

2023 Rider Survey:

Building for A New Era

A message from Our CEO, Candice Xie

The shared micromobility industry is entering a new

era. Post-pandemic ridership is on the rise¹ as cities transition their micromobility initiatives from pilot phases to long-term programs. This transition is also putting the industry to the test as companies seek out business models and regulatory environments that support long-term viability.

Veo's 2023 Rider Survey Report provides insight into how micromobility can thrive in this new era. The report explores the travel needs of nearly 10,000 riders across 50+ markets where Veo has partnered with cities and universities to improve mobility and get more travelers out of cars and into the bike lane.

This report also highlights micromobility's untapped potential, showing how new vehicle types like seated scooters and throttle-assist e-bikes enhance accessibility. Meanwhile, Veo riders sent a message loud and clear that adding more protected bike infrastructure is the #1 way to make them feel safe. And the more people feel safe, the more they will ride.²

Our industry is still in its infancy, and the actions we take today will determine our ability to realize the benefits of micromobility at scale. Thank you for taking the time to read this report and learn with us as we shape the future of micromobility together.



Love, Veo

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About Veo

We're active in 50+ cities and universities

Veo is on a mission to end car dependency by making clean transportation accessible to all. We have provided millions of shared bike and scooter rides in 50+ cities and universities across North America and counting – and we're just getting started.

Veo operates with a set of values that distinguish us in the industry:

Financial responsibility: Veo partnered with select cities to achieve profitability before scaling. Our self-sustaining business model means cities can depend on our service now and into the future.

Strong community partnerships: We develop collaborative, long-term partnerships with cities and universities so we can work together toward a sustainable, safe, and equitable transportation future.

Continuous innovation: Veo's in-house design and manufacturing process enables us to constantly innovate and provide cities with the safest, most accessible fleet of bikes and scooters available on the shared-use market.





Why Do People Use Veo?

Overall Veo ridership increased from 2021-2022, bringing in new riders with a range of travel preferences.

Why do you use shared vehicles?

Participants could select more than one option.





"I like to feel safe while getting to my destinations while also getting there in a timely manner and with Veo I can do just that."

- Rider in the Bronx, New York City, NY

Sustainability

Veo's shared scooters and bikes are helping increase transportation access and get more people out of cars and into the bike lane.



What would people do if they didn't have access to Veo?

If on your most recent Veo trip you had not had access to Veo, what would you have done?	
Walked or taken public transit	55%
Traveled by car (private car, ride-hail/taxi, car share, or borrowed a car)	23%
Used another shared scooter or bike service	9%
Not taken the trip	7%
Ridden my bike	5%
Accomplished the intended task online (e.g., online shopping)	1%
Other	1%

Nearly a quarter of Veo rides replace car trips. This means Veo's shared scooters and bikes offset hundreds of thousands of car trips each year in an average-sized market.

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48% of riders in Seattle, WA

were able to drive less because of micromobility



52% of riders in Santa Monica, CA

were able to drive less because of micromobility



49% of riders in Newark, NJ

were able to drive less because of micromobility

Shifting more car trips to shared mobility

How can we keep up the momentum to shift even more car trips to shared scooters and bikes?



Welcome New Riders with Seated, Throttle-Assist Vehicles with Large Tires

We can encourage more people to use micromobility by incorporating seated, throttle-assist vehicles like the Cosmo in city fleets. Many traditionally underrepresented individuals like older riders and people with disabilities prefer this vehicle because it provides a greater sense of comfort, balance, and control. Riders also share that the Cosmo provides transportation access while they are managing sprained ankles, knee and hip injuries, and other temporary or permanent mobility impairments.

The Cosmo is also preferred for longer trips, with rides typically lasting one mile longer on the seated Cosmo than on standing scooters. Seated vehicles like the Cosmo are especially helpful for traveling longer distances at night and on weekends, when bus service is less frequent or in some cases not operating at all.

Expand Protected Bike Networks

It's been well-documented that protected bike lanes boost ridership, especially among historically underrepresented populations like older riders, women, people with low incomes, and people of color.² ³ Veo supports efforts by our city partners to enhance and expand protected bike infrastructure. Planners may also need to reassess bike lane design to accommodate new vehicle types. For example, designing wider bike lanes and paving lanes with smoother surfaces will help accommodate larger vehicles and vehicles with small wheels.⁴

Integrate Micromobility with Transit Systems

Better integrating micromobility with public transit fare systems will support first-last mile connections and help further shift people from cars to micromobility.⁵ Currently, **15% of riders use Veo for transit connections.** We can grow this number by making it easier for riders to connect to transit. Veo is proud to partner with the City of Seattle on a Department of Energyfunded pilot program that provides discounts and rewards for travelers who bike or scoot to transit.⁶

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Safety + Infrastructure

Riding with Veo is one of the safest ways to use active transportation. With vehicle speeds capped at 15 miles per hour, advanced suspension, bright LED lighting, and integrated turn signals, riders can use shared scooters and bikes at a steady pace while being able to see and be seen.

