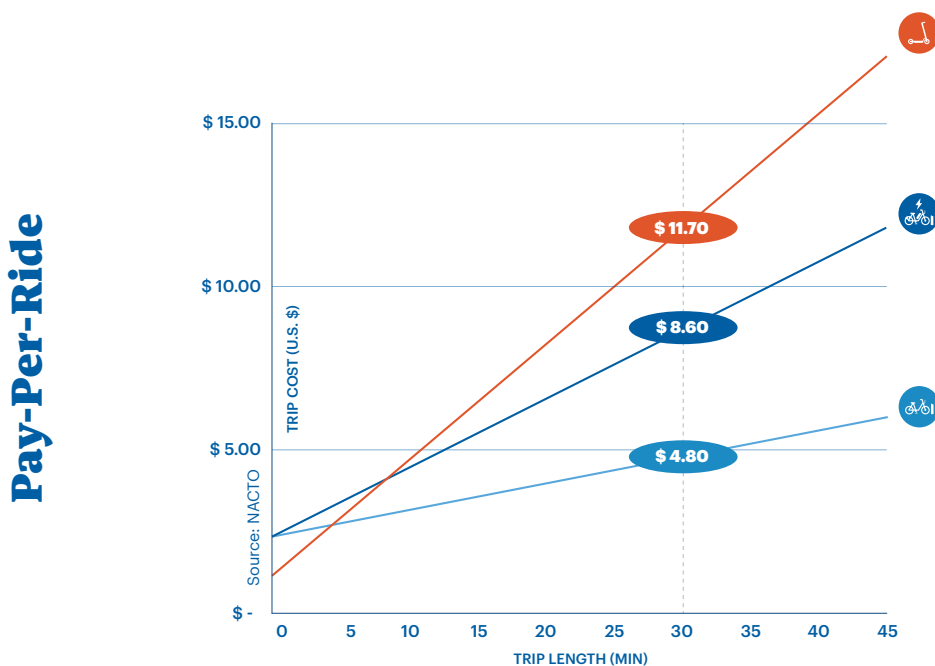
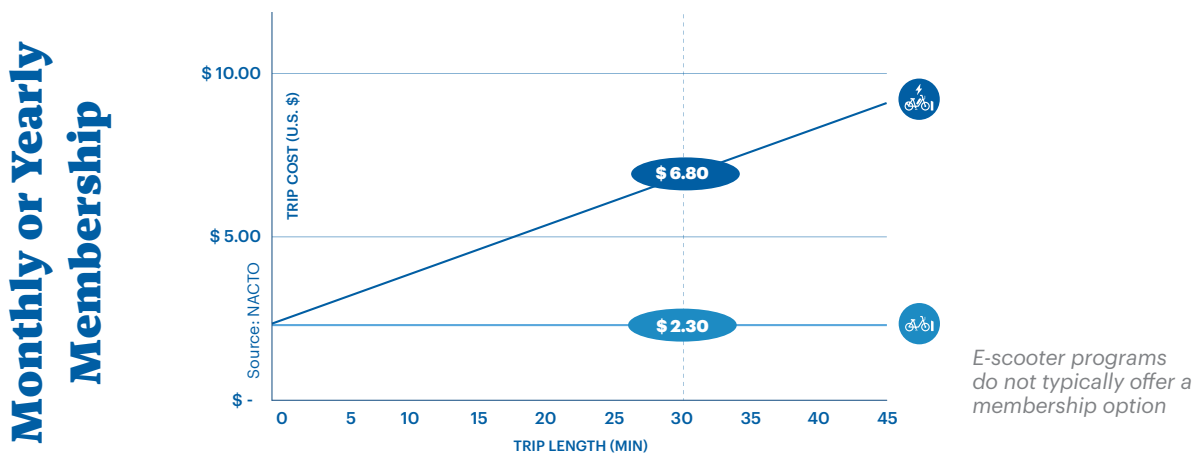
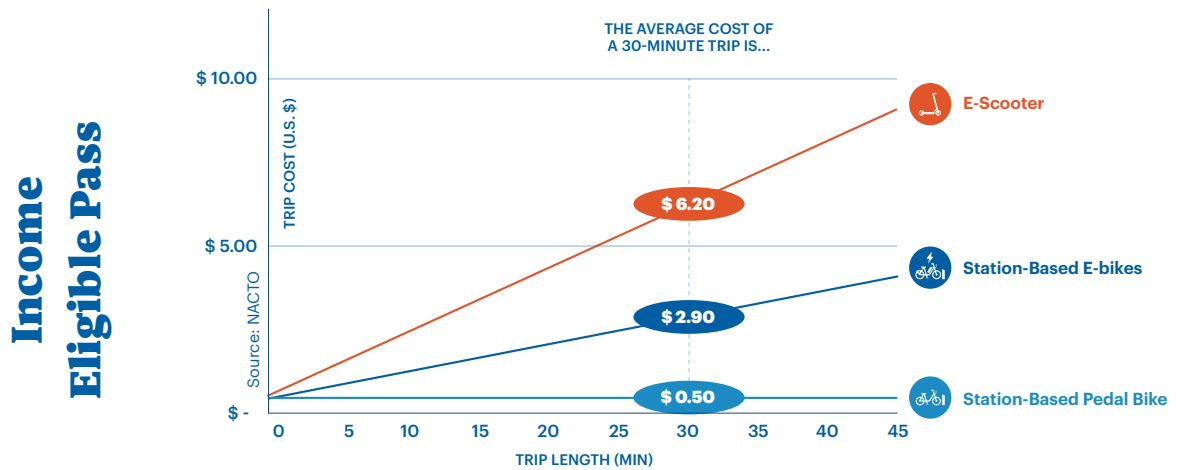
Most Shared Micromobility Trips Are Short

