

BCG PERSPECTIVE:

Adapting to the Future: Transformative Actions for Transit Agencies in a Post-COVID Era

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Adapting to the Future: Transformative Actions for Transit Agencies in a Post-COVID Era

Over the next few years, public transit systems will need to wrestle with the ripple effects of COVID-19. Established ways of working have become less feasible as agencies face declining ridership, tightening labor markets, and ongoing supply chain challenges.

The good news? In the face of farebox, maintenance, and talent challenges, there are a range of opportunities for transit agencies to pursue, including adapting to new commuting patterns, building more flexibility into service schedules, and leveraging post-pandemic capital infusions from federal and state governments—potentially offering a much-needed chance to invest for a flexible future.

Post-Pandemic Trends Pose Headwinds to Farebox Revenue

Compared with pre-pandemic levels, transit systems across the United States are witnessing a substantial drop in overall ridership. US ridership (including light rail, commuter rail, heavy rail, and buses) declined by ~37% in 2022 versus 2019.² Commuter rail has seen a steeper reduction, with a 48% decline over the same period.² This falling farebox revenue has been largely driven by the following:

Geographic shifts reducing commutes: Many urban areas are seeing a decline in the use of office space thanks to an exodus to more suburban and exurban living enabled by remote work—a trend that is likely to continue far into the future.

Growing alternative transport options: Public transport ridership declined by about 7% in the years before COVID-19, driven partly by the rise of ride hailing and ride sharing apps (e.g., Uber, Lyft)—a trend that accelerated dramatically during the peak of the pandemic.³

Encouragingly, research shows that the nature of trips for people using Ubers is often identifiably different from those on trains or buses. These findings provide transit agencies with the opportunity to leverage rider behavior data in order to improve services and boost ridership.

In the face of falling transit ridership, agencies have managed to retain the majority of service while keeping operating costs relatively consistent despite lower use.⁴ As a result, the share of operating costs covered by farebox revenue slid from ~35%–40% in 2019 to 10%–15% in 2021.⁵

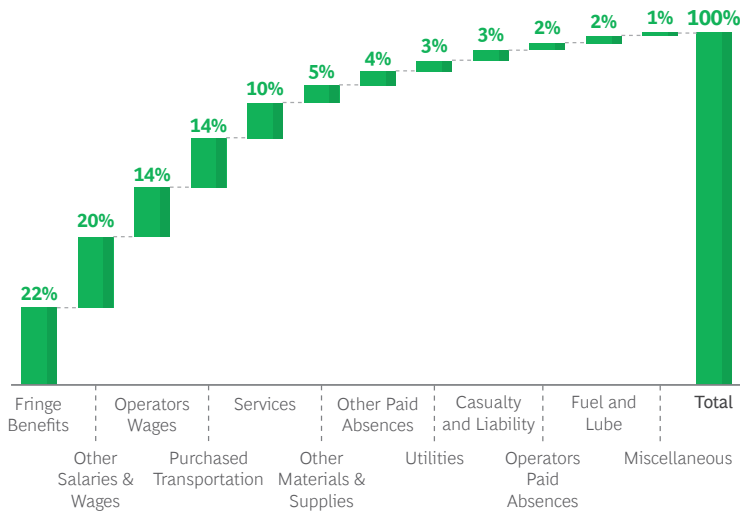
Workforce Challenges Expand as Labor Markets Tighten

Tightening labor pool: Competition for labor in the US has skyrocketed, with a record high 50.5 million individuals quitting their job in 2022 alone (accelerating a 2021 trend), according to the U.S. Bureau of Labor Statistics (BLS).⁶

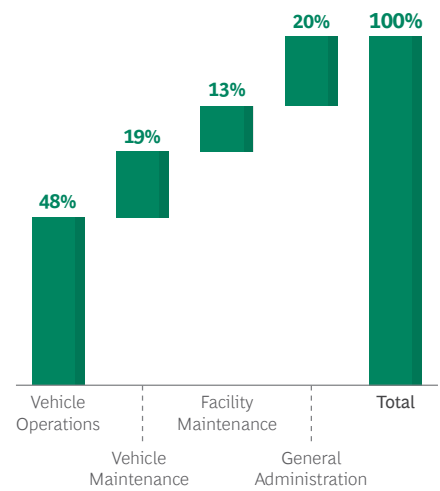
1. “2021 Operating Expenses.” *2021 Operating Expenses | FTA*, www.transit.dot.gov/ntd/data-product/2021-operating-expenses. Accessed 14 June 2023.
2. *Fourth Quarter 2022 Email: DKAHANA@APTA*, www.apta.com/wp-content/uploads/2022-Q4-Ridership-APTA.pdf. Accessed 14 June 2023. *Fourth Quarter 2019 Email: Mdickens@apta*, www.apta.com/wp-content/uploads/2019-Q4-Ridership-APTA.pdf. Accessed 14 June 2023.
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5. *2021 Annual NTD Data Publications Guide - Federal Transit Administration*, www.transit.dot.gov/sites/fta.dot.gov/files/2022-10/2021%20Annual%20NTD%20Data%20Publications%20Guide.pdf. Accessed 14 June 2023. *2019 Annual NTD Data Publications Guide - Federal Transit Administration*, https://www.transit.dot.gov/sites/fta.dot.gov/files/2022-01/2019-NTST-1-2_0.pdf.
6. Greglacurci. “2022 Was the ‘real Year of the Great Resignation,’ Says Economist.” *CNBC*, 1 Feb. 2023, www.cnn.com/2023/02/01/why-2022-was-the-real-year-of-the-great-resignation.html#:~:text=About%2050.5%20million%20people%20quit,to%20leave%20the%20workforce%20altogether.