Safe infrastructure

Over two-thirds (71%) of riders feel safe or very safe riding with Veo, with approximately 99.99% of all trips completed without incident. While the vast majority of trips are completed safely, Veo stands firmly with our Vision Zero City partners in the belief that any incident is one too many. People on bikes and scooters are among the most vulnerable road users given the risk of injury by collisions with heavier, faster moving motor vehicles.

Our survey confirms that the most direct and immediate way to make riders feel safer is through city infrastructure improvements. About half of riders (47%) would feel safer if cities installed protected bike lanes and safer street improvements such as car-free or low-speed shared streets. When riders feel safer, they're more willing to ride: Industry research confirms that safe streets are key to getting more people out of cars and into the bike lane. 789

Education Mode

Education Mode limits vehicle speeds to 8-12 mph, allowing riders to start off slowly while they get used to the throttle and brakes.

What would increase your feelings of safety while riding with Veo? Choose as many as you like.	
Bike lanes and safer street improvements (eg. physical barriers separating bike lanes from traffic, car-free streets)	47%
Safety enhancements to Veo vehicles (eg. enhanced suspension, brighter vehicle lighting, blinkers on my vehicle)	41%
Ensuring cars are not blocking bike lanes	30%
Having vehicles available in central, well-lit locations	22%
Policies to create a safer riding environment for people using scooters and bikes (eg. speed camera enforcement for cars)	17%
Having the option to use a helmet that comes with the vehicle	17%
Reducing the potential of conflict with police/authorities	14%
Having a helmet that I own and bring with me to ride	11%
Ability to enable a slow riding mode that limits the speed of my vehicle	9%
In-app tips about safe riding	8%
Community education programs that teach safe riding practices	8%

Keeping sidewalks clear

Why do you ride on the sidewalk? Choose as many as you like. Responses from people who reported riding on the sidewalk	
The street feels unsafe or uncomfortable to ride in (fast-moving traffic/ cars blocking bike lanes)	68%
There is no bike lane available	64%
It feels smoother than riding on the street	20%
To navigate one-way streets	19%
Other	4%

In some cities, inadequate bike infrastructure leaves micromobility riders and pedestrians competing over limited safe travel space on the sidewalk. Riding on the sidewalk is prohibited in some Veo markets to ensure that local laws are upheld, keeping pedestrians safe and reducing the potential for conflicts with bike and scooter riders. However, the 41% of Veo riders who report riding on the sidewalk say they do so because of unsafe streets (68%) and lack of bike lanes (64%).

"In my Midwest city I'm sad to say pedestrians and people on bikes are at a disadvantage. Using the sidewalk is clearly the safest thing to do much of the time."

- Rider in the Midwest

What would encourage you to stop riding on the sidewalk? Choose as many as you like. Responses from people who reported riding on the sidewalk	
More protected bike lanes (where there is a physical barrier between the bike lane and main traffic lane) or car-free streets	73%
More unprotected bike lanes (where there is paint but no physical barrier between the bike lane and main traffic lane)	40%
Fewer cars/motorized vehicles in the traffic lane	33%
Slowing down the speed of cars/motorized vehicles in the traffic lane	15%
An audible notification from my vehicle prompting me to move off of the sidewalk	8%

Adding protected bike lanes and reducing the number of cars on the road would compel the vast majority of sidewalk riders (73%) to stop riding on the sidewalk. Only 40% of sidewalk riders say that unprotected bike lanes would dissuade them from sidewalk riding. This is definitive feedback that cities need to focus on quality of bike infrastructure design. City bike networks should be as strong as their weakest link - a single unprotected sharrow set-up could discourage an entire trip.

