



How e-scooters are aligning with public transit

Cities reveal why integration
can drive more sustainable mobility

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Since July last year, transit users in Pittsburgh have been able to find a bus, bike, scooter, moped, car or shared ride using the Transit app or by visiting one of 50 new mobility hubs being rolled out across the city.

Called Move PGH, it is the first system in the US which integrates transit and shared mobility in both physical and digital mobility hubs and connects traditional and emerging shared transport options into a single system.

Karina Ricks, the former Director of Pittsburgh's Department of Mobility and Infrastructure, was part of the team that launched Move PGH in July 2021 and says too often the burden is on the transit user to figure out how to combine and work out a seamless trip.

Now the city is taking the lead by providing hubs, currently numbering 30, where all mobility options can be found. This makes it easier for people to leave the car and lower vehicle emissions as well as taking away users' transport insecurity.

"For example, if [a user] misses their bus, what do they do? If they get a flat tyre on their bicycle, what do they do? This programme is trying to build resiliency so people don't have to experience that insecurity," says Ricks.

Move PGH is operating as a two-year pilot and the results six months in are encouraging. A survey of users signed up to the programme said that if a scooter had not been an option, 28 percent would have driven another type of vehicle (moped, car share), 10 percent would have used a ride-hail service, and 10 percent would have driven a personal vehicle.

Interestingly for the city and scooter providers, 30 percent of riders say they have used scooters to link to public transit with 30 percent saying they would expect to do so soon.



"Part of this is keeping public transit as the backbone and the centre of shared mobility in Pittsburgh," says Tosh Chambers, Senior Programme Director, Move PGH. "Ultimately, we want to see less car usage and an increase in some of these alternative options."

To support this backbone, the vast majority of hubs are located around bus and light rail systems. Approximately 40 percent of all trips made in Pittsburgh cover less than two miles, and almost a quarter of the population do not own a car.

In the early survey results, Chambers reveals that pricing did come up as a main barrier and to help allay this, Move PGH incorporates a Universal Basic Mobility programme. It covers the cost of 100 monthly subscriptions for low-income residents who also receive "trip coaching" to ensure they know how to use the various services.

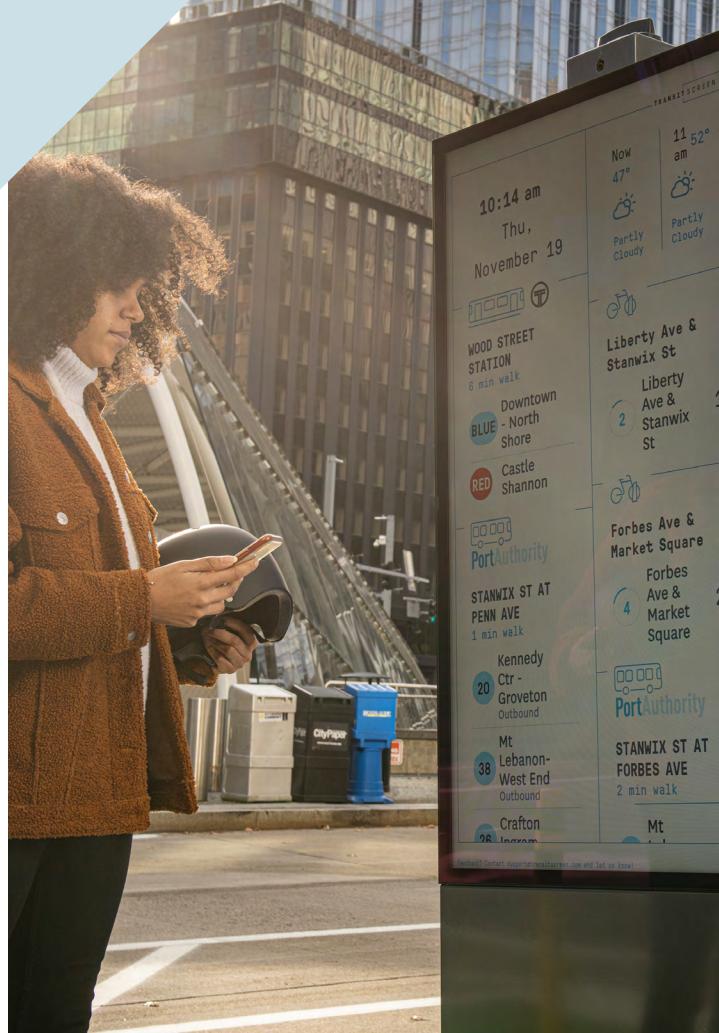
"We're looking at what would happen if people didn't have to worry about access to basic transportation and if they could reliably and resiliently get to where they're going," Ricks adds. "This is especially [true] for those on a low income who are kept in this cycle at the bottom."

