



Effects of the COVID-19 Pandemic on Transit Ridership and Accessibility

PREPARED BY
Federal Transit Administration



U.S. Department of Transportation
Federal Transit Administration

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Abstract

The COVID-19 pandemic brought a wave of stay-at-home orders starting in February 2020 that drastically decreased in-person attendance at workplaces, schools, restaurants, and events. As a result, transit ridership decreased 81 percent between April 2019 and April 2020, and 97 percent of the 518 agencies that reported service information to FTA reduced service. While some agencies attempted to ease the burden on essential workers and historically disadvantaged communities, transit cuts still disproportionately impacted these groups, who continued to use transit at a higher rate than other riders. As of September 2023, transit service levels, as measured by vehicle revenue miles, have returned to 91 percent of September 2019 levels. Overall ridership in September 2023 is at 74 percent of September 2019 levels, resulting in fare revenue losses that transit agencies will have to replace with other funding sources.

Without new or increased funding streams to support operations, many transit agencies face serious near-term fiscal challenges. These challenges may require severe actions to avoid a fiscal cliff, including a negative cycle of service cuts, fare increases, and ridership loss.

At the same time, the pandemic has drastically, and potentially permanently, altered how the transit industry provides service. If a significant proportion of former transit riders continue to work from home, 9-to-5 commuter ridership will be permanently reduced. Hence, service and network redesigns are critical to the long-term sustainability of the transit industry, as well as advancing equity in transportation to ensure that everyone has reliable access to key destinations.

Executive Summary

The COVID-19 pandemic significantly impacted the transit industry, changing the way the public uses transit and the way transit is planned, implemented, and funded. In response to two congressional mandates for reporting, this report discusses the pandemic's impacts on transit accessibility and transit ridership trends from 2019 to the present, including ridership trends pre- and post-pandemic, changing service levels, impacts on service and accessibility, the riders who were most affected, and longer-term effects on transit accessibility.

Ridership Trends

The COVID-19 pandemic brought a wave of stay-at-home orders starting in February 2020 that drastically decreased in-person attendance at workplaces, schools, restaurants, and other locations. Reduced travel led to a decrease in transit ridership of 81 percent between April 2019 and April 2020.¹ Ridership for commuter rail and commuter bus decreased to a much greater extent than for other transit modes: by April 2020, ridership on commuter rail and bus was only at 7 percent of 2019 levels.²

While overall ridership declined, many essential workers (employees in industries that require in-person interaction) and riders from historically disadvantaged communities (who are disproportionately transit-dependent) continued to rely on transit to travel to work and other key destinations. Local bus service tends to carry higher percentages of essential workers and transit-dependent riders than rail.³ As a result, local bus service lost fewer riders than any other mode, maintaining 28 percent of April 2019 ridership in April 2020.⁴ As of September 2023, local bus ridership has also recovered more quickly than rail ridership—77 percent versus 71 percent of September 2019 ridership.

As of September 2023, overall ridership levels have increased to 74 percent of September 2019 levels. In 15 urbanized areas, ridership equals or exceeds 2019 levels.

Service Changes

After the start of the pandemic, many agencies were forced to reduce service in response to reduced ridership, as well as financial, workforce, and supply-chain

¹ National Transit Database, Complete Monthly Ridership (with adjustments and estimates), July 2023. Published September 2023.

<https://www.transit.dot.gov/ntd/data-product/monthly-module-adjusted-data-release>.

² Rowlands, DW, and Tracy Hadden Loh. "Ensuring the Intertwined Post-Pandemic Recoveries of Downtowns and Transit Systems." Brookings, August 8, 2023. <https://www.brookings.edu/articles/ensuring-the-intertwined-post-pandemic-recoveries-of-downtowns-and-transit-systems/>.

³ Hugh M. Clark. "Who Rides Public Transportation." American Public Transportation Association, January 2017. <https://www.apta.com/wp-content/uploads/Resources/resources/reportsandpublications/Documents/APTA-Who-Rides-Public-Transportation-2017.pdf>.

⁴ National Transit Database, Complete Monthly Ridership.

challenges. Of the 518 agencies that reported service to FTA’s National Transit Database, 97 percent reduced service between April 2019 and April 2020. During this period, national transit service as measured by vehicle revenue miles (VRM)—the number of miles transit vehicles travel while in revenue service—decreased by 44 percent. As of September 2023, VRM has recovered to 91 percent of September 2019 levels.

Transit service cuts did not affect all areas or riders equally. A study of 22 U.S. cities found that Census block groups with socioeconomic disadvantages were more likely to lose transit access during the pandemic. Block groups with multiple social disadvantages experienced an even higher likelihood of losing transit access.⁵ Additionally, in a national survey of transit users, respondents were more likely to have trouble accessing employment and services if they were living in poverty; unable to increase their levels of telework; living without a driver’s license; Hispanic or Latino; or female or a gender minority.⁶

Longer-term Effects of COVID-19 on Transit Accessibility and Ridership

The pandemic has drastically, and potentially permanently, altered the transit industry. If many former transit riders continue to work from home in hybrid or remote positions, 9-to-5 commuter ridership could be permanently reduced. Hence, service and network redesigns are critical to the long-term sustainability of the transit industry, as well as advancing equity in transportation to make sure that everyone has reliable access to key destinations.

In addition to lost ridership revenue, agencies continue to face workforce and supply chain challenges that increase costs and potentially affect service. Some agencies—especially those that relied heavily on fare revenue to fund operations—are currently facing financial gaps and may deplete Federal stimulus funding as soon as Federal fiscal year 2024. While current law allows some agencies to fund general operations and ridership initiatives with Federal grant funding, large transit agencies in large urban areas—those with more than 100 vehicles operating in urbanized areas with more than 200,000 people—are ineligible.⁷ Without additional funding or flexibility to use Federal funds for general operations, some large agencies are facing the potential of significant budget shortfalls or a “fiscal cliff” that could lead to a negative cycle of service cuts, fare increases, and ridership loss. Without new or increased funding streams to support operations, transit agencies may have to take actions that

⁵ Kar, Armita, Andre L. Carrel, Harvey J. Miller, and Huyen T.K. Le. “Public Transit Cuts during COVID-19 Compound Social Vulnerability in 22 US Cities.” *Transportation Research Part D: Transport and Environment* 110 (September 2022): 103435. <https://doi.org/10.1016/j.trd.2022.103435>.

⁶ Parker, Madeleine E.G., Meiqing Li, Mohamed Amine Bouzaghrane, Hassan Obeid, Drake Hayes, Karen Trapenberg Frick, Daniel A. Rodríguez, Raja Sengupta, Joan Walker, and Daniel G. Chatman. “Public Transit Use in the United States in the Era of COVID-19: Transit Riders’ Travel Behavior in the COVID-19 Impact and Recovery Period.” *Transport Policy* 111 (July 2021): 53–62. <https://doi.org/10.1016/j.tranpol.2021.07.005>.

⁷ Federal Transit Administration. “Urbanized Area Formula Grants - 5307.” Accessed October 11, 2023. <https://www.transit.dot.gov/funding/grants/urbanized-area-formula-grants-5307>.

could negatively impact riders across the country, especially those from disadvantaged communities.

