BY TIM SABLIK

The COVID-19 pandemic dramatically reduced transit ridership across the country. Operators across the Fifth District are still figuring out how to adapt.

Public Transit Rides Out the Pandemic Storm

The opening months of the COVID-19 pandemic saw an immediate and unprecedented abandonment of public transit. Over the prior two decades, transit systems delivered an average of 838 million trips a month, according to data collected by the U.S. Department of Transportation. Even the 9/11 terrorist attacks resulted in only a small and short-lived disruption to transit ridership. But in the first two months of the pandemic, ridership fell by 83 percent. Some transit systems saw even sharper drops: For instance, average weekday ridership on Washington, D.C.'s Metro rail system fell from nearly 640,000 in February 2020 to just 36,000 in April 2020 — a 94 percent loss.

This collapse was driven by widespread lockdown orders and businesses shifting work from offices to homes, drastically reducing the number of commuters using public transit. There were also concerns that transit vehicles could be a vector for the spread of the virus. In an April 2020 NBER working paper, Jeffrey Harris of the Massachusetts Institute of Technology found that New York City's subway system was a "major disseminator" of the coronavirus during the initial outbreak of the disease.

Moreover, many transit systems entered the pandemic in already-wounded condition. A 2022 report from the Federal Transit Administration-sponsored Transit Cooperative Research Program found that ridership declined by about 15 percent nationwide between 2012 and 2018. The report attributed this decline primarily to changes in household incomes and rates of car ownership, rising fares, falling gas prices making driving cheaper, and the introduction of ride-hailing services like Uber and Lyft.

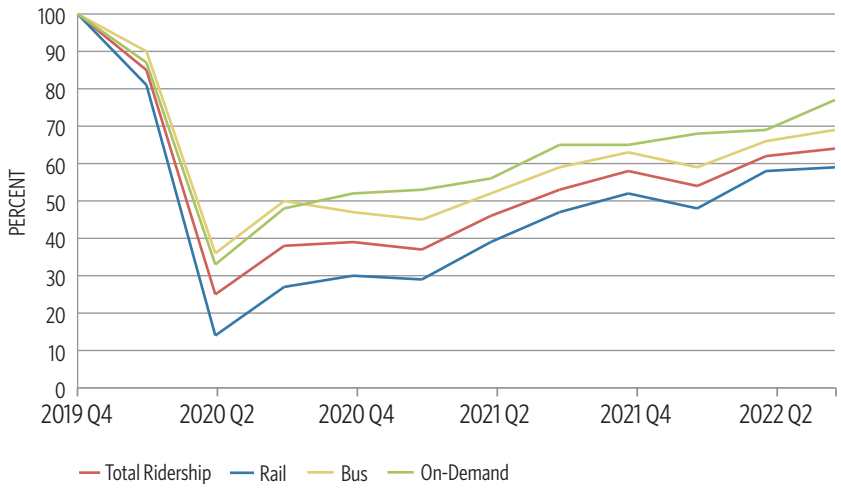
With the arrival of vaccines and treatments for COVID-19, most restrictions on travel and in-person activities have been lifted. But while transit ridership has steadily recovered since the spring of 2020, on average it remains around 30 percent below pre-pandemic levels. Emergency federal and state assistance has helped fill some funding gaps. Through the 2020 CARES Act and Consolidated Appropriations Act and the 2021 American Rescue Plan Act, the federal government provided a total of nearly $70 billion of support to transit agencies. But as these sources of funding expire, transit administrators must find ways to adapt to the ongoing changes triggered by the pandemic.

IMAGE: COURTESY OF GREATER RICHMOND TRANSIT COMPANY

Policymakers have long been interested in public transit as a way to connect workers to more job opportunities as well as reduce pollution and traffic congestion. Historically, low-income households have been more reliant on transit, and this reliance is one reason the poor are more likely to live in cities. Mass transit systems tend to be located in metropolitan areas, taking advantage of greater population density to offer trips at a lower cost. While Brown University economist Matthew Turner expressed skepticism about the ability of new transit projects to single-handedly generate economic growth and new opportunities for the poor in a 2019 literature review for the Hamilton Project, he did find that transit systems play a key role in influencing where people live and work. The future of transit in a post-pandemic world is therefore of greatest importance for those individuals who have come to rely on it most.

