

THE FALSE PROMISE OF MICROTRANSIT

Amalgamated Transit Union

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As transit systems across North America work to recover from the COVID-19 pandemic, many have struggled with funding shortfalls, decreased ridership, changed commuter patterns, and operator shortages. In response to these challenges, transit agencies and government leaders have increasingly turned to microtransit as a quick fix to keep service on the road and attract new riders.

But whether it's improved efficiency, equity, or environmental benefits, microtransit fails to deliver. Like other technology fads, the reality is less impressive and more expensive than the marketing suggests. Chris Van Eyken, Director of Research and Policy at TransitCenter, has noted that "…projects have not lived up to their promises."[1] As transit agencies and policymakers evaluate microtransit service, it is critical that they understand its shortcomings:

- **Microtransit cannot efficiently scale to meet increased customer demand.**
- **It has been shown to serve a younger, more affluent, and less diverse ridership than fixed route service.**
- **Its environmental benefit is doubtful.**
- **It encourages cost cutting through privatization and the degradation of transit jobs.**

Transit agencies need to address the challenges of the post-pandemic landscape with long-term solutions. Rather than throwing good money after bad with microtransit, agencies in the U.S. and Canada should take real steps to address the operator shortage and invest in good careers for transit workers.[2] A stable and reliable workforce is the foundation of dependable service.

Microtransit is an app-based, on-demand service that operates like transportation network companies (TNCs) such as Uber and Lyft. It typically offers passengers on-demand, point-to-point service within a defined geographic boundary using sedans, vans, or cutaway buses. Microtransit fares tend to be comparable to bus fares despite the substantial subsidies the service requires to cover operating costs. While it can be used to connect to existing fixed routes or to expand service coverage, microtransit sometimes competes with, or replaces, existing fixed routes.

Beyond improving working conditions for operators, agencies must undertake projects that make fixed route and complementary paratransit service more attractive and easier to use. Given how travel patterns have changed in recent years,[3] fixed routes need to be analyzed and reconfigured to better serve passengers' needs. Instead of wasting grant money on the latest tech fad, agencies should invest in reducing headways, improving pedestrian connections to stops, building better bus shelters, and prioritizing real-time scheduling upgrades for paratransit riders.[4]

Microtransit Cannot Efficiently Scale Up

A fundamental problem with microtransit is that it cannot be scaled up to provide a true mass transit service. The reason for this is simple: the very features that make microtransit appealing to some riders – small vehicles and personalized, door-to-door service – prevent it from realizing the efficiencies enjoyed by a fixed route bus. Consequently, on a per-passenger basis, microtransit can be up to two to three times more expensive than fixed route bus service.[5]

> *"Admittedly, microtransit has so far proven to be more expensive on a per-person basis than traditional transit. Even some of the lowest-performing bus routes in cities have lower subsidies per person than microtransit."*
>
> *– Joshua Schank and Emma Huang, InfraStrategies*

In Los Angeles County, the per-passenger cost of the Metropolitan Transportation Authority's (LACMTA) microtransit pilot ballooned to almost eight times that of the agency's low performing fixed routes in 2023.[6] And despite a boastful April 2024 announcement about cost cutting, the service remained more than three times as expensive as LACMTA's low performing fixed routes.[7] Even microtransit's industry backers admit that it's more expensive.[8]

Whereas the operating cost of a fixed route bus decreases with the addition of each new passenger, the cost to transport each additional microtransit passenger is roughly the same as the first. A fixed route bus can easily take on more riders as demand increases, but due to limited vehicle capacity and individualized routing, an increase in microtransit demand requires that more vehicles and operators be put on the road. This undermines any potential for economies of scale. As long-time transit consultant Jarrett Walker has said, "ridership is the death of flexible service."[9]



Microtransit tries to overcome this constraint by grouping multiple passengers into shared rides with proximal destinations. The industry refers to this as "dynamic routing," a process by which pickup and drop-off routes are grouped algorithmically by their geolocation.[10] In practice, however, microtransit struggles to realize efficiencies due to the sheer number of possible trip paths.

This problem is evident across numerous locations. LACMTA's pilot only managed to provide 50-60% of trips as shared rides as of 2023.[11] In Montgomery County, Maryland, the microtransit service averaged only 1.14 riders per trip in 2019, and 90% of all trips served only one passenger.[12] An operator from Montpelier, Vermont colorfully described his firsthand experience with this problem: "We never have more than two people on the bus at the same time...All day long, I'm running around like a chicken with its head cut off. Nobody's going in the same direction."[13] Even if microtransit services could successfully group passengers together, the vehicle size remains a limiting factor that prevents significant ridership levels.