Introduction

The COVID-19 pandemic significantly impacted the transit industry, changing the way the public uses transit and the way it is planned, implemented, and funded. In February 2020, stay-at-home emergency orders caused overall ridership levels to plummet. Other issues, such as financial challenges, operator shortages, and supply chain impacts, also forced transit agencies to reduce and reorganize service. While overall ridership levels dropped, many riders continued to rely on transit to reach places of employment, medical services, and other key destinations.⁸ Transit agencies had to balance service cuts with the need to provide transit access for riders who needed it the most. Since, in many areas of the country, ridership has not yet recovered to pre-pandemic levels, agencies are still navigating an uncertain future while maintaining the public benefits of strong transit networks.

This report discusses ridership trends pre-and post-pandemic, changing service levels, impacts on service and accessibility, the riders who were most affected, and the long-term effects on transit accessibility. It provides a combined response to two Congressional requests for reporting:

- **COVID-19 Pandemic Impacts on Transit Accessibility** – Directs the Federal Transit Administration (FTA) to provide a report to the House and Senate Appropriations Committees on the ways COVID-19 impacted transit agencies and transit riders throughout the Nation, including historically disadvantaged communities.
- **Transit Trends** – Directs the Secretary of Transportation to submit a report to the House and Senate Appropriations Committees providing transit ridership levels from 2019 to present and an assessment of anticipated future trends and needs in the transit industry.⁹

The report draws on an analysis of data from FTA’s National Transit Database (NTD) as well as a literature review of transportation journals, industry publications, and other sources examining COVID-19 and transit.

⁸ Karner, Alex, Seth LaRue, Willem Klumpenhower, and Dana Rowangould. “Evaluating Public Transit Agency Responses to the Covid-19 Pandemic in Seven U.S. Regions.” Case Studies on Transport Policy 12 (June 2023): 100989. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9987603/>

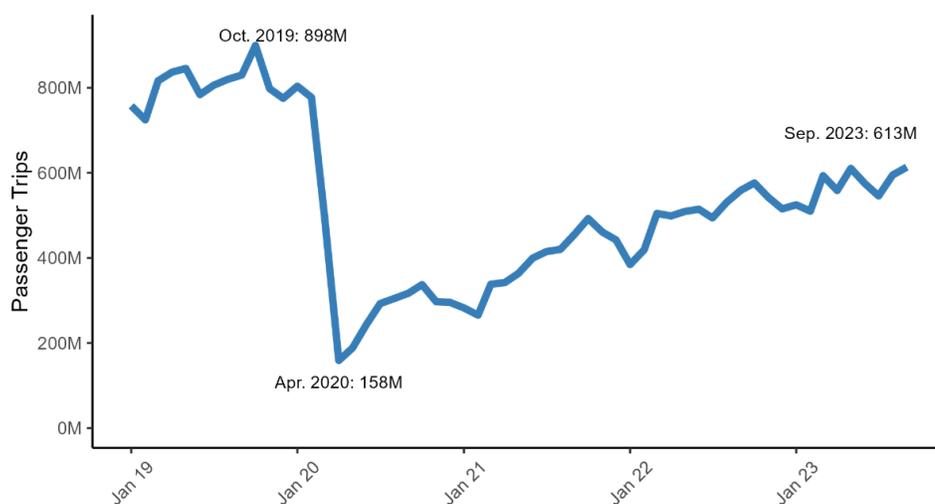
⁹ Division L - Transportation Housing and Urban Development, and Related Agencies Appropriations Act, 2023, p. 49-50

Section 1

Ridership Trends

The COVID-19 pandemic brought a wave of stay-at-home orders that shut down schools, restaurants, events, and workplaces starting in February 2020. As travel patterns changed, transit ridership declined 82 percent from October 2019 to April 2020, as measured by unlinked passenger trips, or the number of times that passengers board transit vehicles (Figure 1).¹⁰

Figure 1: Monthly Transit Ridership, All Modes, January 2019-September 2023



Source: National Transit Database

Ridership Trends by Mode

Between April 2019 and April 2020, the number of people teleworking more than tripled.¹¹ This increase was reflected in transit ridership: the two modes that lost the most riders were commuter rail and commuter bus, which retained only 6.5 percent and 7 percent, respectively, of April 2019 ridership in April 2020.¹² In contrast, buses tend to carry more of the transit-dependent riders, essential workers, and riders from disadvantaged communities who continued to use transit during the pandemic.¹³ As a result, local bus service lost fewer riders than any other mode, preserving 28 percent of April 2019 ridership in April 2020.¹⁴

¹⁰ National Transit Database, Complete Monthly Ridership (with adjustments and estimates), July 2023. Published September 2023.

¹¹ Rowlands, DW, and Tracy Hadden Loh. "Ensuring the Intertwined Post-Pandemic Recoveries of Downtowns and Transit Systems." Brookings, August 8, 2023. <https://www.brookings.edu/articles/ensuring-the-intertwined-post-pandemic-recoveries-of-downtowns-and-transit-systems/>.

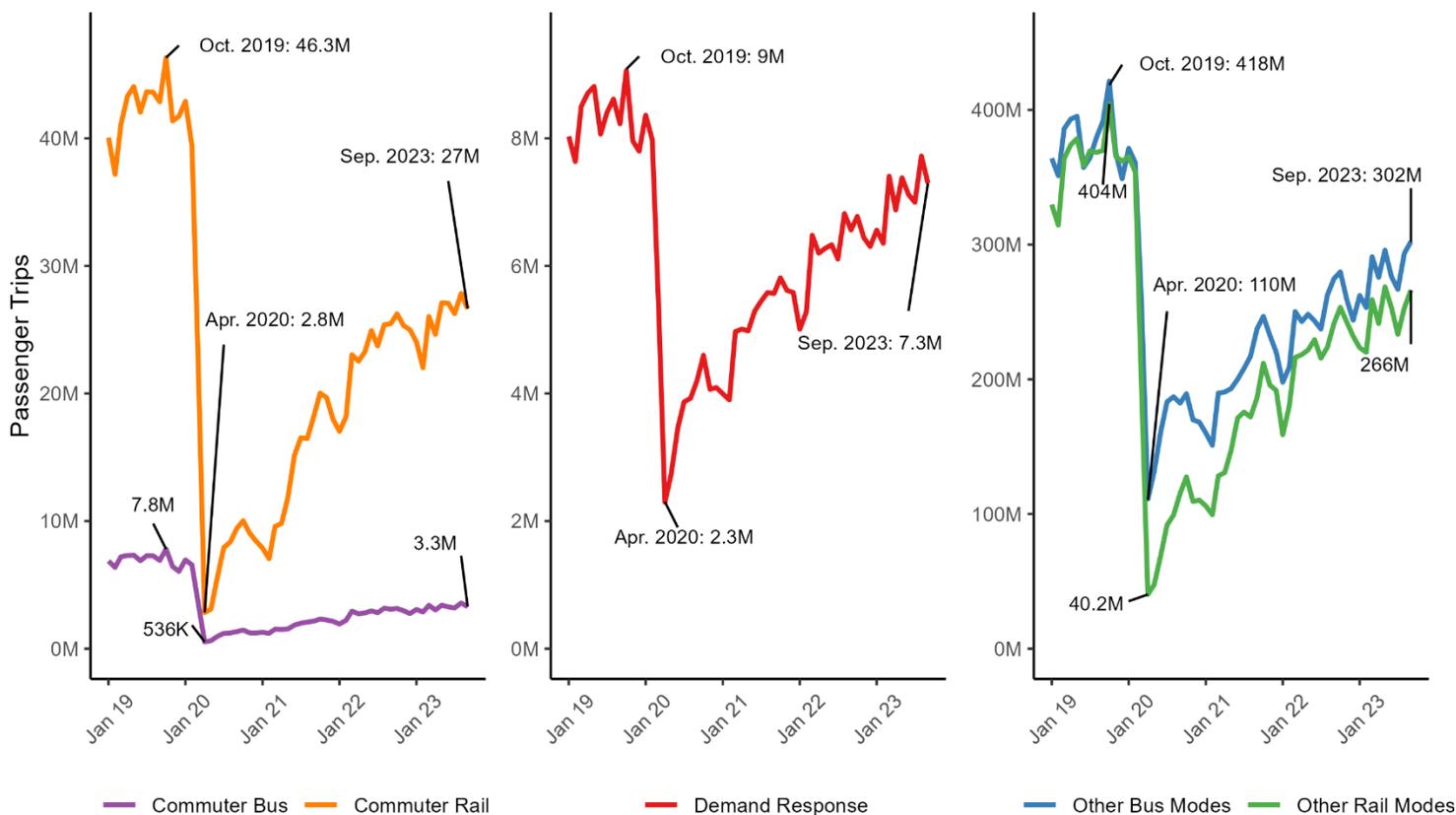
¹² Burrows, Michael, Charlynn Burd, and Brian Mckenzie. "Home-Based Workers and the COVID-19 Pandemic, American Community Survey Reports." United States Census Bureau, April 2023. <https://www.census.gov/content/dam/Census/library/publications/2023/acs/acs-52.pdf>.