While most trips taken on shared bikes and e-scooters are just over 10 minutes, the average pay-per-ride trip on station-based bike share is longer: 17 minutes.



Trip Pricing Varies By Membership

Memberships and income-eligible passes provide discounts, but costs for many others continue to rise beyond public transit.



REDUCED FARE OPTIONS HELP EXPAND ACCESS

Monthly or annual memberships are still the most affordable way to pay for shared micromobility for the majority of riders, and income-eligible membership programs offer even deeper discounts. The average cost of discounted memberships—when not entirely free—is around \$3.25 a month, with some costing as little as \$5 for the entire year. For station-based systems, memberships usually include unlimited rides (ranging from 30-60 minutes) and reduced surcharges for e-bikes. For dockless systems—which use unlock fee plus per-minute fee pricing—income-eligible memberships often waive or reduce unlock fees, and offer discounted per-minute pricing.



As shared micromobility systems begin to shift price structures and add more e-bikes, affordable access has become critical. Riders using reduced-fare passes are two times more likely to use e-bikes than pedal bikes, and shifts to per-minute pricing mean that previously-affordable trips are often now more expensive, especially for people traveling from further neighborhoods into urban cores.

In a survey of NACTO [member cities](#), 77% of respondents offered income-eligible discounted membership options

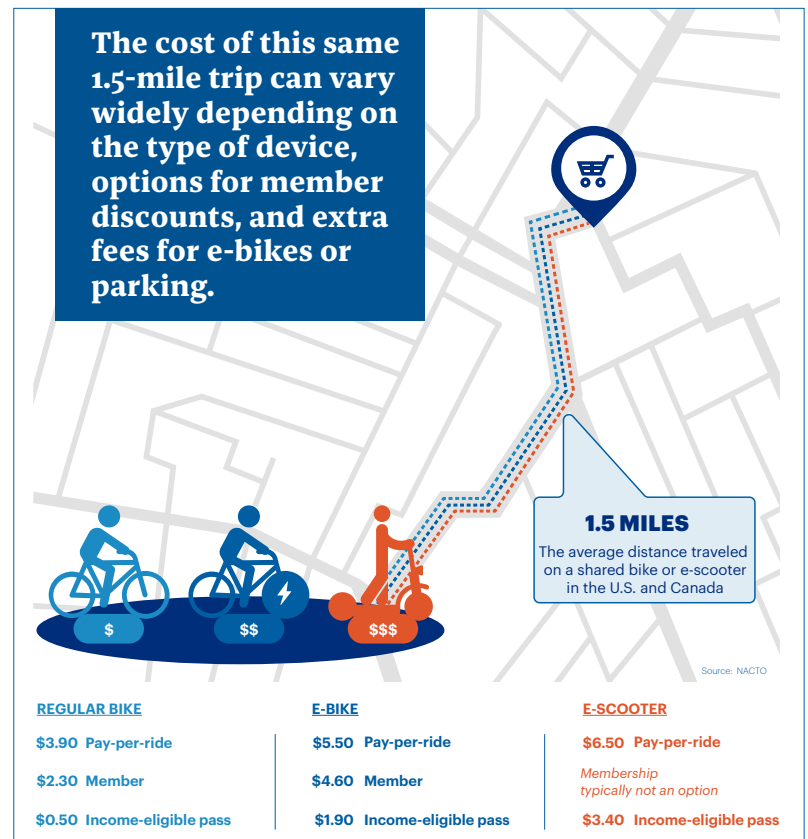
for their station-based bike share systems, and 85% had similar discounted memberships for their dockless bike or e-scooter programs. These programs have become increasingly common since 2016, when [only 24% of shared micromobility systems offered income-based subsidies](#).

Simply having a discounted membership program does not mean that the program is easy to use or accessible to the people who qualify. Trips taken by people with income-eligible memberships accounted for 8.3% of all station-based bikeshare trips in 2022; and although not a direct comparison, 20% of households in the same cities utilize SNAP benefits¹. In some cities—including Cincinnati, Minneapolis, and Portland, OR—this share was much