In Lancaster, Pennsylvania, the Red Rose Transit Authority's (RRTA) 2024 service analysis highlighted microtransit's limitations. The agency estimated that the proposed microtransit service would only carry four to six passengers per hour. In comparison, RRTA's poorest performing bus routes transported at least nine passengers per hour. Executive Director Greg Downing noted that, "Experts are looking at microtransit as, 'Hey, that might not be as efficient an option for our transportation dollars.'"[14] RRTA's estimates reflect the experience of Park City, Utah, where the city's microtransit pilot averaged only 4.5 customers per revenue hour from November 2023 to March 2024. Park City's fixed route buses averaged approximately 25 customers per revenue hour over the same period.[15]

Microtransit Cannot Sustain Quality Service

Due to the budget-busting nature of microtransit, transit agencies are sometimes forced to make tradeoffs that degrade the quality of service. In some cases, transit agencies have attempted to restrict demand to control costs by charging higher fares commensurate with premium point-to-point service. For example, in Johnson County, Kansas, microtransit fares climbed from $1.50 at the outset of the service to $3 or $5, depending on the zone in 2022.[16] As of January 2024, the cost had increased again to $5 for trips up to five miles plus $2 per mile for each additional mile. The county hoped the fare increase would make microtransit more reliable and consistent.[17]

On the other hand, if an agency neither regulates demand by increasing fares nor puts more vehicles into service, frustrated passengers will suffer with longer wait times and rejected trip requests. In Los Angeles, California, a cheap $1 microtransit trip (compared to a $1.75 fare for fixed route bus or rail) resulted in about one third of trip requests being cancelled due to there being no vehicle available.[18] In Minneapolis, Minnesota, capacity denial approached 20% of trip requests as of September 2023, which ultimately required the agency to increase fares to tamp down demand.[19] In Albany, New York, multiple microtransit zones were condensed, and walk-up rides were eliminated to improve wait times for customers.[20]

In March 2023, Park City's limited microtransit pilot expanded city-wide based on assumptions that the service area could be increased by 184% without incurring additional operating costs. However, the expansion predictably resulted in "…deteriorating service responsiveness and reliability." From November 2023 to March 2024, 91% of all rides originated from areas with "adequate or relatively high levels" of fixed route service. Trips that could have been fulfilled by efficient fixed routes were shifted to costly microtransit, burdening the expanded service. As a result, 20% of microtransit trip requests went unfulfilled in two neighborhoods with limited fixed route options. The average wait time for all microtransit trips reached 27 minutes despite an informal goal of 15 minutes, and 28% of trips had wait times between 30 and 60 minutes. City staff described the wait times as "unacceptable…especially considering the frequency of fixed transit routes." Staff also noted that long trips were "…not desirable, especially in instances where customers hope to generally arrive at a certain time."[21]

If passengers cannot reliably secure a ride, they will find ways to book multiple trip requests. While this might increase an individual's chance of getting a ride, it can burden the system and degrade service for everyone else. In Johnson County, Kansas, this practice resulted in roughly 19% of booked trips being customer no-shows.[22]

Transit agencies should not tolerate poor service quality for the sake of supposed technological innovation. According to David Zipper, Senior Fellow at MIT, "[M]icrotransit's hype might be justified if transportation budgets were unlimited. But that is not the world we live in."[23] Carrie Kisicki from the Coalition for Smarter Growth pointed out that while riders could be seduced by the allure of calling a bus where and when it's desired while being unaware of the operating cost, transit agencies must account for the fiscal impact of microtransit.[24]

SouthWest Transit in Minnesota heeded this advice when it resumed fixed route bus service in a popular microtransit corridor in 2024, saving $80,000 in operating costs.[25] Similarly, the Park City Council chose not to renew its microtransit contract in April 2024 and instead directed transit staff to develop new fixed routes for underserved neighborhoods.[26] City staff estimated that three new bus routes would cost approximately $836,000 annually, $664,000 less than the microtransit program, and approximately $2 million less than the investment needed to bring microtransit service quality up to the city's expectations.[27]

Microtransit's Mixed Record on Equity

Proponents of microtransit claim that it advances equity by increasing access to transit in underserved communities. Unfortunately, the service has the potential to reinforce existing inequities, harming the most disadvantaged transit riders. For example, LACMTA's published demographic data indicates that its microtransit pilot is being utilized by a population that is whiter than the agency's fixed route transit ridership. Microtransit riders are 40% Latino, compared to 58% of fixed route bus and rail ridership. Ten percent of microtransit riders are Black, compared with 14% using fixed routes. White people comprise only 12% of fixed route bus and rail riders but account for 28% of microtransit riders.[28] Further, LACMTA found that only 19% of microtransit riders had an annual income of $15,000 or less, compared to 40% for the agency's overall ridership. Overall, about 80% of LACMTA's fixed route bus riders are considered low-income.[29]

Los Angeles Supervisor Hilda Solis also noted that LACMTA survey data showed that over 70% of microtransit riders were under the age of 45. On the other hand, more than half of fixed route bus and rail riders were 45 or older.[30] This troubling age difference could reflect a technological barrier for older riders. Investing in fixed routes would have done far more to improve transit equity in Los Angeles County than the microtransit pilot.