Both programmes fit squarely into the city's equity principles which are centred on ensuring all residents can easily access fresh food, afford basic transportation and travel safely without relying on a car. Part of its strength, says Chambers, lies in the fact that only one operator for mopeds, scooters and car share is allowed in the city.

"Too often the burden is on the transit user to figure out how to combine and work out a seamless trip."

Karina Ricks

the former Director of Pittsburgh's Department of Mobility and Infrastructure



"When there is only one service provider or operator it's easier to manage them rather than having to herd them," he explains. "And we can ask them to make certain types of integrations like partnerships between transit."

Move PGH is now aiming to increase functionality and fare integration including to incorporate transit passes with scooter discounts.

"In a market where there is just one single provider, things can be pretty well organised, compared to five operators all wanting to make the most money and leaving scooters only around the hotspot areas in downtown or the entertainment district," adds Chambers.

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Seattle

In Seattle the city launched its scooter programme, Scooter Share, at the end of 2020 with four vendors who are required to deploy at least 10 percent of their fleet in the city's established equity zones.

Designated parking areas are located near light rail systems and if not, other geofenced parking areas are located at key locations across the city.

"We envision them as an integral part of the public transportation system," says Becky Edmonds, Shared & Micromobility Program Manager for the City of Seattle. "Although we still have a lot of work to do to truly integrate it we have great potential for last-mile connection."

Vendors are also required to operate a low-income plan that includes significant discounts.

Despite the equity zones covering public transit areas, Edmonds notes trip numbers in equity zones are lower than deployment numbers although it is still too early to say if the zones are bringing in more people.

"It's really about having more options for people and offering a lifestyle that you can get without having to own a car."

Becky Edmonds

Shared & Micromobility Program Manager for the City of Seattle



Becky Edmonds

Shared & Micromobility
Program Manager for
the City of Seattle

This year, her efforts will focus on engagement through events, working with community-based organisations and a focus on those equity neighbourhoods.

"There's actually a lot of benefit of giving people a hands-on experience and getting them to try out a scooter" she says. "Just by talking to them and giving them a helmet can allay some of their concerns and hesitancy. People just need time, exposure and experience practising and riding them to then hop on as an everyday experience."

Part of her engagement will focus on women. A survey revealed that having safe places to ride was a concern which, says Edmonds, has had an impact on women using scooters less than men (33 percent to 66 percent).

To reach out to new or curious riders, the city offered discounts for scooters to essential workers during the pandemic and also later for people going to their vaccine appointment.

Like other cities Edmonds' goal is to reduce car usage and ownership.

"It's really about having more options for people and offering a lifestyle that you can get without having to own a car," she explains.

Although Seattle's winters are typically mild compared to other cities, she is heartened to hear that trip numbers are increasing and back to where they were in the summer. One vendor noted that even in January 50,000 rides took place.

Better fare integration is an impediment to more multimodal use, notes Edmonds.

"The standard price for a 15-minute trip is about US\$6, whereas public transit is US\$3," she says. "If you transfer from a bus to a train, we offer a free transfer as it is integrated, but the scooter isn't. In the long-term having an integrated transfer would be beneficial but the problem is setting that rate lower which would involve subsidies."

Increasing use of intermodal transit

Pittsburgh is one of many cities that are looking to bring scooters into a more formalised partnership so that they become integrated with and boost their transit ecosystem to achieve mobility and climate goals.

Industry body, NABSA, which represents bikeshare and scooter share operators, reveals in its latest *State of the Industry Report* that during the pandemic, 55 percent of operators worked with transit agencies to fill gaps left by transit service reductions and that this helped facilitate better relations and a path to more intermodal connection.

Likewise, 50 percent of riders reported that they use shared micromobility to connect to transit and that 16 percent of all shared micromobility trips were for the purpose of connecting to transit.

"As soon as lockdowns were over, we saw a rapid increase in ridership across micromobility in North America," explains Sam Herr, Executive Director, NABSA. "By the end of 2020 this had recovered to 20 percent of the previous year's level and continued to rapidly grow through 2021."