Parking policies

The top reason people use shared scooters and bikes is to get where they need to go quickly. When micromobility programs require riders to alter their trip (eg. requiring riders to walk a long distance to a parking corral) some travelers will choose other less sustainable modes, such as ride-hailing and taxis, to get around. Industry research confirms that parking restrictions can have the unintended consequence of reducing ridership. ¹⁰ The City of Saint Petersburg, Florida installed 130+ parking corrals to help riders easily access wellorganized scooter parking

What would make you more likely to end your trip in optional parking corrals on sidewalks or in
parking spaces? Choose as many as you like.
Responses from people who live in markets without parking requirements in placeA financial incentive (for example, \$1 off my ride to park in a recommended
parking location)76%

parking location)	
Increasing the number of recommended parking locations where I ride	43%
Clearer information in the app identifying recommended parking locations	36%
Improved signage to help me better identify recommended parking loca- tions	31%

In cities, car parking is available on most blocks and at most destinations. In order to make micromobility truly competitive with cars, parking for shared scooters and bikes should be just as convenient – or more convenient – than car parking. Veo encourages cities to make parking as easy as possible for riders. This entails installing parking corrals on every block, supported by financial incentives in the busiest and most dense areas to keep vehicles organized and ensure that shared scooters and bikes continue to be a convenient transportation option.

"Please eliminate parking zones. I want to park where my stop is, not blocks away and where I have to walk."

- Rider in Southern California



Safe vehicles

A portion of Veo riders (41%) shared that vehicle safety improvements would make them feel safer, in addition to street improvements and other desired outcomes. Veo has incorporated enhanced safety features to our latest fleets of vehicles, such as integrated turn signals, bright underdeck lighting, and dual front and rear suspension.

Veo trips on both standing and seated vehicles are extremely safe, with **approximately 99.99% of all trips completed without incident nationally.** Additionally, in line with safety studies from major urban markets like Oakland, CA, the vast majority of micromobility crashes that result in injuries involve another mode of transportation — i.e. a for-hire or private car.¹² This is why safety efforts must focus on physically separating micromobility users from car traffic.



Seated scooters experience 62% fewer crashes than standing scooters

Vehicle Type Can Also Affect Safety

While micromobility's track record over the past five years shows that scooter and bike trips are overwhelmingly safe, data indicates that vehicle type can also affect safety: Veo seated vehicles experience 62% fewer crashes than standing scooters. This feedback from the field aligns with rider feedback that the Cosmo seated scooter's large tires and lower center of gravity provides a greater sense of balance and control, especially for new riders who are unaccustomed to stand-up scooters. Riders also report finding the large tires beneficial for navigating common road conditions like potholes, rocks, and uneven surfaces.

Meet the fleet



Astro4

The Astro is Veo's newest stand-up scooter. The Astro 4 features the industry's first integrated turn signals and both front and rear suspension for a smoother ride with improved stability and control.

Cosmo2

The Cosmo 2 is Veo's second-generation seated e-scooter. The Cosmo 2 includes bright underdeck lighting for maximum visibility, integrated turn signals, an improved seat cushion, and more. The vehicle is designed to help riders travel longer distances while maintaining balance and control.





Apollo

The Apollo is the shared micromobility industry's first dual-passenger vehicle, a class 2 e-bike that can safely accommodate two riders or additional cargo storage. The Apollo features a throttle-assist motor, which allows riders of varying body types and abilities to get where they need to go without the need to pedal. The Apollo will debut in markets to be announced in early 2024.

Cosmo-e

The Cosmo-e is the first throttle-assist e-bike on the North American shared mobility market. The Cosmo-e has both an electric-assist throttle and pedals, giving users the option of pedaling or using the throttle to get where they need to go. The Cosmo e-bike is classified as a Class 2 e-bike.





Halo e-bike

Halo e-bike is built for durability and easy riding. Riders experience just the right amount of assistance thanks to an advanced torque sensor that automatically adjusts to the user's pedaling to assist them where needed. The Halo e-bike is classified as a Class 1 e-bike.

Halo pedal

The Halo is Veo's classic pedal bicycle. With a Shimano internal geared hub, tamper-proof solid tires, and a saddle to maximize comfort, riders use pedal power to get where they need to go.



Equitable Access

Cities and micromobility providers need to work together to ensure equitable access for all.

Increasing Access for Underrepresented Riders

Micromobility riders tend to skew young, male, affluent, and white. Meanwhile, riders aged 45+, women, people with low and moderate incomes, and people of color tend to be underrepresented.¹³ Ridership trends among other historically marginalized groups such as people with disabilities and nonbinary and gender diverse riders are unclear, underscoring the need for further research into the travel needs of these communities.