greater, with income-eligible passholders taking 30% or more of all shared micromobility trips. In 2021, both Cincinnati and Portland received [Living Lab Grants from the Better Bike Share Partnership](#) to expand their bike share equity programs, using the funding to further invest in system expansions and community outreach programs to sign people up for discounted membership options.

¹ACS 2021, 1-year estimates

Shared micromobility must remain affordable to all, not just those within specific programs.

Providing income-eligible pricing is a key component of establishing equitable pricing options. However, shared micromobility also needs to remain affordable to the broader public. People navigating cities without a car are making a choice based on time and money. For short trips, shared micromobility is often faster than waiting for the bus. However, if a shared micromobility trip is significantly more expensive than riding the bus, particularly if it is used to connect to transit, it may not be a realistic option for price-sensitive customers.



Access remains uneven for people without a smartphone or credit card

An additional barrier to consider is the lack of cash payment options. Most systems require the use of a smartphone app linked to a bank account or credit card, but around 5% of adults in the U.S. do not have access to a bank account. In Detroit, bike share system MoGo partnered with DivDat, a bill payment kiosk, to allow people to pay for MoGo bike share with cash. MoGo has allowed users to pay for discounted memberships through CashApp since 2021, and the installation of physical kiosks provides more convenient access for in-person cash payments.

IT'S ELECTRIC: THE E-BIKE BOOM CONTINUES

The e-bike boom of the past two years continued into 2022, particularly on station-based bike share systems. Three fourths of station-based systems across the U.S. and Canada expanded the number of e-bikes in their fleets, and in the U.S. alone, total station-based e-bike trips increased by 38% from 14.5 million trips in 2021 to 20 million trips on e-bikes in 2022. Station-based e-bikes were only 9% of available shared micromobility devices in the U.S. and Canada in 2022, yet accounted for 24 million–18%–of total trips taken on shared micromobility.