¹³ Taylor, Brian D., and Eric A. Morris. "Public Transportation Objectives and Rider Demographics: Are Transit's Priorities Poor Public Policy?" Transportation 42, no. 2 (September 13, 2014): 347–67. <https://doi.org/10.1007/s11116-014-9547-0>.

¹⁴ Dickens, Matthew, and David Kahana. "APTA Public Transportation Ridership Update." American Public Transportation Association, September 2022. <https://www.apta.com/wp-content/uploads/APTA-POLICY-BRIEF-Transit-Ridership-09.28.2022.pdf>.

As of September 2023, overall ridership has recovered to 74 percent of September 2019 levels.¹⁵ Paratransit ridership is a driver of demand response service, which dispatches vehicles to individual customers. Paratransit ridership was resilient through the pandemic; demand response modes retained 25% of April 2019 ridership in April 2020 (figure 2). Paratransit is also contributing to the high ridership recovery of demand response, which leads all other modes at 89% of pre-COVID levels. Bus has recovered to 77 percent of September 2019 ridership, with rail at 71 percent Figure 2 (OBJ).

Figure 2: Monthly Ridership by Mode, January 2019-September 2023



Notes: Other Bus Mode = Motor Bus, Trolley Bus, Rapid Bus

Other Rail Mode = Alaska Rail, Light Rail, Streetcar, Hybrid Rail, Cable Car, Inclined Plane, Monorail

Source: National Transit Database

Changes in Ridership Demographics

Changing travel patterns during the pandemic caused a shift in ridership demographics. Drops in public transit use during the pandemic were lower

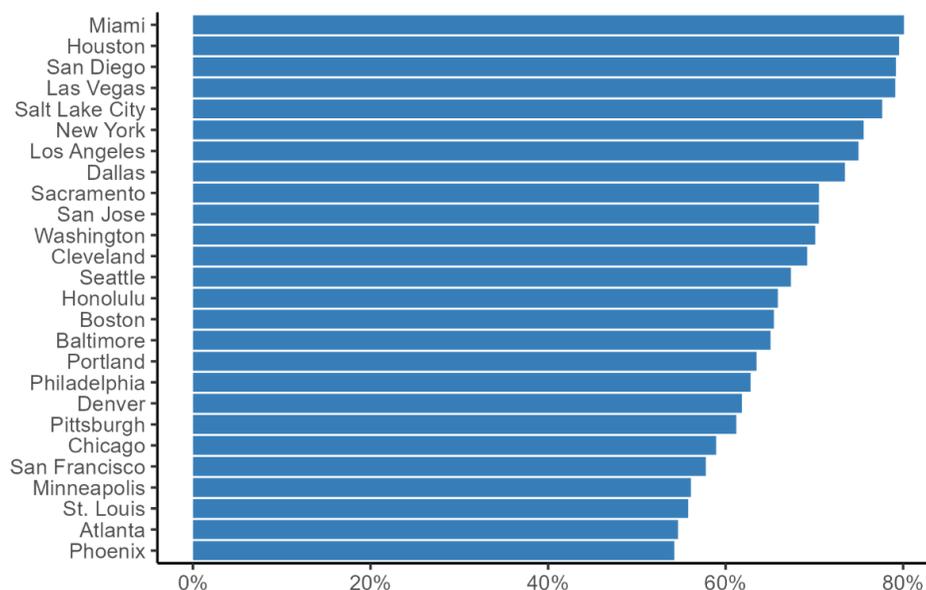
¹⁵ National Transit Database, Complete Monthly Ridership (with adjustments and estimates), July 2023. Published September 2023.

among people of color and low-income populations. During the pandemic, people were more likely to ride transit if they: 1) did not have access to a personal or shared vehicle, 2) experienced a permanent or temporary disability, 3) were under double the poverty threshold, 4) lived in households that lost income during the pandemic, 5) only had one adult, or 6) did not have a bachelor's degree.^{16, 17} Many of these riders were essential workers who worked in industries like healthcare, food service, and transportation and were unable to work from home.

Ridership Trends by Urbanized Area

As of September 2023, year-to-date ridership in the largest urbanized areas varies from approximately 50 percent to 80 percent of 2019 levels (January-September 2023 versus January-September 2019), with the nationwide year-to-date recovery at 71 percent. (Figure 3) shows ridership recovery in cities that have at least 50 million unlinked passenger trips annually.