As well as an increase in use, Herr notes that there has been a shift in the type of user and that scooters complement the transit ecosystem as they also attract people who are perhaps not interested in bikeshare or other modes. The report backs this up by noting that half of agencies and operators reported an increase in first-time riders.



Sam Herr

Executive Director,
NABSA



Superpedestrian reveals that five to six out of 10 LINK scooter trips are not related to tourism and in Lisbon it was discovered that 23 percent of all trips averted a car journey and in San Diego 32 percent of trips replaced a car trip.

For Spin, responses from 67,000 users reveal that 25 percent of trips replaced private or rideshare car trips and, in more car-centric infrastructure and land-use patterns like Los Angeles, a higher level of 30 percent was found.

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Milwaukee

When Milwaukee changed the size of its three large zones where scooters could operate into a smaller but larger number of zones (with an increase in fleet size from its three operators), the city saw a big increase in scooter usage.

In 2019 one of the city's explicit goals was to help connect scooters to public transit, but like other cities, Milwaukee says it is too hard and too early to tell if scooters are achieving this. More so now, as the second pilot has since concluded.

"How do we actually figure that out?" says Kate Riordan, Senior Transportation Planner, City of Milwaukee. "In Milwaukee a lot of our scooters are concentrated in areas where there's higher and better access to transit and I see them as being useful for that first and last-mile connection."

Part of the frustration is figuring out the right number of scooters, where to deploy them, and working out where people need them.

"I think looking forward 10 years from now scooters will play an important part in the transportation mix and options," she says.

On Riordan's wish list if scooters are brought



back to her city is for operators to partner with the city's bus system which is run by the county, to figure out where scooters are most needed to help people connect to their destination. It would help increase usage for both, she says, as the bus system, post COVID, faces added budget pressures.

This year, Riordan is working through the evaluation of the pilots to hopefully offer a permanent licensing programme. In 2021 as part of the pilot evaluation a survey was conducted that found 16 percent of riders connected to transit and although 39 percent said their last scooter trip replaced walking, 22 percent said the scooter replaced a car trip.

As in other cities, pricing of scooters and lack of transfer and fare integration is off putting for a lot of people.

Riordan notes this is a major hurdle for increasing multimodal use.

"It would be great to have some kind of integration of not only scooters in transit but also our docked bike share," she adds. "It's all about making it easier for people to use."



Kate Riordan

Senior Transportation Planner, City of Milwaukee

She would like to see scooters brought back with integration but is frustrated by the fact that those who are against scooters are more vociferous than those who support them.

"People riding them and enjoying them are not communicating with politicians to say they like them," she says. "There's only so much I can do as a city staff member to advocate for scooters and greater multimodal use."

"Looking forward 10 years from now scooters will play an important part in the transportation mix and options."

Kate Riordan

Senior Transportation Planner, City of Milwaukee

New customers and more equity

"We're seeing a shift from just fun, which is how they were initially viewed in 2017 to becoming a really useful service," says Joanna Jacob, Senior Manager, Superpedestrian. "About two-thirds of our trips are not for recreational use, they are used for commuting to work, to school and to meet friends and family. They are used to connect to transit."

Of course it is good business practice to entice new customers and go beyond the early adopters or younger population. It's also important for cities and public transit agencies that scooter providers help them meet their equity objectives, particularly for those cities with under-resourced public transit and where scooters may bring in new public transit users.

In San Diego, Superpedestrian runs a community engagement programme to reach out to low-income groups and others. Home to a large naval base, a programme called LINK Serv targets the active and retired military population to receive annual discounts of 30 percent. Another called LINK-Up, is aimed towards anyone who is receiving government assistance and provides a discount.

"Users in both of these programmes connected to public transit more than users without these discounts," she adds. "In fact, in a recent survey, LINK-Up and LINK Serv riders were over 10 times more likely to say they use scooters to connect to 'get to a transit stop' when asked what their typical scooter trip purpose was."

Another valuable aspect of scooters compared to some mass transit options is that they are available all day and night in the cities that allow for 24-hour operations.

"Our service is 24 hours," says Jacob. "We've heard from a number of riders who work odd hours, overnight, or early in the morning, and scooters mean they can get to and from work."

One complaint however from users and commuters wanting to use a scooter to connect to public transit is that they cannot reserve or



Joanna Jacob
Senior Manager,
Superpedestrian

hold a scooter. A scooter might be available at the beginning of their trip to connect to say light rail but at the end of their working day when they get off the light rail, a scooter may not be there.