It is not surprising that individualized, door-to-door service would appeal to a broad array of people, but it is important to note that microtransit does not inherently improve transit equity for disadvantaged communities. In Park City, Council Member Bill Ciraco met a resident who frequently used microtransit to go to dinner at the Park Meadows Country Club. Ciraco noted that, "This is not someone who needs [microtransit] service."[31]

When it comes to accessibility, microtransit is neither required to meet strict Americans with Disabilities Act (ADA) requirements for paratransit service,[32] nor is it required to be complemented by true ADA compliant service the way fixed routes are. As a result, microtransit does not provide guaranteed rides to people with disabilities that they can count on to get to scheduled appointments or their workplaces. The significant rates of trip denials in cities like Los Angeles and Minneapolis demonstrate as much. **Rather than spending resources on microtransit services that compete poorly with fixed routes and may be provided without accessible vehicles, ADA paratransit services should be prioritized for upgraded real-time routing and on-demand dispatching technologies.**[33]



A paratransit rider in Ottawa, Ontario recently called his city's microtransit pilot a "kick in the teeth" for him and his fellow paratransit riders who have been fighting for on-demand booking. The pilot will use vehicles from the paratransit fleet to provide microtransit service, while paratransit-dependent riders are still required to book at least a day in advance.[34] Modernizing ADA paratransit should be a significant element of transit agencies' larger equity framework rather than investing in limited microtransit pilots.

As discussed, increased microtransit demand can often result in increased fares or outright service denial, negatively impacting the very riders that transit agencies say they are trying to serve. Improving equity in public transit requires that service be reliable and affordable for marginalized members of our communities, including older populations, people with disabilities, and low-income riders.

Microtransit's Environmental Impact

The U.S.[35] and Canadian[36] federal governments and a number of U.S. states[37] have adopted ambitious goals to achieve net zero emissions within the coming decades. While the transportation sector broadly is a leading emitter of greenhouse gases, buses specifically account for a very small share of the industry's emissions.[38] Passenger cars and light-duty trucks (including pick-up trucks, SUVs, and minivans), by contrast, account for more than half of all transportation related emissions in the U.S.[39] The reduction of vehicle miles traveled in personal vehicles, therefore, is an urgent and difficult task for policymakers to address. There is growing consensus that expanding public transit infrastructure and operational capacity is required to meet our collective climate goals.[40]



The scale of this challenge has pushed decisionmakers to think broadly about new ways to encourage "mode shifts" among the traveling public.[41] In this context, microtransit has been promoted to reduce emissions, but transportation experts have been ambivalent about the mode's potential climate benefits. When backers of microtransit in Annapolis, Maryland touted 1,700 rides in the program's first two months, Cinzia Cirillo of the Maryland Transportation Institute at the University of Maryland pointed out that that figure "would be surely less than one percent" of total rides in the city and "…won't have a large effect on the overall mobility or the greenhouse gas emissions of even a small place like Annapolis."[42]

Theoretically, as a first/last mile service that facilitates access to fixed route bus lines and rail stations, microtransit could serve a productive role in reducing emissions. However, as a competitor or substitute for fixed route bus service, microtransit is likely to do more harm than good as increased demand for the service requires more small vehicles for low-occupancy trips.

The claims made about microtransit's supposed environmental benefits are reminiscent of those previously made by TNC companies. Unfortunately, on-demand, ride-hailing services like Uber and Lyft have been shown to increase both total vehicle miles traveled (VMT) and carbon emissions.[43] While some passengers might use their personal cars less, ultimately, the miles traveled on TNC services completely offset any reduction of personal car travel. Researchers estimate that the average TNC trip produces roughly 69% more emissions than the trip it replaces.[44] We can expect microtransit to produce similar results.