Transit Still Recovering From COVID-19

Transit ridership by mode as a share of 2019 Q4 levels



SOURCE: American Public Transportation Association, *Public Transportation Ridership Report*

HYBRID WORK AND THE FUTURE OF COMMUTING

One of the biggest threats to transit ridership today is the increased prevalence of working from home. In a 2021 *Journal of Regional Science* article, Rebecca Brough of the University of California, Davis; Matthew Freedman of the University of California, Irvine; and David Phillips of the University of Notre Dame documented how the ability to work from home affected transit use in King County, Wash., during the first few months of the pandemic.

King County includes Seattle, which was the site of one of the first COVID-19-related deaths in the United States. Between February and April 2020, public transit use in King County fell by 74 percent, as Washington state issued stay-at-home orders and all nonessential in-person businesses closed. But this overall decline in ridership doesn't tell the whole story.

"In Seattle, there were white-collar workers who commuted to Amazon or Microsoft before the pandemic using the bus. Those are the sorts of places where we saw big declines in transit ridership," says Phillips. "But if you look at other neighborhoods, like the southern part of King County, which has a higher poverty rate and larger concentration of blue-collar workers, there were much smaller drops in transit ridership."

Brough, Freedman, and Phillips found that as time passed from the initial lockdown period, an increasingly important factor in explaining this difference in transit use was the ability to work from home. More-educated, higher-income individuals were more likely to be able to work remotely, reducing their need to travel, while many lower-income workers remained reliant on transit to get them to in-person jobs.

As the recovery from the pandemic continues, transit operators have been left wondering how much teleworking will stick. Stephen Davis of the University of Chicago and Stanford University's Hoover Institution has been studying this topic along with other researchers. At the height of the pandemic, he and his co-authors estimated more than 60 percent of full paid days were being worked at home. That share has since declined, but many workers continue to work a hybrid schedule, with some days at home and some in the office.

"I think hybrid work is here to stay for many knowledge workers and many back office and administrative support staff," Davis told *Econ Focus* in a 2022 interview. Workers continue to express a strong desire to work from home and attach a high value to it, 5 percent of pay on average, Davis and his co-authors found.

The continued prevalence of hybrid schedules for some workers may partly explain the uneven recovery of transit systems across the country. Nationally, subways and commuter rail systems experienced steeper ridership losses and have been slower to recover than buses. (See chart.) This may be because rail transit is more likely to be used by white-collar knowledge workers.

The Washington, D.C.-area transit system offers a case in point. The Washington Metropolitan Area Transit Authority (WMATA) operates the third-largest heavy rail transit system in the country. While average daily bus boardings for the Metrobus system have recovered to about 51 percent of the pre-pandemic level, average daily entries on its Metrorail remain at just 36 percent of the pre-pandemic level. A likely cause: The region has the country's second-largest share of potentially remote workers (surpassed only by the San Francisco Bay Area), according to recent research.

Fewer commuters mean fewer fares collected. According to data from the American Public Transit Association,

a nonprofit advocacy group for the transit industry, fare revenue covered an average of 23 percent of total transit expenses from 2015 to 2019. But this share varies by location and transit mode. Fare revenue as a share of expenses was larger for rail than for bus over the past five years — around 33 percent versus 20 percent. Thus, rail systems have been hurt not only by a greater decline in ridership, but also by their greater reliance on fares.

In its most recent strategic plan, WMATA said that "historic low ridership over two years has strained Metro's operating budget and required $2 billion in federal assistance." It called for increased investment over the next decade in transit-oriented developments — densely populated neighborhoods located close to transit hubs. The report notes that stations in more densely developed neighborhoods have recovered riders more quickly, and WMATA hopes that more transit-oriented developments will further increase ridership from new residents, workers, and visitors.