This is one of the barriers to better intermodal use identified in an Institute for Transportation and Development Policy (ITDP) report, *Maximising micromobility*, which highlights the need for physical integration, payment and fare integration, informational integration and institutional integration.

According to Dana Yanocha, Senior Research Associate for ITDP, not all the roadblocks can be laid on scooter providers.

"We think there is a role for scooters in the sustainable transport landscape," she explains. "But it's really important for cities to understand what scooters can and ultimately can't do."

Physical and fare integration

"There needs to be a push from the city to prioritise integration," explains Yanocha. "Otherwise, if it is just left up to the operators or users to figure out how to link different modes together it's confusing."

This includes the need to provide physical infrastructure for different transport modes in close proximity, which can cover shared micromobility parking at public transit stations, protected lanes that connect to transit stations, e-bike charging, covered parking and bike lockers. Essentially, making things easier and more competitive compared to driving.

One of the biggest barriers to seamless multimodal use is allowing users to reserve, transfer and pay for multimodal trips and avoid the sting of having to pay for the one trip twice.

"Riding an e-scooter to a public transit station every day to go to work, means you are essentially paying twice," says Yanocha. "You're paying for the scooter trip and then the public transit fare which is not really affordable for people on an everyday basis. Increasing uptake and multimodal use is not realistic without some sort of fair integration with transit."

Becky Edmonds, Shared & Micromobility Program Manager for the City of Seattle believes setting fares lower or integrating further would mean cities would have to subsidise fares.



Dana Yanocha
Senior Research
Associate for ITDP





Robin Chase

Founder, New Urban Mobility Alliance

"Politically I don't know if that is feasible," she says. "Most cities are glad scooter programmes are self-sustaining through their own permit fees. There doesn't seem to be an appetite for broad subsidies."

Complex technical aspects related to further fare integration also add challenges including legacy payment systems that don't allow for new types of operators to be added to the system and questions over ownership of information and liability.

"Payment integration is the holy grail for micromobility," says Superpedestrian's Jacob. "It's never easy to integrate the backends between public transit systems and a private company because everybody's technology and payment processing is different. But mass transit and the micromobility industry have become closer and the ability to integrate is more feasible than before."

Yanocha compares scooters with city-operated bike share programmes whereby cities like Pittsburgh offer a free bike share ride if the user is coming from or going to transit. This has helped increased ridership. Other cities have implemented similar schemes but only because they have ownership of both systems.

Robin Chase founder of the New Urban Mobility Alliance, believes mass transit operators and cities are missing a trick with their advertising space.

"The ability to advertise those scooters at relatively low cost and maybe even no cost is a gigantic,



enormous asset," she explains. "The number one thing they could be doing—and I'm sure scooter companies would give—is a trade of free rides to and from subways in exchange for advertising on public transit."

As the co-founder and former CEO of Zipcar, Chase knows what it is like being an operator and reminds cities that while scooters are playing a role in the transit ecosystem, they still need to be financially viable.

"Scooters provide a benefit to the city but they also need to consider the financial model of the operators, particularly when identifying equity or subsidised areas."

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Pittsburgh

Move PGH is the city's flagship programme to support its transit and equity principles and was developed over two years by bringing together a mix of public-private and non-profit partnership.

Led by the Department of Mobility and Infrastructure it builds around existing foundational systems of public transit and bike share that integrates new "last mile" service providers through its Mobility Hubs. This includes:

- A fleet of scooters provided by Spin
- Expanded carshare services by Zipcar
- A fleet of electric mopeds by Scoobi
- Carpool matching and commuting services facilitated through Waze Carpool
- Electric charging for e-scooters provided by Swiftmile
- Real time transit and mobility information on TransitScreens at mobility hubs
- Trip planning and most trip booking through the Transit app.

Twenty percent of the Mobility Hubs must be located in equity areas, and are chosen from census data including income and ethnicity. Another 20 percent are placed throughout the city where there are transit gaps.



In addition to improving transit flexibility, Move PGH and the Universal Basic Mobility will test whether reliable access to transit and a range of shared mobility options improves employment and health outcomes for low-income households.

"At the end of the two years we will be assessing not only the mobility hubs, scooter programme and others, but also the general structure of the partnership," says Tosh Chambers, Senior Programme Director, Move PGH. "We expect to keep the parts that we believe are working well and sharing this with other cities which show interest."