Even if proponents attempt to greenwash[45] microtransit service by pointing to the potential deployment of electric vehicles, the impact of VMT on traffic congestion, road construction, and collisions is likely to offset any benefit.[46] When it comes to tackling climate change, there really is no substitute for fixed route buses. One bus with an average passenger load emits 33% fewer emissions per passenger than a single-occupancy vehicle. This environmental benefit grows as the number of passengers grows. A bus with a full passenger load emits 82% fewer emissions per passenger than a single-occupancy vehicle.[47] **Getting more passengers onto fixed route buses is the best path to reduce emissions via public transit.**

Microtransit Leads to Privatization and Worse Working Conditions

Jobs in the public transit industry are heavily unionized, providing good wages, benefits, and retirement security to thousands of workers. Bus operators and mechanics are highly skilled and licensed professionals who often have multi-decade careers and contribute to their local communities. While microtransit proponents say a lot about the supposed equity benefits for riders, they are notably silent about the impact microtransit service has on the quality of transit jobs. The reason is simple – because transit industry operating costs are mostly labor, the best way to save money on microtransit service is to pay drivers less.[48] **Microtransit companies often rely on so-called independent contractors to avoid paying guaranteed wages, dodge basic employment benefits, pass on operating costs to the workers or local governments, and increase profits. Unfortunately, even when the service is operated by the existing transit workforce, employers seek to create tiered job classifications with lower wage rates and fewer health, safety, and training standards for microtransit operators.**

Transit agencies typically contract with microtransit companies either for software services or "turnkey" operations. When microtransit companies serve as "turnkey" operators, they are responsible for providing operators as well as the software platform. Like Uber and Lyft before them, microtransit companies, such as Via Transportation or RideCo, typically recruit independent contractors directly or partner with companies that rely on independent contractors as well, like taxi companies. **From Sarasota[49] to San Antonio[50] to Green Bay,[51] agencies have eliminated directly operated bus service in favor of microtransit operated by independent contractors, thereby reducing opportunities for good jobs with long-term career potential and replacing them with gig work.**

Independent contractors are denied employment benefits such as wage and hour protections, anti-discrimination protections, workers' compensation, unemployment insurance, and the ability to form or join a union.[52] Nor do they enjoy employer contributions toward health insurance or a retirement plan. Additionally, independent contractors might be required to pay out of pocket to lease[53] and fuel their vehicles and cover the full Social Security and Medicare payroll tax contributions that would otherwise be split between an employer and its employees. Uber and Lyft, often accused of exploiting independent contractors,[54] recently threatened to cease operations in Minneapolis, Minnesota after the city council voted to require that TNCs guarantee driver pay equal to the city's minimum wage.[55] This is indicative of the overall treatment of independent contractors in the industry.



Microtransit companies also seek to undermine the existing transit workforce through the deployment of autonomous vehicles (AVs). May Mobility, a Michigan-based AV start-up, has solicited government contracts to subsidize its effort to put this dangerous and unproven technology on the road.[56] As operator shortages and funding shortfalls continue to impact the transit industry, transit agencies might see autonomous vehicles as another cost-cutting shortcut. Unfortunately, this could place thousands of good transit jobs at risk of elimination in the coming years and put passengers and other road users at serious risk.[57] Whether it's causing fatal accidents,[58] dragging a pedestrian 20 feet,[59] crashing into a tree,[60] striking other vehicles,[61] interfering with first responders,[62] blocking intersections,[63] or failing to properly identify children,[64] AVs have shown they are unpredictable and unsafe. The industry's safety claims "should be treated as the self-serving deceptions that they are"[65] when the safest transit option is to simply take the bus.[66]

San Francisco Municipal Transportation Agency Director of Transportation Jeffrey Tumlin has pointed out that "[e]ven at their most efficient deployment, [AVs will] still be creating a net increase in per capita vehicle miles traveled" and worsen traffic congestion.[67] Ultimately, by pursuing AVs, agencies risk alienating a public that has reached "…a boiling point over tech that they do not want and does not make their lives better."[68] Indeed, a recent survey by AAA found that 66% of respondents were afraid of autonomous vehicles, and a further 25% were unsure of the technology.[69]

ATU'S RECOMMENDATIONS

Rather than pursuing microtransit service, transit agencies and government leaders should prioritize efforts to improve the quality of existing fixed route bus and ADA paratransit service to meet the needs of both current and future riders:

- **Investments should be made in the transit workforce to overcome the operator shortage and guarantee reliable service. Creating and sustaining good transit jobs is the best way to attract more workers to the industry. Good transit jobs benefit local communities, unlike microtransit companies that profit by misclassifying their workforce as independent contractors.**
- **Bus routes should be reconfigured to better serve passengers when and where they need to travel. The reality is that commuting patterns have fundamentally changed. Transit agencies must also make changes to improve existing services, such as reducing headways, building better bus shelters, and enhancing pedestrian connections to stops.**

If, despite its many shortcomings, microtransit service is implemented, some basic guidelines should be followed to provide high quality service:

- Microtransit should not be used to replace or compete with existing fixed route and ADA paratransit services. It does not allow for the type of long-term, sustainable ridership growth that agencies need to recover from the pandemic. Limiting microtransit to small geographic areas can help prevent overlapping service.
- Microtransit might be able to meet coverage goals in areas that cannot support regular service, such as low population exurban and rural communities, or to help people in those areas connect to fixed route systems at transit hubs. It could also serve as a tool to evaluate demand for expanded fixed route service hours or coverage.