GOING FARE-FREE

A more immediate, and perhaps counterintuitive, way that some transit systems have tried to maintain ridership levels through the pandemic is by eliminating fares entirely. The Greater Richmond Transit Company (GRTC) initially suspended fare collection on its buses in 2020 to minimize contact between passengers and drivers and limit the spread of COVID-19. It has continued that practice throughout the recovery and recently received funding from the Virginia Department of Rail and Public Transportation's Transit Ridership Incentive Program to help maintain free fares at least through June 2024.

GRTC's director of planning and scheduling Sam Sink credits this initiative for contributing to the system's relative success in retaining riders. Ridership on GRTC's services did fall sharply in March 2020, along with the rest of the country, but recovered much more quickly than in most places. By 2021, ridership had returned to pre-pandemic levels on many of its fixed-route bus lines, and it is now above pre-pandemic levels for the system overall.

"When you remove the friction of the fare box from the decision of whether or not to make a trip, people respond," says Sink.

The pandemic seems to have increased the number of transit operators looking at free fares. Some of that is a natural response by operators trying to maintain ridership. There is also a growing recognition by localities that if transit riders may be even more disproportionately low-income after the pandemic, there could be redistribution arguments for heavily subsidizing fares. There may be other efficiency gains as well.

"It is great for getting people on the bus quickly because they don't need to queue up to tap cards or pay money," says Freedman, who conducted an experiment with Brough and Phillips removing transit fares for low-income riders in King County, Wash. "There are also no confrontations between the driver and nonpayers. So, there are all sorts of operational advantages that accrue to the transit agencies in addition to the equity benefits."

And depending on how public transit is funded in a state, eliminating fares can make sense for the operator financially. Sink explains that in Virginia, one of the determinants of how state transit funding is distributed across agencies is ridership.

"When we do better in terms of ridership and put more service out on the street, we get a bigger piece of that pie," says Sink. "Because our ridership has rebounded so well compared to other agencies in the state, we are projected to max out the amount of money that we can get for operational assistance in the next few years. As a result, we're netting more money from our formula funding sources than we are losing by getting rid of fare revenue. Now, whether that is a pattern that we can count on continuing remains to be seen."

Sink says that GRTC is open to making free fares permanent, but it plans to first gather more data during this trial period. Brough, Freedman, and Phillips' experiment offers a cautionary lesson when it comes to temporary free fare programs. In a 2022 *Regional Science and Urban Economics* article detailing the results of their experiment, the authors noted that when the free fare period ended, ridership largely regressed to its previous level.

"People care about the fare that they're paying right now," says Phillips. "If transit is free right now, they will be more likely to ride, but if fares go back into effect, then some people will stop riding or ride less. We didn't see big changes in behavior where the experience of riding transit thanks to free fares made people more likely to use transit in the future."

MEETING RIDERS WHERE THEY ARE

Sink attributes GRTC's success in retaining riders to other factors as well. The operator made an effort to maintain the same level of service throughout the pandemic, and in 2018, it completed an overhaul of its bus routes aimed at providing more service in areas with the highest demand. A 2021 American Public Transportation Association case study noted that this realignment helped ensure that GRTC's routes better served the workers who could not work from home and were most likely to continue relying on transit during the pandemic.

Other transit operators in the Fifth District have also made the most of the pandemic to rethink how they provide service. Mass transit has always been more difficult to provide in small towns and rural areas because of their lower population density. Most fixed-route rail and bus solutions rely on a critical mass of riders to help justify the cost of the system.

Inspiration for an alternative came from an unlikely source. When the first ride-hailing service, Uber, launched in 2009, it wasn't long before transit agencies began investigating whether the same technology could enable more flexible, on-demand transportation. Microtransit allows riders to call a van to their doorstep much like an Uber but typically at a subsidized cost. The trade-off is that the vehicle may be

shared with other riders and typically has a limited operating area. Some cities, like Los Angeles, experimented with microtransit pilots prior to the pandemic to improve connections to their fixed transit stops. Initial results from the Los Angeles program were discouraging, with each microtransit trip costing the city twice the average bus trip.

But microtransit may find more of a home in smaller towns. Wilson, N.C., about 50 miles east of Raleigh, has a population just shy of 48,000. For years, its leaders had been looking for ways to improve its fixed-route bus system.