Figure 3: Ridership Recovery in Top 26 Urbanized Areas by Ridership, September 2023 (Year-to-Date, January-September 2023 versus January-September 2019)



Source: National Transit Database

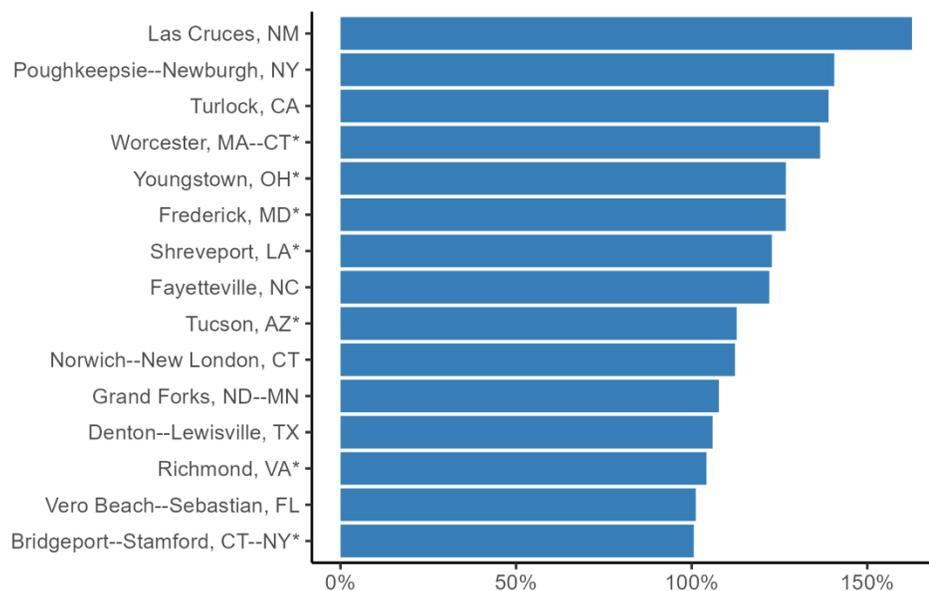
In 15 urbanized areas, year-to-date ridership exceeds 2019 levels (Figure 4). Transit systems in seven of the urbanized areas offer or have offered fare-free

¹⁶ Qi, Yi, Jinli Liu, Tao, and Qun Zhao. "Impacts of COVID-19 on Public Transit Ridership." *International Journal of Transportation Science and Technology*, November 2021. <https://doi.org/10.1016/j.ijtst.2021.11.003>.

¹⁷ He, Qian, Dana Rowangould, Alex Karner, Matthew Palm, and Seth LaRue. "Covid-19 Pandemic Impacts on Essential Transit Riders: Findings from a U.S. Survey." *Transportation Research Part D: Transport and Environment* 105 (April 2022): 103217. <https://doi.org/10.1016/j.trd.2022.103217>.

service: Bridgeport,¹⁸ Frederick¹⁹, Richmond,²⁰ Shreveport,²¹ Tucson,²² Worcester,²³ and Youngstown.²⁴ Larger transit systems providing fare free service on a broad scale is relatively new and the long-term financial and operating implications remain under study.

Figure 4: Urbanized Areas with Highest Ridership Recovery, September 2023 (Year-to-Date, January-September 2023 versus January-September 2019)



* Urbanized Area provides fare free service

Source: National Transit Database

¹⁸ Greater Bridgeport Transit. "Ride Free: Now Through November 30, 2022." No date. <https://gogbt.com/news/free-fares-extension-through-november-30-2022/>.

¹⁹ DC News Now. "Residents in Frederick County can continue enjoying free transit." November 5, 2021. <https://www.dcnewsnow.com/news/local-news/maryland/residents-in-frederick-county-can-continue-enjoying-free-transit-service/>

²⁰ GRTC Transit System. "GRTC to continue free bus rides through June 2024." December 20, 2022. <https://ridegrtc.com/news-initiatives/press-releases/grtc-to-continue-free-bus-rides-through-june-2024/>

²¹ KTAL News. "SporTran reports record numbers of riders; looks to expand 'zero fare' program." August 4, 2023. <https://www.ktalnews.com/news/local-news/sportran-reports-record-numbers-of-riders-looks-to-expand-zero-fare-program/>.

²² AZ Luminaria. "Tucson buses and streetcar will remain free to ride until the summer." May 9, 2023. <https://azluminaria.org/2022/12/22/tucson-buses-and-streetcar-will-remain-free-to-ride-until-the-summer/>.

²³ WGBH. "Worcester area buses to remain free for at least another year." April 20, 2023. <https://www.wgbh.org/news/local/2023-04-20/worcester-area-buses-to-remain-free-for-at-least-another-year>.

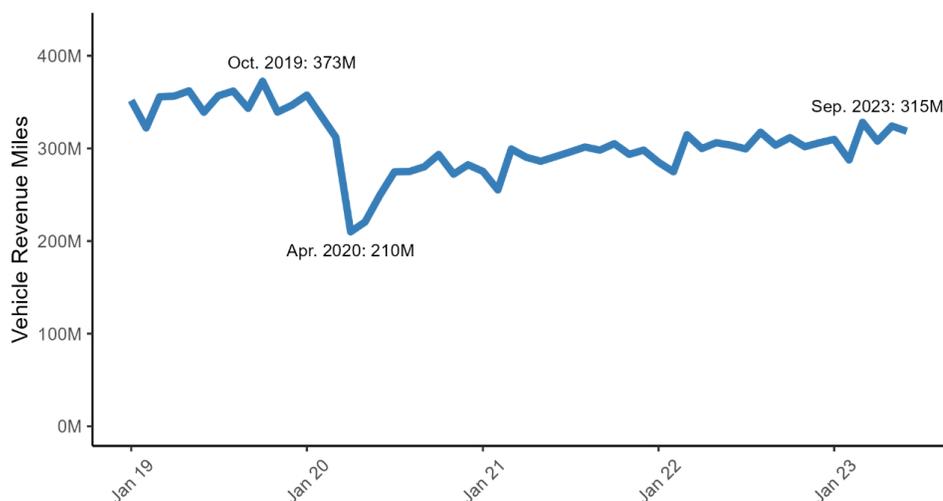
²⁴ 21-WFMY. "WRTA wants to continue free fares for its riders." September 23, 2021. <https://www.wfmy.com/story/44804204/wrta-wants-to-continue-free-fares-for-its-riders>.