Beyond service design, it is also critical that transit agencies and government leaders make certain that public dollars are used to create and preserve good jobs. A stable workforce capable of delivering reliable service can be maintained by:

- Ensuring that microtransit work is performed in-house by existing, experienced public transit employees, and that microtransit operators be compensated at no less than the existing wages, hours, working conditions, and benefits of current transit employees when current fixed route bus service is performed in-house.
- Requiring third-party contractors (where fixed route service is performed by a contractor) to directly hire all microtransit operators and that such operators receive no less than the existing wages, hours, working conditions, and benefits of current employees of the contractor.
- Ensuring that no existing fixed route bus or paratransit employees, whether employed in-house or by a contractor, are dismissed or displaced because of the establishment of microtransit service.
- Prohibiting the use of independent contractors in the provision of microtransit service.
- Requiring microtransit operators to hold a commercial driver's license.

ENDNOTES

1 Brey, J. (2023, October 31). *Microtransit has broad appeal, despite clear drawbacks.* Governing. https://www.governing.com/transportation/microtransit-has-broad-appeal-despite-clear-drawbacks

2 *Bus Operators in Crisis.* (July 2022). TransitCenter. https://transitcenter.org/wp-content/uploads/2022/07/Bus-Operators-in-Crisis_RGB_Interactive-1.pdf

3 DePillis, L., et al. (2023, November 13). *Most Americans still have to commute every day. Here's how that experience has changed.* The New York Times. https://www.nytimes.com/interactive/2023/11/06/business/economy/commuting-change-covid.html

4 *Microtransit + Transit.* (2019). TransitCenter. https://transitcenter.org/wp-content/uploads/2019/11/Microtransit-1-1.pdf

5 *Microtransit Service Proposal for Woodland.* (2023, May 15). Yolo Transportation District. https://learn.sharedusemobilitycenter.org/wp-content/uploads/2023-05-15-Woodland-Micro-Slides-1.pdf

6 Linton, J. (2023, March 21). *Metro poised to waste $8 million More on costly "Metro Micro" MicroTransit pilot*. Streetsblog Los Angeles. https://la.streetsblog.org/2023/03/21/metro-poised-to-waste-8-million-more-on-costly-metro-micro-microtransit-pilot

7 *RideCo And LA Metro Achieve A 39% Improvement In Cost Efficiency Operating The Largest Microtransit Service In The U.S.* (2024, April 3). PR Newswire. https://www.prnewswire.com/news-releases/rideco-and-la-metro-achieve-a-39-improvement-in-cost-efficiency-operating-the-largest-microtransit-service-in-the-us-302106728.html

8 Huang, E. & Schank, J. (2024, February 1). *Despite its Costs, Microtransit Can Make Public Transportation Better*. Bloomberg.com. https://www.bloomberg.com/news/articles/2024-02-01/despite-its-costs-microtransit-can-make-public-transportation-better

9 Walker, J. (2019, August 28). *What is "Microtransit" For?* Human Transit. https://humantransit.org/2019/08/what-is-microtransit-for.html

10 *What is DRT?* (2020, August 13). Via Transportation, Inc. https://ridewithvia.com/resources/what-is-microtransit#:~:text=Microtransit%20today.&text=Along%20the%20passenger's%20route%2C%20sophisticated,off%20in%20an%20endless%20stream

11 Linton, J. (2023, March 21). *Metro poised to waste $8 million More on costly "Metro Micro" MicroTransit pilot*. Streetsblog Los Angeles. https://la.streetsblog.org/2023/03/21/metro-poised-to-waste-8-million-more-on-costly-metro-micro-microtransit-pilot

12 *Ride On Flex Microtransit Performance Assessment*. (August 2020). Montgomery County Department of Transportation. https://www.montgomerycountymd.gov/DOT-Transit/Resources/Files/timetables/Flex%20Microtransit%20Performance%20Assessment%20-%20Final%20Report%20-%20Updated%202_11_2021.pdf

13 Donahue, B. (2022, February 5). *Microtransit programs promise On-Demand transportation for all*. Bloomberg.com. https://www.bloomberg.com/news/features/2022-02-05/microtransit-programs-promise-on-demand-transportation-for-all