Many underrepresented riders cite lack of protected bike lanes as their main reason not to ride, indicating that the addition of protected, connected bike lane networks is central to increasing access. ¹⁴

Veo's survey data indicates that we can increase access further by incorporating more accessible vehicle types into city fleets, ensuring 24/7 access to micromobility vehicles, and offering income-based discount programs.



Increasing Access with the Cosmo

Veo's Cosmo series of seated scooters and class 2 e-bikes is preferred by the majority of Veo riders nationwide. Riders aged 45+, women and nonbinary riders, and riders with disabilities tend to prefer the Cosmo. Veo user research indicates the Cosmo's seat, large tires, and lack of a need to pedal make riders feel comfortable and safer traveling longer distances.



A third-party analysis by the New York City Department of Transportation found that Veo's Cosmo seated scooters are used **56% more often** than standing scooters¹⁵

Top Reasons Riders Prefer the Cosmo seated scooter and Cosmo e-bike



The Importance of Offering Mixed Fleets of Vehicles

The majority of riders have a preference when it comes to vehicle type: About half (53%) of riders will choose an alternative transportation option if their preferred Veo vehicle is not available. This is why it's important to offer mixed fleets of vehicles. Mixed fleets aim to offer something for everyone, from the nurse who wants a seated scooter after a long day standing, to the student who wants to use a standing scooter to get to class, to the parent who prefers a throttle-assist e-bike to make it home in time for dinner.



Riders on the older side of the age spectrum tend to prefer seated Cosmo vehicles, while younger riders prefer stand-up Astro scooters and seated Cosmos equally.



"I have back pain if I walk too much and Veo helps a lot."

- Rider in Toledo, OH

"Veo is a great option instead of walking with an arthritic hip."

- Rider in Sarasota, FL

"I'm disabled and lost my foot in the army so the bikes where you don't have to pedal are amazing."

13%

of Veo riders identify as

having a disability. The

majority of these riders

prefer the Cosmo.

- Rider in Seattle, WA

"I have had to accept that I am disabled in my early 40's. The seated scooter has helped me regain mobility, benefited my mental and emotional well being."

- Rider in The Bronx, New York City, NY



The Cosmo is the most popular vehicle type across genders, with the majority of women and nonbinary riders preferring the Cosmo.



Curfews and the need for 24/7 access

Providing access to shared scooters and bikes at night offers travelers mobility at a time of day when transit tends to be out of service or less frequent. Nighttime riding is permitted in the majority of Veo markets. In these markets, more than half (52%) of Veo riders report using shared scooters and bikes at night.

Curfews restrict transportation access for the **36%** of Veo riders who do not own or have access to a car

Some cities have implemented nighttime riding curfews with the intent of keeping riders safe. Such policies penalize people using scooters and bikes without addressing the root of the problem: the danger of motor vehicles and a lack of protected bike infrastructure.

How does your community's curfew affect your travel behavior? Choose as many as you like. Responses from riders who reported having a curfew in their local market	
I drive my own car or borrow/rent a car during curfew hours, or take a taxi/ ride-hail service (Uber, Lyft)	37%
I walk instead of using shared scooters/bikes during curfew hours	35%
I take fewer trips	26%
My travel is not affected by the curfew	25%
I take public transportation during curfew hours	13%
l use delivery services/order items online during curfew hours	9%
I ride my personally-owned bike or scooter during curfew hours	8%

Over one-third of riders report using a car during curfew hours. This is consistent with research indicating that curfews prohibiting nighttime riding increase car travel.¹⁶

Curfews Affect Rider Mobility At Night - Especially Women and Nonbinary Riders

Riders report using shared scooters and bikes to get home when walking long distances or waiting for a bus in the dark feels unsafe. Curfews disproportionately harm women, nonbinary, and gender diverse riders, many of whom report feeling unsafe walking at night and who are more likely to walk at night if they don't have access to micromobility.

"Veo gives me the option to get home safely when walking alone is my only other option."

- Woman riding with Veo in Charlottesville, VA

"I ride when I have to make it across campus and it is 8pm (when my class ends) and I feel vulnerable walking alone to a mostly empty parking lot. It helps me feel safe knowing I can speed away."

- Woman riding with Veo at the University of Alabama

"When I'm out late and there are no transit options to get home, Veo helps bridge transit gaps and makes me feel safe as a femalepresenting person."

- Nonbinary rider using Veo in Berkeley, CA

Ensuring affordable access for all

Veo for All

Offering affordable service is key to ensuring micromobility is competitive with cars and fully accessible to the communities we serve.