The greatest increase in station-based e-bike trips from 2021 occurred in Chicago (41%), New York City (32%), Philadelphia (30%), and the San Francisco Bay Area (28%). In San Francisco, over two-thirds (70%) of station-based trips taken in 2022 were on e-bikes, a continued trend from 2021 when 68% of trips were taken on e-bikes. In New York City, Jersey City, and Hoboken, 39% of trips were made on e-bikes, despite making up only 20% of the regional Citi Bike fleet. Richmond and Boulder shifted to entirely electric station-based fleets in 2021; by the following year, trips in Richmond nearly doubled, and in Boulder, ridership grew from an average of 100,000 rides annually to almost 500,000.



Vancouver, BC
Photo: Mobi by Shaw Go

EVEN AS 9-5 COMMUTE PATTERNS RETURN, PEOPLE ARE USING SHARED MICROMOBILITY FOR FAR MORE THAN WORK TRIPS

Mobility patterns on shared micromobility devices have shifted greatly over the past three years, with shared bikes and scooters becoming an integrated—and integral—part of people’s lives. Between the return to offices throughout 2021 and 2022, expansions of bike networks, and increasing interest in shared bikes and scooters, shared micromobility options have become valuable transportation options for millions of people. People across North America use these systems to get to work, school and doctors appointments, as well as restaurants, local businesses and cultural institutions, helping to build community connections and generate economic activity.

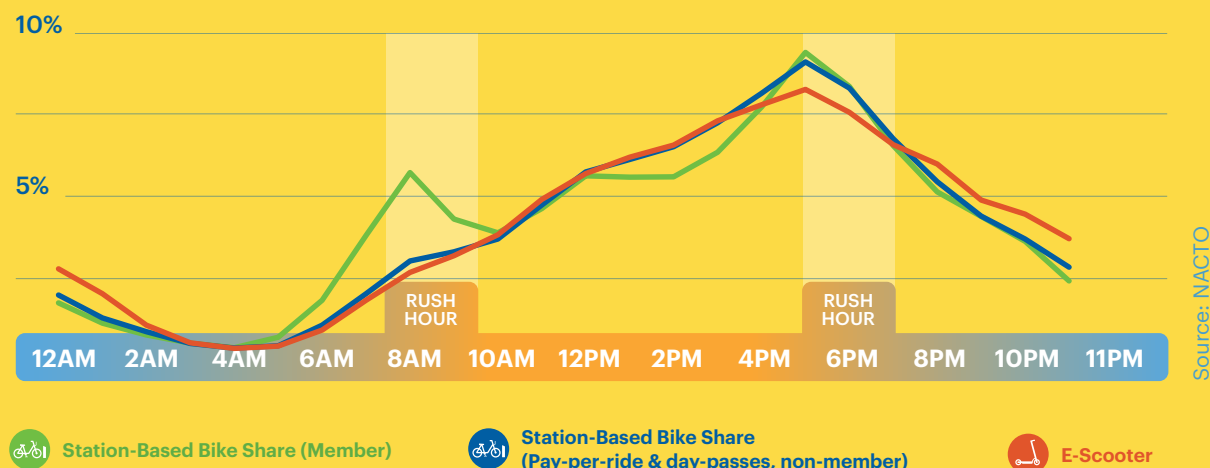
Following two years of record-low travel for 9-5 workers in 2020 and 2021, spikes in travel during the morning and early evening peak commute times reappeared for annual and monthly passholders using station-based bikeshare. Travel patterns for pay-as-you-go station-based bike share users and dockless e-scooter users remained similar to past years, with trips more evenly spread throughout the midday and PM peak periods.

Throughout 2022, people continued to use shared micromobility to reach a wide range of destinations and for a variety of trip purposes. In an [analysis of some of the largest shared micromobility systems in the U.S.](#), many riders reported they used shared micromobility for multiple purposes over the course of the year: 34% of riders use shared micromobility to access jobs, 39% use shared micromobility to run errands, 16% use shared micromobility to get to school, and 50% of riders use shared micromobility for other social or recreation trips.