14 Reber, C. (2023, December 21). *Red Rose Transit scales back plans for new on-demand shuttles*. LancasterOnline. https://lancasteronline.com/news/local/red-rose-transit-scales-back-plans-for-new-on-demand-shuttles/article_27bcef06-9fbe-11ee-95f5-8f92ec1cafd5.html

15 Sanderson, T. & Fjeldsted, K. (2024, April 4). *City Council Staff Report – Microtransit Discussion*. Park City, Utah. https://parkcityut.portal.civicclerk.com/event/232/files/attachment/3161

16 Garcia, J. (2023, December 19). *Johnson County increases fares for micro transit service*. Johnson County Post. https://johnsoncountypost.com/2023/12/19/joco-micro-transit-fares-221328/

17 *Fare increase for Johnson County micro transit*. (2023, December 15). Johnson County, Kansas. https://www.jocogov.org/newsroom/fare-increase-johnson-county-micro-transit

18 Linton, J. (2023, September 14). *Will the Metro Board please pull the plug on the wasteful MicroTransit pilot?* Streetsblog Los Angeles. https://la.streetsblog.org/2023/09/14/will-the-metro-board-please-pull-the-plug-on-the-wasteful-microtransit-pilot

19 *BI 2023-209: Micro Pilot Project Fare Change*. (2023, September 25). Metro Transit. https://metrocouncil.org/Council-Meetings/Committees/Transportation-Committee/2023/September-25,-2023/0925_2023_209-presentation.aspx

20 *CDTA announces changes to FLEX service*. (2023, August 9). Capital District Transportation Authority. https://www.cdta.org/news/flex-service-changes

21 Sanderson, T. & Fjeldsted, K. (2024, April 4). *City Council Staff Report – Microtransit Discussion*. Park City, Utah. https://parkcityut.portal.civicclerk.com/event/232/files/attachment/3161

22 *Johnson County Transit Pilot Projects Update*. (2023, October 12). Johnson County, Kansas. https://boccmeetings.jocogov.org/OnBaseAgendaOnline/Documents/ViewDocument/Transit%20Pilot%20Updates%20COW%2010-12-23%20PPT%20Final.pdf.pdf?meetingId=6818&documentType=Agenda&itemId=34505&publishId=53872&isSection=false

23 Zipper, D. (2023, December 19). *The Inflexible Problem With Flexible Microtransit*. Bloomberg.com. https://www.bloomberg.com/news/articles/2023-12-19/the-inflexible-problem-with-flexible-microtransit

24 Goffman, E. (2023, November 7). *"Ride On Reimagined" will bring Montgomery County's buses into the 21st century — if it's funded*. Greater Greater Washington. https://ggwash.org/view/91548/ride-on-reimagined-will-bring-montgomery-countys-buses-into-the-21st-century-if-its-funded

25 *2024 SouthWest Transit Budget*. (2023, December 14). SouthWest Transit Commission. https://d3n9y02raazwpg.cloudfront.net/swtransit/26f78077-56f2-11ee-ae13-0050569183fa-7b4a549a-5746-4abf-8f1e-0ed00e718c68-1702596391.pdf

26 Malatesta, P. (2024, April 5). *Park City to research new bus routes to replace micro transit service*. KPCW. https://www.kpcw.org/park-city/2024-04-05/park-city-to-explore-new-bus-routes-to-replace-micro-transit-service

27 Sanderson, T. & Fjeldsted, K. (2024, April 4). *City Council Staff Report – Microtransit Discussion*. Park City, Utah. https://parkcityut.portal.civicclerk.com/event/232/files/attachment/3161

28 Linton, J. (2023, September 14). *Will the Metro Board please pull the plug on the wasteful MicroTransit pilot?* Streetsblog Los Angeles. https://la.streetsblog.org/2023/09/14/will-the-metro-board-please-pull-the-plug-on-the-wasteful-microtransit-pilot

29 Scauzillo, S. (2023, September 29). Are Metro's MicroTransit e-rides a benefit to single riders or too expensive? Los Angeles Daily News. https://www.dailynews.com/2023/09/29/are-metros-microtransit-e-rides-a-benefit-to-single-riders-or-too-expensive/

30 Linton, J. (2023, September 14). *Will the Metro Board please pull the plug on the wasteful MicroTransit pilot?* Streetsblog Los Angeles. https://la.streetsblog.org/2023/09/14/will-the-metro-board-please-pull-the-plug-on-the-wasteful-microtransit-pilot

31 Malatesta, P. (2024, April 5). *Park City to research new bus routes to replace micro transit service*. KPCW. https://www.kpcw.org/park-city/2024-04-05/park-city-to-explore-new-bus-routes-to-replace-micro-transit-service