Tosh Chambers

Senior Programme Director, Move PGH

"Part of this is keeping public transit as the backbone and the centre of shared mobility in Pittsburgh. Ultimately, we want to see less car usage and an increase in some of these alternative options."

Tosh Chambers

Senior Programme Director, Move PGH

Informational and institutional integration

Clear, easily accessible information that is needed to make multimodal trips is still a barrier, according to the ITDP. Ideally housed in one space or one app, such as Citymapper, Transit or Moovit, the user feels more comfortable using different transit modes to get around. This includes wayfinding signage, mobile trip planning applications and multimodal maps in public transit stations.

Essentially it is about improving the ability to access the places that people want to get to.

Better cooperation between different agencies, government and external partners is also needed to increase support to multimodal transport, including between municipalities and counties. This can include multi-municipal service areas, multimodal management by one entity and multicity pilots. Sebastian Castellanos, Senior Research Associate, NUMO Alliance, WRI Ross Center for Sustainable Cities, recognises a similarity to the rise of scooters to his own country, Colombia, in relation to buses.

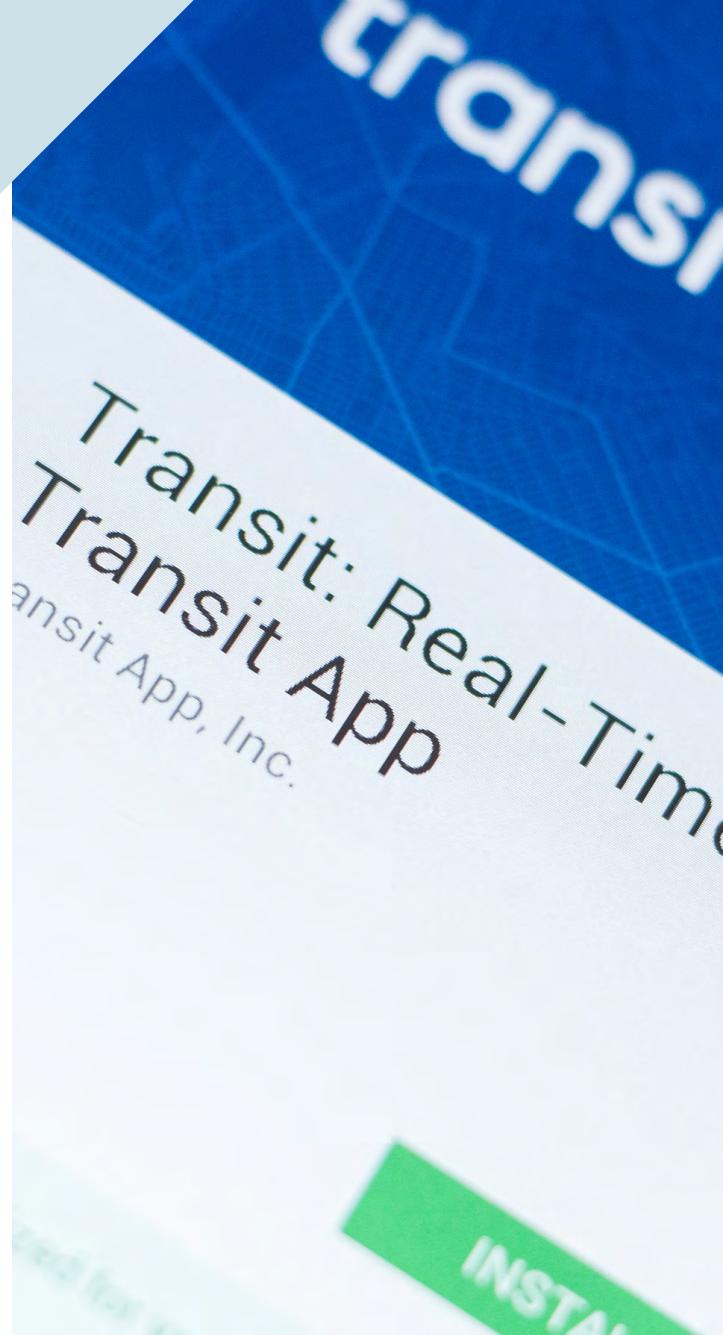
“Up until seven years ago, anyone could buy a bus and enter the market,” he says. “The evolution of public transit has moved from an open market, completely deregulated, to something that is not fully regulated.