It’s not just about getting to where you need to go efficiently: Using shared micromobility is fun! At the end of 2021, [riders in Seattle reported](#) that the top reason for using shared micromobility was to get places quickly, and the second most common reason was because riding is fun and relaxing.

Rush hour is back...

...even as rides remain spread throughout the day



Looking FORWARD

There's no doubt that shared bikes and e-scooters are popular and highly valued in the U.S. and Canada. With 730 million trips since 2010, shared micromobility systems are taking cars off the road, reducing greenhouse gas emissions, and getting people where they need to go—to all the opportunities in the cities they live in. When working hand in hand with the communities they serve, shared micromobility systems see better outcomes, like more availability in historically underserved neighborhoods, and the trends present in this report show that cities in the U.S. and Canada are working hard towards a collaborative future for their shared micromobility programs.

In the coming years, shared bikes and e-scooters will be further cemented as an integral part of cities' transportation networks as shared micromobility systems that have historically operated on a seasonal basis move towards year-round operations. The [recent launch of a year-round BIXI pilot in Montréal](#) could usher in the possibility of winter biking for even more people in the U.S. and Canada, as seen already in other cold-weather cities (albeit not quite as cold and snowy) like Chicago and Toronto.

We anticipate in the coming years that shared bikes and e-scooters will be further cemented as an integral part of cities' transportation networks.

There is still work to be done to ensure that shared micromobility devices are affordable and accessible to everyone. As more systems and operators shift to offering e-bikes, prioritizing equitable distribution and pricing will continue to be a top concern, especially with many systems financed by for-profit tech companies facing uncertainty of operations. Shared micromobility can be an extraordinarily competitive and reliable transportation option for short trips, but only with holistic planning, clear policy and goal-setting, and close collaboration between cities and operators.

The increasing popularity of bikes and scooters also necessitates new thinking on how we design our streets, including adding wider bike lanes that accommodate more people traveling at different speeds. One billion trips on shared bikes and scooters is just around the corner, and cities that form strong partnerships with both their operators and the communities they serve will be the ones that lead the way.

Methodology

NACTO counts all station-based bike and scooter share systems with over 150 vehicles. For purposes of clarity and analysis, smart bike systems—where the electronic components are incorporated into the bike itself, and use of a dock is optional—are included in station-based share counts throughout the report. Dockless systems (e-scooters, e-bikes) are counted as those that are designed to be free floating and do not require the use of a dock for operations.

Consistency and accuracy of data remains an ongoing issue. Cities have found discrepancies between what is reported by companies and what they find during spot checks. There is a growing conversation about data specifications and tools to audit and verify company-reported data.

To calculate the total number of shared micromobility trips, NACTO collected trip data from shared micromobility operators and from cities.

NACTO also shared a survey with member cities to collect more detailed data. Member cities that participated in the survey: Alexandria; Arlington; Atlanta; Austin; Baltimore; Boulder; Charleston, SC; Charlotte, NC; Chicago; Cincinnati; Denver; Fort Collins; Hamilton, ON; Hartford; Hoboken; Honolulu; Indianapolis; Long Beach, CA; Louisville, KY; Madison, WI; Milwaukee; Minneapolis; Montréal; Nashville; New York City; New Orleans; Oakland; Orlando; Philadelphia; Phoenix; Portland, OR; Richmond; Sacramento; San Francisco; Santa Monica; Seattle; Somerville, MA; Spokane; St. Louis; Tampa; Tucson; West Hollywood; Vancouver, BC; and Washington D.C.

RIDES PER VEHICLE PER DAY

There is variance in how shared micromobility companies and regulators calculate rides per vehicle per day. For the purposes of this analysis, NACTO calculated average utilization as the number of total trips divided by the reported number of devices. City specific utilization was reported by individual cities.