32 *49 CFR Part 37 subpart f – Paratransit as a complement to fixed route service*. (n.d.). Office of the Secretary of Transportation. https://www.ecfr.gov/current/title-49/subtitle-A/part-37/subpart-F

33 Fernandez, N. (2023, September 14). *Dear Colleague Letter – FTA Highlights Grant Programs that Support Real-time ADA Paratransit Service*. Federal Transit Administration. https://www.transit.dot.gov/sites/fta.dot.gov/files/2023-09/Dear-Colleague-Letter-FTA-Highlights-Grant-Programs-that-Support-Real-time-ADA-Paratransit-Service.pdf

34 Huston, G. (2024, February 13). *OC Transpo's new on-demand transit "frustrating" to watch for Para Transpo users*. Ottawa Citizen. https://ottawacitizen.com/news/local-news/oc-transpos-new-on-demand-transit-frustrating-to-watch-for-para-transpo-users

35 *Net-Zero Emissions Operations by 2050, including a 65% reduction by 2030*. (n.d.) Office of the Federal Chief Sustainability Officer. https://www.sustainability.gov/federalsustainabilityplan/emissions.html

36 *Net-zero emissions by 2050*. (n.d.) Government of Canada. https://www.canada.ca/en/services/environment/weather/climatechange/climate-plan/net-zero-emissions-2050.html

37 *Table of 100% Clean Energy States*. (n.d.). Clean Energy States Alliance. https://www.cesa.org/projects/100-clean-energy-collaborative/guide/table-of-100-clean-energy-states/

38 *Fast Facts – U.S. Transportation Sector Greenhouse Gas Emissions 1990-2021*. (2023, June). Environmental Protection Agency. https://www.epa.gov/system/files/documents/2023-06/420f23016.pdf

39 Ibid.

40 Welle, B., et al. (2023, December 14). *Post-pandemic, public transport needs to get back on track to meet global climate goals.* World Resources Institute. https://www.wri.org/insights/current-state-of-public-transport-climate-goals

41 Litman, T. (2013, June). *The New Transportation Planning Paradigm*. Victoria Transport Policy Institute. https://www.vtpi.org/paradigm.pdf

42 Kim, M. (2023, February 1). *Trading buses for shared cars. Is that good for the climate?* Politico Pro. https://subscriber.politicopro.com/article/eenews/2023/02/01/trading-buses-for-shared-cars-is-that-good-for-the-climate-00079687

43 Abonour, R. (2021, November 17). *What role can Lyft and Uber play in a sustainable future?* https://www.nrdc.org/bio/rabi-abonour/report-role-uber-and-lyft-sustainable-cities

44 *Ride-Hailing is a Problem for the Climate. Here's Why.* (2020, February 25). Union of Concerned Scientists. https://www.ucsusa.org/resources/ride-hailing-problem-climate

45 *Greenwashing – the deceptive tactics behind environmental claims*. (n.d.). United Nations. https://www.un.org/en/climatechange/science/climate-issues/greenwashing

46 Currey, et al. (2015). *Vehicle-Miles Traveled (VMT) Impacts on the Environment, Human Health, and Fiscal Health.* State Smart Transportation Initiative. https://www.ssti.us/wp/wpcontent/uploads/2015/06/Ganson-VMT-Impacts-on-the-Environment-Human-Health-and-Fiscal-Health-WorkingPaper.pdf

47 *Public Transportation's Role in Responding to Climate Change*. (2010, January). Federal Transit Administration. https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/PublicTransportationsRoleInRespondingToClimateChange2010.pdf

48 Walker, J. (2019, August 28). *What is "Microtransit" For?* Human Transit. https://humantransit.org/2019/08/what-is-microtransit-for.html

49 Fanning, T. (2021, May 5). *Sarasota County, Fla., to offer public Ride-Hailing service.* GovTech. https://www.govtech.com/fs/sarasota-county-fla-to-offer-public-ride-hailing-service

50 Selcraig, B. (2019, May 9). *VIA van service to replace 3 Northeast Side bus routes*. San Antonio Express-News. https://www.expressnews.com/news/local/article/VIA-van-service-to-replace-3-Northeast-Side-bus-13829904.php

51 Schneider, D. (2022, December 23). *Green Bay Metro Transit Board replaces latest daily bus runs with "GBM on Demand" microtransit service*. Green Bay Press-Gazette. https://www.greenbaypressgazette.com/story/news/local/2022/12/22/green-bay-city-buses-to-switch-to-gbm-on-demand-service-for-some-hours/69747930007/