"Our bus system covered about 40 percent of the city and was designed around a time when the downtown was the center of employment," says Rodger Lentz, Wilson's assistant city manager. "Wilson's history was as a tobacco market, and a lot of the warehouses where those auctions occurred were downtown. There was also more manufacturing downtown than there is today."

Most of Wilson's main employers today are located in corporate parks along major interstate highways outside the downtown. Expanding the coverage and frequency of the existing bus system to adapt to these changes would have required a larger budget than the city had allocated, so it started looking for another solution that could serve more riders at roughly the same cost.

In September 2020, the city replaced its bus system with a microtransit solution, RIDE. It's a partnership between the city and Via Transportation, a public transportation company headquartered in New York. Via manages the drivers and the app for requesting a ride. The new microtransit solution covers the entire city and boasts much shorter wait times. In the first month, new riders could sign up for 10 free rides, with subsequent trips priced at $1.50.

"By the first month, we had surpassed pre-pandemic ridership levels on the fixed-route system," says Lentz. Today, RIDE averages 18,000 trips a month, compared to 6,000 monthly trips on the old bus system. Fares have increased to $2.50 a ride, but Lentz says this hasn't reduced demand, and feedback from rider surveys continues to be overwhelmingly positive. Costs have also gone up, with rising gas prices being one contributor. Wilson's initial budget for the program of $1.2 million has grown to $2.2 million, but on a cost-per-trip basis, RIDE still outperforms the old bus system. And while critics of microtransit have argued that it would be more efficient to use that funding to improve fixed-route solutions, Lentz maintains that in the context of small towns, microtransit may be more effective at meeting the needs of riders.

"We have built America around the car, so if you lose your ability to drive, you've also lost your ability to move about," says Lentz. "The unemployment rate in Wilson has historically been above the state average, and a survey found that the two biggest reasons that people were unemployed were lack of reliable transportation and lack of day care. The city isn't in the day care business, but we can be in the transportation business. If this is what it takes to get people meaningfully employed, then it is a fairly small public investment to help solve that problem."

Based on surveys, Wilson found that half of RIDE customers use it to get to work, and 87 percent of users are employed. The city plans to explore partnerships with local employers to help further defer the costs of using RIDE to connect workers with opportunities. And larger cities are also still experimenting with using microtransit to connect surrounding rural areas to their fixed-route systems. At the end of 2022, GRTC announced that it had received $4.06 million for that purpose from the Virginia Department of Rail and Public Transportation.

LOOKING AHEAD

Transit systems faced no shortage of challenges before the pandemic, and they continue to navigate many difficulties during the recovery. WMATA continues to deal with the aftermath of an October 2021 metro train derailment. That prompted WMATA to sideline its 7000-series train cars until they could be fully inspected. Increased crime at transit stops has hampered ridership for some systems, like New York City's subway. And a nationwide shortage of bus drivers has forced some operators, including GRTC in Richmond, to cut back service.

The 2021 Infrastructure Investment and Jobs Act includes more than $90 billion in funding for public transit over the next five years, some of which is earmarked for projects to modernize transit systems. As transit operators think about how to adapt services to rapidly changing commuting patterns, GRTC's Sink says that the biggest lesson she learned from the pandemic was the importance of being proactive rather than reactive.

"Having plans on the shelf ready to go will be really important as we go forward," she says. "Maybe the next big thing isn't a pandemic, but unexpected things happen all the time." **EF**

READINGS

Brough, Rebecca, Matthew Freedman, and David Phillips. "Understanding Socioeconomic Disparities in Travel Behavior During the COVID-19 Pandemic." *Journal of Regional Science*, September 2021, vol. 61, no. 4, pp. 753-774.

Brough, Rebecca, Matthew Freedman, and David Phillips. "Experimental Evidence on the Effects of Means-Tested Public Transportation Subsidies on Travel Behavior." *Regional Science and Urban Economics*, September 2022, vol. 96, pp. 1-15.

"On the Horizon: Planning for Post-Pandemic Travel." American Public Transportation Association, November 2021.

"Recent Decline in Public Transportation Ridership: Analysis, Causes, and Responses." TRB Transit Cooperative Research Program Research Report No. 231, 2022.