Section 2

Service Changes

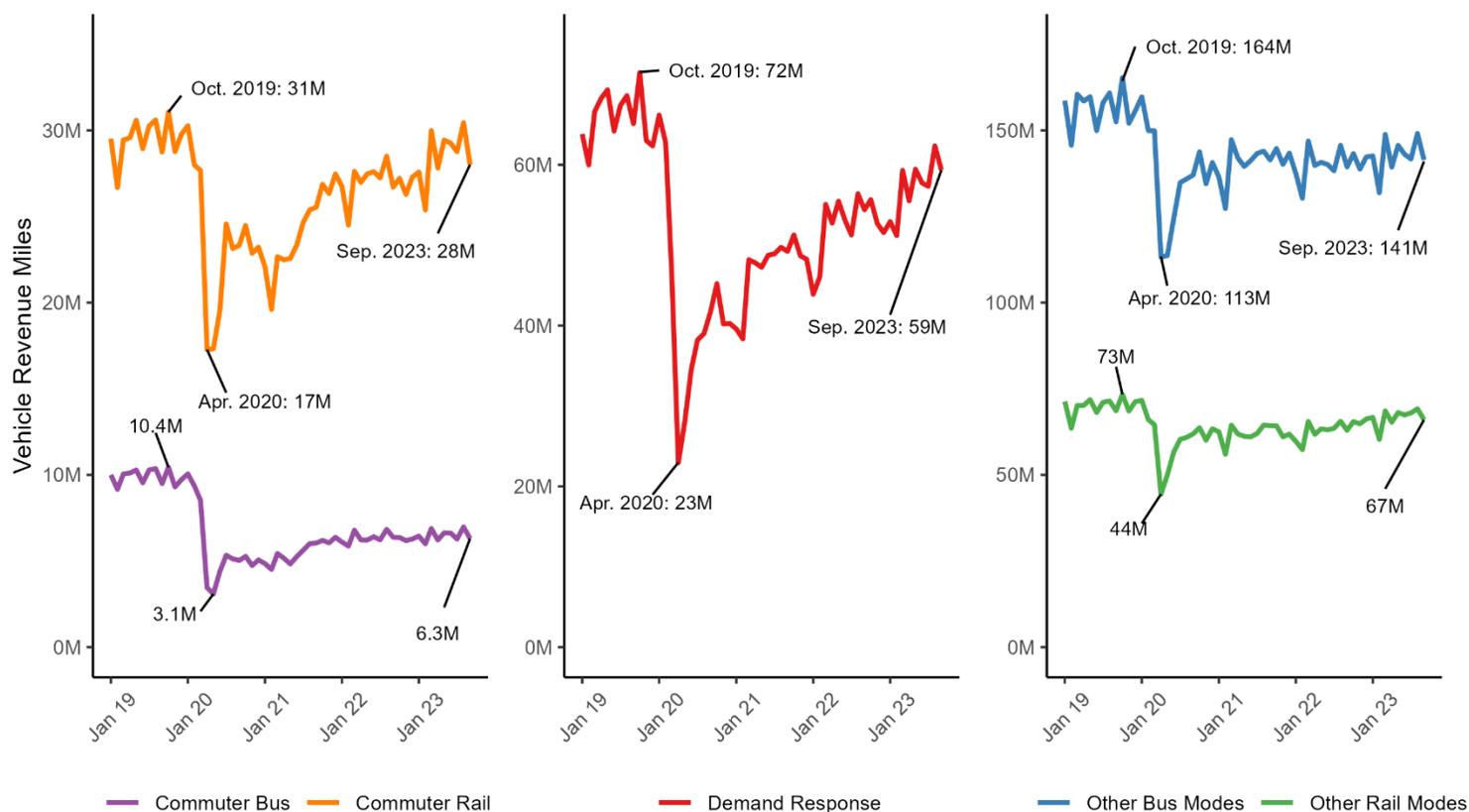
Most transit agencies reduced service levels in response to the pandemic. Of the 518 agencies that reported service to the NTD, 97 percent reduced service between April 2019 and April 2020. Vehicle revenue miles (VRM), or the number of miles transit vehicles travel while in revenue service, decreased by 59 percent in the same period (Figure 5). The percentage decrease in VRM is much lower than the percentage decrease in ridership because most agencies operated baseline levels of service to ensure that essential workers and transit-dependent populations could access key destinations. Agencies also needed to run enough vehicles to allow for social distancing on board.

Figure 5: Monthly Service Levels, All Modes, January 2019-September 2023



Source: National Transit Database

While rail modes (light rail, subway, and commuter rail) saw a steeper decline in ridership than other modes, rail modes saw a smaller decrease in service provision (Figure 6). Many of the overhead costs of operating a rail system remain static regardless of service levels; for example, the costs of keeping rail stations open and staffed remain the same regardless of the number of trains that come through the station each day. As a result, agencies recoup fewer costs by scaling rail service than they do for other modes. As of September 2023, VRM has increased to 91 percent of September 2019 levels for all modes (Figure 6). Rail modes are the closest to 2019 service levels, with commuter rail at 97 percent and other rail modes at 96 percent of September 2019 VRM.

Figure 6: Vehicle Revenue Miles by Mode, January 2019 – September 2023

Note: "Other Bus Mode" includes Motor Bus, Trolley Bus, Rapid Bus; Other Rail Mode = Alaska Rail, Light Rail, Streetcar, Hybrid Rail, Cable Car, Inclined Plane, and Monorail
Source: National Transit Database

Factors Affecting Service Levels

Multiple factors and challenges forced transit agencies to reduce and realign service during the pandemic. In July and August 2021, the American Public Transportation Association (APTA) surveyed its members, which carry 90 percent of transit riders in the U.S. and Canada; 78 percent cited diminished ridership as a primary reason for reducing service. In addition, 36 percent of agencies reduced service to avoid economic losses and 34 percent reduced service because of staff shortages due to illness.²⁵

Financial Losses

As ridership declined, farebox revenues declined from \$16.1 billion in 2019 to \$9.0 billion in 2020 (Table 1).²⁶ Despite reductions in service levels, operating costs tended to remain static. Transit systems, especially rail, are capital

²⁵ Freemark, Jonah, Preeti Shankar, Jorge González-Hermoso, Cyatharine Alias, Jorge Morales-Burnett, and Heidi Persaud. "On the Horizon: Planning for Post-Pandemic Travel." American Public Transportation Association, November 2021. <https://www.apta.com/wp-content/uploads/APTA-On-The-Horizon-Nov2021.pdf>.

²⁶ National Transit Database, TS2.1 Service Data and Operating Expenses Time Series by Mode. Published October 2022

intensive and have high fixed costs, such as salaries, wages, and fringe benefits. While agencies made reductions in service, many still needed to maintain their workforce while dealing with inflation and COVID mitigation costs. An APTA survey found that, in the first six months of the pandemic, 98 percent of agencies increased direct costs due to COVID-19 mitigations, including increased cleaning protocols.²⁷ The significant drop in farebox revenue coupled with sustained or increased costs led to significant decreases in farebox recovery rates, or fare revenues divided by operating costs.

Table 1: National Farebox Recovery of U.S. Transit Agencies, 2016-2021

Year	Fare Revenues	Operating Costs	Farebox Recovery
2016	\$15.7B	\$45.17B	35.0%
2017	\$15.84B	\$46.53B	34.0%
2018	\$15.89B	\$48.43B	32.8%
2019	\$16.07B	\$50.73B	31.7%
2020	\$9.03B	\$49.66B	18.2%
2021	\$6.31B	\$49.71B	12.7%
2022	\$8.94B	\$53.70B	16.7%

Source: National Transit Database

For the 10 largest transit agencies by ridership, fare revenue in 2020 decreased from the previous year by 43 percent (Table 2). Many of these large agencies were more reliant on fare revenue than smaller agencies; for example, the San Francisco Bay Area Rapid Transit District had a 72 percent farebox recovery rate in 2019, compared with the national average of 31.7 percent.²⁸ Unlike smaller agencies, larger agencies are prohibited from using Federal formula funding for general operations. Therefore, they have relied on Federal supplemental emergency funding that was provided in 2020 and 2021 to help fund operations during the pandemic and the recovery period.²⁹

Table 2: Decreases in Fare Revenue and Farebox Recovery Ratios for the 10 Largest Transit Agencies, 2019-2020

Agency	2020 Fare Revenue (Millions)	2020 Operating Expenses (Millions)	2019 Farebox Recovery	2020 Farebox Recovery	2019-2020 Farebox Recovery % Change
MTA New York City Transit	\$2,019	\$8,258	53%	24%	-53%
Chicago Transit Authority	\$236	\$1,436	41%	16%	-59%

²⁷ American Public Transportation Association. "Policy Brief: Impact of COVID-19 on Public Transit Agencies." March 2020.

<https://www.apta.com/wp-content/uploads/APTA-2020-Survey-Impact-COVID-19-Agencies.pdf>.

²⁸ San Francisco Bay Area Rapid Transit District NTD Agency Profile, 2019.