52 Rhinehart, L., et al. (2021, June 16). *Misclassification, the ABC test, and employee status: The California experience and its relevance to current policy debates*. Economic Policy Institute. https://www.epi.org/publication/misclassification-the-abc-test-and-employee-status-the-california-experience-and-its-relevance-to-current-policy-debates/

53 *Drive with Via.* (n.d.). Via Transportation, Inc. https://my.drivewithvia.com/

54 Poydock, M. & Sherer, J. (2023, February 23). *Flexible work without exploitation: Reversing tech companies' state-by-state agenda to unravel workers' rights and misclassify workers as 'contractors' in the gig*

economy and beyond. Economic Policy Institute. https://www.epi.org/publication/state-misclassification-of-workers/

55 *Lyft, Uber say they will leave Minneapolis*. (2024, March 14). Associated Press. https://apnews.com/article/minneapolis-uber-lyft-ridehailing-minimum-wage-d60db6a2e2580dc1d93c438a8cffa5ee

56 Mizaku, C. (2023, October 2). *How May Mobility is bringing self-driving cars to the streets*. Yahoo Finance. https://finance.yahoo.com/video/may-mobility-bringing-self-driving-165258554.html

57 *Robotaxi Letter to DOT*. (2023, November 8). Transportation Trades Department, AFL-CIO. https://ttd.org/wp-content/uploads/2023/11/11-8-23-Final-Robotaxi-Letter-to-DOT-NHTSA.pdf

58 Krisher, T. (2023, December 13). *Tesla was running on Autopilot moments before deadly Virginia crash, sheriff's office says*. NBC4 Washington. https://www.nbcwashington.com/news/local/tesla-was-running-on-autopilot-moments-before-deadly-virginia-crash-sheriffs-office-says/3492662/

59 Roy, A. (2024, January 26). *How GM's Cruise robotaxi tech failures led it to drag pedestrian 20 feet*. Reuters. https://www.reuters.com/business/autos-transportation/how-gms-cruise-robotaxi-tech-failures-led-it-drag-pedestrian-20-feet-2024-01-26/

60 Westoll, N. (2021, December 17). *Autonomous shuttle servicing Whitby GO station crashes into tree, attendant injured*. CityNews Toronto. https://toronto.citynews.ca/2021/12/16/wave-shuttle-whitby-durham-region-transit-traffic/

61 Valdes-Dapena, P. (2024, February 14). *Waymo recalls software after two self-driving cars hit the same truck*. CNN. https://www.cnn.com/2024/02/14/business/waymo-recalls-software-after-two-self-driving-cars-hit-the-same-truck/index.html

62 Marshall, A. (2022, May 27). *An autonomous car blocked a fire truck responding to an emergency*. WIRED. https://www.wired.com/story/cruise-fire-truck-block-san-francisco-autonomous-vehicles/

63 Seedorff, M. (2023, September 26). S*elf driving cars in Houston stop, block intersection after thunderstorm turned all traffic lights red. FOX 26 Houston*. https://www.fox26houston.com/news/self-driving-cars-in-houston-stop-block-intersection-after-thunderstorm-turned-all-traffic-lights-red

64 Biddle, S. (2023, November 6). *Cruise knew its Self-Driving cars had problems recognizing children — and kept them on the streets*. The Intercept. https://theintercept.com/2023/11/06/cruise-self-driving-cars-children/

65 Zipper, D. (2023, July 17). *The Safety Dance*. Slate Magazine. https://slate.com/technology/2023/07/cruise-autonomous-vehicles-safety-waymo-self-driving-cars-ad-new-york-times.html

66 Zipper, D. (2022, February 8). *The incredibly obvious way to reduce road deaths that goes ignored*. Slate Magazine. https://slate.com/business/2022/02/car-safety-department-of-transportation-transit-a-plea.html

67 Truong, K. (2023, June 7). *San Francisco transit chief blasts Cruise, Waymo robotaxis as unsafe: 'Race to the bottom'*. The San Francisco Standard. https://sfstandard.com/2023/06/07/san-francisco-transit-chief-blasts-cruise-waymo-robotaxis-unsafe/

68 Jin, H., & Roy, A. (2024, February 13). *Waymo arson in San Francisco sparks new debate on self-driving cars*. Reuters. https://www.reuters.com/business/autos-transportation/san-francisco-waymo-arson-sparks-fresh-debate-self-driving-cars-2024-02-13/

69 Moye, B. (2024, March 14). *Fear of Self-Driving cars persists as industry faces an uncertain future*. AAA. https://newsroom.aaa.com/2024/03/aaa-fear-of-self-driving-cars-persists-as-industry-faces-an-uncertain-future/



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