“It is now more of a middle ground where the private sector can still innovate and provide the service with good oversight from the public sector. You can find the right mechanisms to align that cooperation and those private companies towards a city’s goals.”

“Scooters are one more option in a sustainable transport network.”

Dana Yanocha

Senior Research Associate for ITDP



Sebastian Castellanos

Senior Research Associate, NUMO Alliance, WRI Ross Center for Sustainable Cities

What is the ultimate goal?

Debate arises around multimodal use and trip replacement. Some argue that scooters are replacing healthier modes of travel like cycling and walking but others state the ultimate goal is to reduce car use and car ownership even if scooters are affecting active travel and public transit.

In a study released in 2021 by ETH Zurich, a public research university, academics analysed 19 reviewed studies on trip replacement and found e-scooters replace walking most (43 percent), followed by taxis/ride sharing (22 percent) and private cars (13 percent). In Paris they found scooter trips replaced public transport by 37 percent and in Oslo 23 percent.

NUMO's Chase says attention should be paid to the impact multimodal use has on vehicle miles travelled (VMT).

"If people sell their car and even if they use ridesharing, they reduce their VMTs by 40 percent," she says. "If you can ever have an impact on reducing car ownership and usage that has huge implications, much beyond the small percentages of trips replaced with micromobility."

Similarly, Yanocha believes it is still a gain even if they are not going to replace all car trips.

"Micromobility has really opened people's eyes to other options," she says. "Scooters are one more option in a sustainable transport network and even if e-scooters replace one kilometre that would have otherwise been a car trip, that definitely feels like a win."

Jacob from Superpedestrian argues that the healthiest thing that can be done for urban transport is to limit car use, ease overall congestion, reduce car accidents and mitigate rider, driver and pedestrian injuries. Indeed, Pete Buttigieg, the US transportation secretary, called the road death toll, which is claiming the lives of about 3,000 people a month, "a national crisis" and has unveiled a new road safety strategy to reduce traffic fatalities.



"Every scooter trip begins and ends with a walking trip," adds Jacob. "Especially in cities with designated parking locations. We are helping folks choose the right mode for a given trip."

Data is still being collected as cities and providers experiment further to find a perfect operating balance between carrots and sticks to unleash operators' potential but also to align their goals with city goals.

"It's not a matter of pitting one form of transport against the other but rather how scooters can complement and show the future of non-car ownership and what non-car use might look like," explains NUMO's Castellanos. "It's about providing those alternatives that people need to feel comfortable with if they are leaving their car behind or selling it. That should be the goal."



Madrid

E-scooters first arrived in the Spanish capital in 2017 and quickly grew as demand increased.

Pedro Fernando Lopez, Head of Mobility and Environment, City of Madrid says: "In the first moments of the arrival of e-scooters in Madrid, they complemented the intercity (regional) transport services of Madrid. In Madrid there are several transport interchanges. In them, you can take different railway or bus lines to the other municipalities of the Madrid Region. Certain people approached these interchanges by e-scooter, which complements mass public transport."

He notes that demand for scooters is higher in summer and in good weather but in winter, due to the low temperatures in Madrid, demand is reduced.

During the early stages of the pandemic e-scooters didn't lose many of their users, who commuted to work or run errands, as they were avoiding public transport for fear of the virus.

"However, it seems that its use is restricted to a group of people, mostly men, aged between 25 and 45 years old," he adds.

Also, with people working from home, it is not



Pedro Fernando Lopez

Head of Mobility and Environment, City of Madrid

profitable for users to pay the monthly or annual transport subscription as they have fewer trips meaning that intermodal use has dropped significantly.

"Even people who used to buy a transport pass to go to work no longer do so," he comments. "This has cut off more people, especially men, from the use of mass public transport, so they use these e-scooters for separate trips to complete other tasks in the city or to meet their friends."

As Madrid recovers from the pandemic and the city further analyses public transit

ridership—currently at its lowest level since the 1990s—a new national ordinance law set to come into place in 2023 may further restrict the use of scooters and their intermodal potential.

"The planned new law will set standards for safety and design for scooters and other micromobility services," he adds. "Only about 10 percent of privately owned scooters will meet the new standards. But I believe there will be some flexibility in the law so that e-scooters can continue to play a role and complement public transit."

"Certain people approached these [transit] interchanges by e-scooter, which complements mass public transport."

Pedro Fernando Lopez

Head of Mobility and Environment, City of Madrid