²⁹ USU.S. Department of Transportation. "Urbanized Area Formula Grants - 5307 | FTA," n.d.

<https://www.transit.dot.gov/funding/grants/urbanized-area-formula-grants-5307>.

Agency	2020 Fare Revenue (Millions)	2020 Operating Expenses (Millions)	2019 Farebox Recovery	2020 Farebox Recovery	2019-2020 Farebox Recovery % Change
City and County of San Francisco	\$154	\$903	23%	17%	-26%
King County Department of Metro Transit	\$72	\$802	23%	9%	-60%
Los Angeles County Metropolitan Transportation Authority	\$200	\$1,841	15%	11%	-25%
Massachusetts Bay Transportation Authority	\$545	\$1,557	45%	35%	-21%
New Jersey Transit Corporation	\$744	\$2,326	43%	32%	-26%
San Francisco Bay Area Rapid Transit District	\$342	\$682	72%	50%	-30%
Southeastern Pennsylvania Transportation Authority	\$353	\$1,302	35%	27%	-22%
Washington Metropolitan Area Transit Authority	\$493	\$2,029	33%	24%	-26%
Total	\$9,398	\$22,426	42%	24%	-43%

Source: National Transit Database

Workforce Shortages

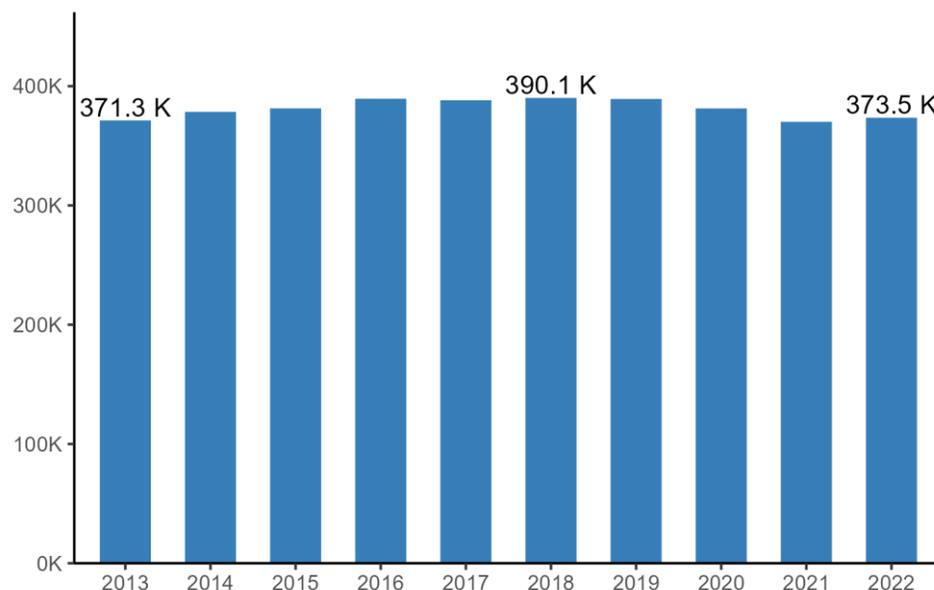
The transit workforce has declined by 17,000 workers from a peak of 390,000 workers in 2018 to 373,000 workers in 2022 (Figure 7). While workforce shortages were a challenge for transit agencies pre-pandemic, the pandemic exacerbated the issue. In a 2022 APTA survey, 96 percent of agencies reported experiencing a workforce shortage.³⁰ Of those agencies, 84 percent said the shortage affected their ability to provide service. Constant exposure to the public and tight breakroom spaces made it difficult for operators to social distance, leading to high rates of illness.³¹ In California, transit workers experienced higher mortality

³⁰ "Transit Workforce Shortage Synthesis Report." American Public Transportation Association, March 2023. <https://www.apta.com/wp-content/uploads/APTA-Workforce-Shortage-Synthesis-Report-03.2023.pdf>.

³¹ Heinzerling, Amy, Ximena P. Vergara, Elisabeth Gebreegiabher, John Beckman, Jessie Wong, Alyssa Nguyen, Sana Khan, et al. "COVID-19 Outbreaks and Mortality among Public Transportation Workers — California, January 2020–May 2022." MMWR. Morbidity and Mortality Weekly Report 71 (August 19, 2022). <https://doi.org/10.15585/mmwr.mm7133a4>.

risk from COVID-19 than workers in other industries.³² The number of operators retiring also increased during the pandemic.³³

Figure 7: Employment in the Transit Workforce, 2013-2022



Source: National Transit Database

Service Reduction Impacts on Historically Disadvantaged Communities

Agencies took different approaches to cutting and adjusting service during the pandemic. While some agencies reduced service by similar percentages across neighborhoods, other agencies pursued smaller reductions in lower-income and other disadvantaged neighborhoods.³⁴ The Greater Richmond Transit Company in Richmond, Virginia, maintained service on local bus routes, focusing on essential workers and equity, and had a smaller reduction in ridership during the pandemic than many other agencies.³⁵ Washington Metropolitan Area Transit Authority in Washington, D.C., reduced service during traditional peak hours and increased service throughout other times of day.³⁶ San Francisco Muni considered their Equity Strategy and transit travel patterns observed during the COVID-19 shelter-in-place order, prioritizing service in neighborhoods with high

³² “Bus Operators in Crisis: The Steady Deterioration of One of Transit’s Most Essential Jobs, and How Agencies Can Turn Things Around.” TransitCenter, July 2022. https://transitcenter.org/wp-content/uploads/2022/07/Bus-Operators-in-Crisis_RGB_Interactive-1.pdf.

³³ “Bus Operators in Crisis,” TransitCenter.

³⁴ DeWeese, James, Leila Hawa, Hanna Demyk, Zane Davey, Anastasia Belikow, and Ahmed El-geneidy. “A Tale of 40 Cities: A Preliminary Analysis of Equity Impacts of COVID-19 Service Adjustments across North America.” Transport Findings, June 25, 2020. <https://doi.org/10.32866/001c.13395>.

³⁵ Freemark, Yonah, Preeti Shankar, Jorge González-Hermoso, Cyatharine Alias, Jorge Morales-Burnett, and Heidy Persaud. “On the Horizon: Planning for Post-Pandemic Travel.” American Public Transportation Association, November 2021. <https://www.apta.com/wp-content/uploads/APTA-On-The-Horizon-Nov2021.pdf>.

³⁶ George, Justin, Kate Rabinowitz, Maria Aguilar, and John D. Harden. “The Pandemic Changed the Workday, but Will Transit Riders Return?” Washington Post, May 17, 2021. <https://www.washingtonpost.com/transportation/interactive/2021/public-transit-ny-dc-metro/>.

shares of people of color and low-income households and service with connections to medical facilities.³⁷ Some agencies even increased service in disadvantaged neighborhoods: the Port Authority in Pittsburgh, Pennsylvania, increased service in neighborhoods with higher percentages of low-income, zero-car households.³⁸

Despite agency attempts to consider equity, transit service cuts did not affect all areas and riders equally. A study of 22 U.S. cities found that Census block groups with socioeconomic disadvantages were more likely to lose transit access during the pandemic. Block groups with multiple social disadvantages experienced an even higher likelihood of losing transit access.³⁹ In another study that surveyed smartphone users across the country during the pandemic, almost 50 percent of respondents claimed they reduced or stopped transit use because of a service change.⁴⁰ Respondents to the survey were more likely to have trouble accessing employment and services if they were living in poverty; unable to increase their levels of telework; living without a driver's license; Hispanic or Latino; or female or a gender minority.