AVERAGE TRIP COST

1. NACTO calculated average station-based bike share member trip costs by dividing the total membership cost by the number of member trips per month and then calculated an average cost-per-trip, weighted by each city's share of membership trips. The average station-based member and station-based income-eligible program member trip costs were calculated using annual membership prices and membership data provided by the following cities:
 - A. Station-based members: Boston; Chicago; Montréal; New York City; San Francisco; Toronto; Washington D.C.
 - B. Station-based income-eligible program members: Boston; Boulder; Charleston, SC; Chicago; Cincinnati; Hamilton, ON; Louisville, KY; Milwaukee; Minneapolis; New Orleans; New York City; Oakland; Philadelphia; Portland, OR; San Francisco; Somerville, MA; Tucson; Vancouver, BC; Washington, D.C.
2. NACTO calculated the average station-based non-member bike share and dockless shared micromobility trip costs by calculating the average unlock charge and the average per minute charge, weighted by the number of trips in a system or as part of the income-eligible program. The average trip cost was then calculated as the cost of an average length trip. Unlock charges and per-minute charges were calculated using pricing provided by the following cities:
 - A. Station-based non-members: Atlanta; Boston; Boulder; Charleston, SC; Chicago; Cincinnati; Hamilton, ON; Houston; Indianapolis; Long Beach, CA; Louisville, KY; Milwaukee; Minneapolis; Montréal; New Orleans; New York City; Portland, OR; Richmond; San Francisco; Tampa; Toronto; Tucson; Vancouver, BC; and Washington D.C.
 - B. Dockless e-scooters and e-bikes: Atlanta; Austin; Baltimore; Boulder; Chicago; Denver; Fort Collins; Hartford; Long Beach, CA; Minneapolis; Nashville; New York City; Phoenix; Portland, OR; Sacramento; Santa Monica; Seattle; Spokane; St. Louis; Tampa; Tucson; and Washington D.C.
 - C. Dockless e-scooters and e-bikes for income-eligible program users: Atlanta; Austin; Baltimore; Boulder; Chicago; Denver; Fort Collins; Hartford; Long Beach, CA; Minneapolis; Nashville; New York City; Phoenix; Portland, OR; Sacramento; Santa Monica; Seattle; Spokane; St. Louis; Tampa; Tucson; and Washington D.C.
3. Using the average trip costs, NACTO calculated the cost of a 1.5 mile trip estimating that a 1.5 mile pedal bike trip takes 15-18 minutes (average speed of 5-6 miles per hour, including stopped time) and a 1.5 mile e-bike or e-scooter trip takes 12-15 minutes (average speed of 6-7.5 miles per hour, including stopped time). Cost ranges were calculated based on these trip length ranges and then rounded to the nearest \$0.25. All costs shown in U.S. Dollars.

REDUCED FARE OPTIONS:

4. The average cost (in U.S. Dollars) of discounted shared micromobility memberships was calculated using pricing provided by the following cities: Atlanta; Austin; Baltimore; Boulder; Chicago; Denver; Fort Collins; Hartford; Hoboken; Indianapolis; Long Beach, CA; Minneapolis; Nashville; New York City; Phoenix; Portland, OR; Richmond; Sacramento; Santa Monica; Seattle; Spokane; St. Louis; Tampa; Tucson; and Washington D.C.
5. The share of trips taken by people with income-eligible memberships was calculated using trip data provided by the following cities: Alexandria; Arlington; Boston; Boulder; Charleston, SC; Chicago; Cincinnati; Louisville; Milwaukee; Minneapolis; New Orleans; New York City; Oakland; Philadelphia; Portland, OR; San Francisco; and Washington D.C.

2022 TRAVEL PATTERNS BY HOUR:

6. Station-based members and casual trips by time of day were calculated with public data provided on Bluebikes, Bay Wheels, Bike Share Toronto, BIXI Montréal, Capital Bikeshare, Citi Bike, and Divvy websites. NACTO analyzed all trips taken in 2022, omitting all trips with a duration longer than 2 hours.
7. Scooter trips by time of day were calculated with data provided directly from Atlanta; Austin; Denver; Los Angeles; San Diego; and Washington D.C.

Acknowledgements

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