Half (51%) of survey respondents report that Veo has improved or slightly improved their ability to reach important places like school or work affordably. Of the remaining respondents, 42% said Veo has had a neutral impact on their expenses and fewer than 8% said having access to Veo has worsened or slightly worsened their ability to travel affordably.

Veo Access Riders

The Veo Access Program, which offers income-based discounts to riders, increases ridership among people with low incomes.

How has the Veo Access program affected your travel? Responses from Veo Access riders	
I use Veo more often	71%
Not changed	22%
I use Veo less often	7%



Riders in the lowest income bracket are more than three times as likely to report that having access to Veo is very important to them compared to riders in the highest income bracket.

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Demographics



Nearly 10,000 riders participated in Veo's second annual rider survey in fall 2022.



Do you identify as Hispanic, Latino, or Latinx?



Sensory (Difficulty hearing and/or seeing) Personal Care (Difficulty dressing or bathing)

Endnotes

¹National Association of Transportation Officials. 130 Million Trips Across the U.S. and Canada in 2022, September 2023, https://nacto.org/wp-content/uploads/2023/11/NACTO_sharedmicromobilitysnapshot_correctedNov3-2023-1.pdf

²National Association of City Transportation Officials. Equitable Bikeshare Means Building Better Bike Lanes, 2016, https://nacto.org/wp-content/ uploads/2016/07/NACTO_Equitable_Bikeshare_Means_Bike_Lanes.pdf.

³AARP. Bicycles Aren't Just for Kids. 2015, https://www.aarp.org/livable-communities/getting-around/info-2015/bicycles-bike-riding-older-adults. htm.

⁴National Association of City Transportation Officials. Designing for Small Things with Wheels, 2023, https://nacto.org/wp-content/ uploads/2023/03/WP_designing_for_small_things_with_wheels_FINAL_March1-2023.pdf.

⁵Boston Consulting Group. Putting Micromobility at the Center of Urban Mobility, 2022, https://www.bcg.com/publications/2022/the-future-ofurban-mobility.

⁶Seattle Department of Transportation. Bike & Scoot to Transit Rewards, 2022, https://sdotblog.seattle.gov/2022/11/08/bike-scoot-to-transitrewards/.

⁷Pearson, Lauren, et al. "Barriers and enablers of bike riding for transport and recreational purposes in Australia." Journal of Transport & Health, vol. 28, Jan. 2023, article no. 101538. ScienceDirect, doi: https://doi.org/10.1016/j.jth.2022.101538.

⁸Campbell, J. and McCann, B. "The role of bicycling for destination travel in Portland, Oregon." Journal of Transport Geography, vol. 95, 2022, https://pdxscholar.library.pdx.edu/usp_fac/123/.

⁹AitBihiOuali, Laila, and Joris Klingen. "Inclusive roads in NYC: Gender differences in responses to cycling infrastructure." Cities, vol. 127, August 2022, article no. 103719, https://www.sciencedirect.com/science/article/pii/S0264275122001585.

¹⁰Buehler, Ralph, et al. "An Exploration of the Decline in E-Scooter Ridership after the Introduction of Mandatory E-Scooter Parking Corrals on Virginia Tech's Campus in Blacksburg, VA." Sustainability, vol. 15, no. 1, 2023, p. 226. MDPI, https://doi.org/10.3390/su15010226.

"Veo data indicates that the implementation of mandatory parking corrals can reduce ridership by 20%

¹²Oakland Department of Transportation. "The Year in Review: 2019 OakDOT Shared Mobility Snapshot." June 12, 2020,

https://medium.com/oakdot/the-year-in-review-2019-oakdot-shared-mobility-snapshot-64f519aeeb60

¹³North American Bikeshare and Scootershare Association. 2022 Shared Micromobility State of the Industry Report. 2023, https://nabsa. net/2023/08/10/2022industryreport/

¹⁴National Association of City Transportation Officials. Equitable Bikeshare Means Building Better Bike Lanes, 2016, https://nacto.org/wp-content/ uploads/2016/07/NACTO_Equitable_Bikeshare

_Means_Bike_Lanes.pdf.

¹⁵New York City Department of Transportation. East Bronx Shared E-Scooter Pilot Report. 2021, https://www.nyc.gov/html/dot/downloads/pdf/ east-bronx-shared-e-scooter-pilot-report.pdf

¹⁶Asensio, O.I., Apablaza, C.Z., Lawson, M.C. et al. Impacts of micromobility on car displacement with evidence from a natural experiment and geofencing policy. Nat Energy 7, 1100–1108 (2022). https://doi.org/10.1038/s41560-022-01135-1