New Services to Address COVID-19 Challenges

Agencies offered new services to address the challenges the pandemic caused both inside and outside the agencies. Many agencies partnered with other organizations to provide new services, such as free rides to vaccination sites, mobile vaccination sites, and meal delivery. Comanche Nation Transit, a tribal transit provider for the Comanche Nation in Oklahoma, offered free transportation for anyone 65 and older to receive a COVID-19 vaccine; the Chicago Transit Authority used buses to host a mobile vaccination clinic that visited participating Chicago Public Schools providing vaccinations; and VIA Transit in San Antonio, Texas, partnered with food banks in the community to deliver food to residents under stay-at-home orders.⁴¹

³⁷ Karner, Alex, Seth LaRue, Willem Klumpenhouwer, and Dana Rowangould. "Evaluating Public Transit Agency Responses to the Covid-19 Pandemic in Seven U.S. Regions." *Case Studies on Transport Policy* 12 (June 2023): 100989.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9987603/>

³⁸ Freemark et al., "On the Horizon."

³⁹ Kar, Armita, Andre L. Carrel, Harvey J. Miller, and Huyen T.K. Le. "Public Transit Cuts during COVID-19 Compound Social Vulnerability in 22 US Cities." *Transportation Research Part D: Transport and Environment* 110 (September 2022): 103435. <https://doi.org/10.1016/j.trd.2022.103435>.

⁴⁰ Parker, Madeleine E.G., Meiqing Li, Mohamed Amine Bouzaghrane, Hassan Obeid, Drake Hayes, Karen Trapenberg Frick, Daniel A. Rodríguez, Raja Sengupta, Joan Walker, and Daniel G. Chatman. "Public Transit Use in the United States in the Era of COVID-19: Transit Riders' Travel Behavior in the COVID-19 Impact and Recovery Period." *Transport Policy* 111 (July 2021): 53–62. <https://doi.org/10.1016/j.tranpol.2021.07.005>.

⁴¹ Viggiano, Cecilia, Naomi Stein, and Allison Van Twisk. *Partnerships for Equitable Pandemic Response and Recovery: A Synthesis of Transit Practice*. Nap.nationalacademies.org. National Academies and Transportation Research Board, 2023.

<https://nap.nationalacademies.org/read/26892/chapter/1>.

Section 3

Longer-term Effects of COVID-19 on Transit Accessibility and Ridership

The transit industry faces ongoing challenges and needs in the post-pandemic world. Ridership has not yet fully recovered, travel patterns continue to change, and the future of funding for transit is uncertain.

Realigned Service and Improved Equity

The pandemic has drastically, and potentially permanently, altered how the transit industry provides service. Prior to the pandemic and the resulting increase in remote and hybrid work, many transit agencies focused their service on peak commuting hours into downtowns and major employment hubs. The pandemic made clear that many of transit's most frequent and dependent riders travel outside peak hours. As a result, many agencies adjusted their schedules and networks during the pandemic to address these travel patterns.

If a significant proportion of former transit riders continue to work from home, 9-to-5 commuter ridership will be permanently reduced. Without corresponding service increases to provide rides for other trip types, transit ridership levels may not fully recover. Hence, service and network redesigns are critical to the long-term sustainability of the transit industry, as well as advancing equity in transportation to make sure that everyone has reliable access to key destinations.

Ongoing Fiscal Challenges

Many of the Nation's transit systems face an uncertain financial future. From 2019 to 2022, local funding for agencies decreased from \$27.1 billion to \$21.5 billion, state funding declined slightly from \$18.0 billion to \$17.4 billion, and fare revenue declined from \$16.1 billion to \$8.39 billion, from a low of \$6.3 billion in 2021 (Figure 8).⁴²

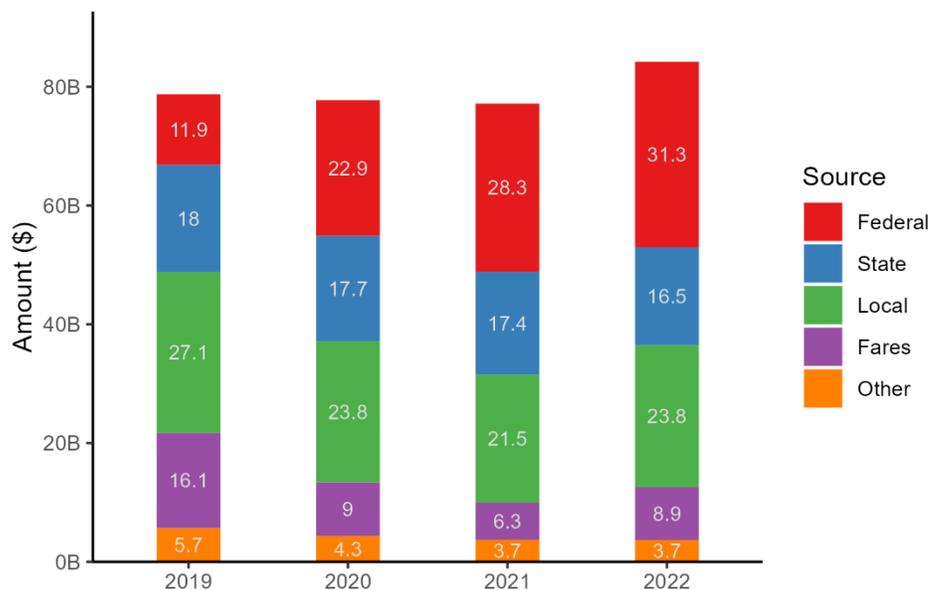
Federal funding, in contrast, increased from \$11.9 billion to \$28.6 billion over the same period. Large transit agencies expended Federal funding on operations at levels not seen since the 1970s, when Federal funding for operations reached its previous peak.⁴³ During the pandemic, the Federal government provided \$69.5 billion in relief funding for the transit industry, including approximately \$25.0

⁴² National Transit Database, TS1.2 Operating and Capital Funding Time Series. Published October 2022.

⁴³ Freemark, Yonah, and Rennert, Lindiwe. "Surmounting the Fiscal Cliff." Urban Institute (November 2023).

billion from the 2020 Coronavirus Aid, Relief, and Economic Security (CARES) Act, \$14.2 billion from the Coronavirus Response and Relief Supplemental Appropriations (CRRSA) Act of 2021, and \$30.5 billion from the American Rescue Plan (ARP) Act of 2021.⁴⁴

Figure 8: Transit Funding Sources, 2019-2022



Source: National Transit Database

Federal funds have compensated for lost fare revenue, sales taxes, and other revenue sources that were vulnerable to the pandemic’s effects over the past three years.⁴⁵ As transit agencies deplete Federal funds, however, they face a potential “fiscal cliff” if they cannot secure additional funding. The Bipartisan Infrastructure Law (BIL) provides over \$108 billion for public transit, but much of that funding is only available for capital projects that improve the condition and capacity of the Nation’s transit infrastructure or for maintenance activities. While current law allows smaller agencies to fund general operations and ridership initiatives with Federal formula grant funding, large transit agencies—agencies with more than 100 vehicles operating in urbanized areas with more than 200,000 people—are ineligible to use formula funds for this purpose.⁴⁶

Without additional operating support, funding shortfalls could force agencies to implement cost-saving measures like cutting service, increasing fares, and postponing or canceling capital projects. These actions could create a “death spiral” of reduced ridership and service, worsening transit performance and

⁴⁴ U.S. Department of Transportation Bureau of Transportation Statistics. “COVID-19 Stimulus Funding for Transportation in the CARES Act and Other Supplemental Bills.” Accessed September 26, 2023. <https://data.bts.gov/stories/s/COVID-19-Stimulus-Funding-for-Transportation-in-th/2cyr-4k8j/>.

⁴⁵ Freemark, Yonah, and Rennert, Lindiwe. “Surmounting the Fiscal Cliff.” Urban Institute (November 2023).

⁴⁶ Federal Transit Administration. “Urbanized Area Formula Grants - 5307.” Accessed October 11, 2023.

<https://www.transit.dot.gov/funding/grants/urbanized-area-formula-grants-5307>.

negatively impacting transit accessibility for riders throughout the Nation. As an alternative, agencies may also secure alternative forms of revenue through diverse means like congestion pricing or drawing on flexible surface transportation funding eligibility in the Federal highway program, which could stave off the fiscal cliff and help maintain transit service levels in the long-term.⁴⁷ Additionally, providing temporary flexibilities to allow large transit agencies to use their Federal funds for operating costs could also help stabilize agencies during this time of transition.⁴⁹

Workforce and Supply Chain Shortages

Transit agencies experienced workforce shortages during the pandemic that contributed to reduced service levels. Agencies still have worker shortages, particularly among bus operator positions, which have higher turnover rates than other agency positions.⁵⁰ In a July 2022 APTA survey, agencies and workers cited compensation, work schedules, and on-the-job harassment or assault as the primary obstacles to recruiting and retaining workers.⁵¹ To address these concerns, agencies are revisiting recruiting strategies; improving the hiring, training, and onboarding processes; adjusting scheduling and incentivizing undesirable shifts; improving approaches to worker safety; and increasing compensation.

Transit agencies also have been facing supply chain shortages that have limited their ability to procure vehicles and increased vehicle costs. Nearly three quarters (71 percent) of agencies responding to a 2023 Mass Transit Magazine survey reported having a vehicle order cancelled or delayed in the past year.⁵² Transit bus deliveries decreased by 64 percent from 6,320 units in 2019 to 4,051 units in 2022, despite the availability of additional Federal funding for vehicles.⁵³ Causes for supply chain shortages include chip shortages for electrical components, issues with shipping logistics, and difficulty maintaining staffing levels at bus production facilities.

⁴⁷ Freemark, Yonah, and Rennert, Lindiwe. "Surmounting the Fiscal Cliff". Urban Institute (November 2023).

⁴⁸ Redeker, Jim, Scott Baker, Viktor Zhong, Susan Binder, Sherri LeBas, Eric Peterson, and Sarah Siwek. Federal Funding Flexibility: Use of Federal-Aid Highway Fund Transfers by State DOTs. National Academies Press. Washington, D.C.: National Cooperative Highway Research Program, Transportation Research Board, 2022. <https://nap.nationalacademies.org/catalog/26696/federal-funding-flexibility-use-of-federal-aid-highway-fund-transfers-by-state-dots>.

⁴⁹ Redeker, Jim, Scott Baker, Viktor Zhong, Susan Binder, Sherri LeBas, Eric Peterson, and Sarah Siwek. Federal Funding Flexibility: Use of Federal-Aid Highway Fund Transfers by State DOTs. National Academies Press. Washington, D.C.: National Cooperative Highway Research Program, Transportation Research Board, 2022. <https://nap.nationalacademies.org/catalog/26696/federal-funding-flexibility-use-of-federal-aid-highway-fund-transfers-by-state-dots>.

⁵⁰ "Bus Operators in Crisis."

⁵¹ "Transit Workforce Shortage Synthesis Report." American Public Transportation Association, March 2023. <https://www.apta.com/wp-content/uploads/APTA-Workforce-Shortage-Synthesis-Report-03.2023.pdf>.

⁵² Wanek-Libman, Mischa. "Special Report: A Look at U.S. Bus Fleets." Mass Transit, April 18, 2023. <https://www.masstransitmag.com/bus/vehicles/article/53056841/special-report-a-look-at-us-bus-fleets>.

⁵³ Roman, Alex. "With COVID Still in Play, Transit Bus Deliveries down for 3rd Straight Year." Metro Magazine, May 2, 2023. <https://www.metro-magazine.com/10197750/transit-bus-deliveries-down-for-3rd-straight-year>.

Moreover, a chassis shortage has affected transit agencies that use smaller buses to provide transit, paratransit, and nonemergency medical transportation service, particularly in rural areas. Agencies have experienced cancelled contracts, delivery delays, and price increases of 30-70 percent due to the shortage.⁵⁴ The transit industry estimates a backlog of 20,000 vehicles, which is projected to take five to seven years to recover.

⁵⁴ Wanek-Libman, Mischa. "What Can Be Done about Transit's Supply Chain Challenges?" Mass Transit, December 27, 2022. <https://www.masstransitmag.com/management/article/21289077/what-can-be-done-about-transits-supply-chain-challenges>.

Conclusion

Extended stay-at-home orders and reduced overall travel decimated transit ridership during the peak of the pandemic and altered transit operations. In response to decreased ridership, operator shortages, and other factors, agencies reduced operating hours to provide only base levels of service for essential workers and transit-dependent riders. Some agencies tried to mitigate service cuts in neighborhoods with higher percentages of transit-dependent riders and essential workers. Nonetheless, as the primary riders during the pandemic, these populations were disproportionately impacted by cuts to service and lost access to needed transit services at a higher rate than others.

Many transit agencies are realigning service based on changed travel behaviors that may never return to pre-pandemic patterns. Although ridership is slowly recovering, many agencies face ongoing fiscal challenges due to decreased fare revenues and dwindling Federal relief funding. Larger agencies that have historically relied heavily on fare revenue and cannot use Federal grant funding for general operations are particularly at risk of facing significant funding shortfalls in the next three to five years. In addition, the industry continues to face workforce and supply chain issues that are driving cost increases for agencies. Federal, State, and local governments will need to revisit historic approaches to transit funding. The economic, environmental, and societal benefits of public transportation are extensive and important. Without additional sustained support, transit agencies may have to take actions that could negatively affect riders and communities across the country.

Acronyms and Abbreviations

APTA	American Public Transportation Association
ARP	American Rescue Plan Act of 2021
BIL	Bipartisan Infrastructure Law
CARES	2020 Coronavirus Aid, Relief and Economic Security Act
COVID-19	Coronavirus Disease 2019
CRRSA	Coronavirus Response and Relief Supplemental Appropriations Act of 2021
DOT	U.S. Department of Transportation
FTA	Federal Transit Administration
NTD	National Transit Database
VRM	Vehicle Revenue Miles



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