Exhibit: Summary Breakdown of 2021 Transit Agency Cost Structure from Federal Transit Administration

Salaries & fringe benefits are the largest drivers of US transit agencies' operating spend



Operations & maintenance represent ~80% of US transit agencies' operating spend



Source: FTA Operating Expense Spend Database, <https://www.transit.dot.gov/ntd/data-product/2021-operating-expenses>.

Workers that serve the transit industry and its suppliers are becoming scarce—as evidenced by a rapid increase in job openings since the pandemic (comparing January 2020 with December 2022). The Transportation sector has seen a 72%⁷ increase in job openings, while the Manufacturing sector has seen a 93%⁸ increase, driven by societal factors including broad efforts to re-shore manufacturing to the United States.

Aging workforces driving attrition. Workforce attrition will continue to challenge urban transit agencies.⁹ Their employee base—whose median age is 52.4, 10 years higher than the median across sectors—is retiring at an accelerated rate, leading to a substantial reduction in crucial institutional knowledge.¹⁰ These skill sets are especially important in maintenance, repair, and operations (MRO) roles.

Growing employee skills gaps: The pandemic interrupted traditional in-person training and side-by-side mentorship for employees, causing proficiency gaps in new entrants to the workforce.

7. U.S. Bureau of Labor Statistics, www.bls.gov/jlt/. Accessed 14 June 2023.

8. U.S. Bureau of Labor Statistics, www.bls.gov/jlt/. Accessed 14 June 2023.

9. Tanzi, Alexandre, and Michael Sasso. “Covid Early Retirees Top 3 Million in U.S., Fed Research Shows.” *Bloomberg.Com*, 22 Oct. 2021, www.bloomberg.com/news/articles/2021-10-22/covid-early-retirees-top-3-million-in-u-s-fed-research-show#xj4y7vzkg.

10. “Employed Persons by Detailed Industry and Age.” U.S. Bureau of Labor Statistics, www.bls.gov/cps/cpsaat18b.htm. Accessed 14 June 2023. Thompson, Daniel. “Pandemic Disrupted Labor Markets but Had Modest Impact on Retirement Timing.” *Census.Gov*, 13 June 2023, www.census.gov/library/stories/2022/09/did-covid-19-change-retirement-timing.html.

11. *Sector-Based Training Strategies - U.S. Department of Labor*, www.dol.gov/sites/dolgov/files/OASP/legacy/files/Future_of_work_sector_based_training_strategies.pdf. Accessed 14 June 2023.

12. Golle, Vince, and Reade Pickert. “Supply Chain Latest: Labor, Long Lead Times a One-Two Punch for U.S. Factories.” *Bloomberg.Com*, 3 May 2022, www.bloomberg.com/news/newsletters/2022-05-03/supply-chain-latest-labor-long-lead-times-a-one-two-punch-for-u-s-factories.

13. MRO supplies increasing to ~49 days average lead time, production materials to 100 days (record high, and capital expenditures reaching 173 days), matching record.

A study commissioned by the US Department of Labor—reviewing a selection of upskilling programs focused on the manufacturing sector during the pandemic—finds that ~60% of the programs had to pause trainings during COVID, and those that switched to online or hybrid models saw significant declines in both participation rates and effectiveness.¹¹

Disruptions Across the Supply Chain Continue

Record-high lead times for parts¹²: Lead times are increasing steadily, causing trains to spend more time out of service and raising maintenance costs as workers refurbish existing parts rather than replace them. The average lead time for supplies hit their highest levels since 1987 (per the Institute for Supply Management).¹³

Increased materials costs: Prices continue to increase across the Industrial Goods space. BLS reports that commodity prices for repair and maintenance have increased by ~11% since January 2020.

Reduced competition due to consolidation: Low interest rates through most of the post-pandemic and long-term market dynamics have increased consolidation for rail suppliers (e.g., industrial manufacturing M&A activity increased by 19% in 2021 and 2022 compared with 2019¹⁴). Consolidation within rolling stock OEMs and parts suppliers has seen a particular increase (e.g., Alstom’s purchase of Bombardier, Wabtec’s purchase of GE Transportation).

Infusions of Capital Represent an Opportunity to Invest for the Future

State/Local funding: At the federal, state, and local levels, new funding and assistance programs have been developed to help support transit agency recovery. Examples include a cash infusion provided by the State of New York and the City of New York for the MTA.¹⁵ Another is the State of Illinois injecting funds into its local transit agencies.¹⁶ Federal rescue stimulus, including the American Rescue Plan, has provided more than \$69 billion in emergency aid for transit agencies—in addition to other funding earmarked for infrastructure development.¹⁷ Agencies need to mobilize to take advantage of this once-in-a-generation opportunity to invest for the future.

Actions for Transit Agencies to Take

Transit agencies now have a window of opportunity to re-evaluate their old ways of working and address these challenges head on.

Find New Ways to Drive Revenue

Stimulate ridership: Though many external factors influence ridership, there are levers agencies can pull, including optimizing pricing and developing new incentives to ride. Policy levers—including the MTA’s congestion pricing program for vehicles—can make public transit more attractive than the alternatives.¹⁸

Collaboration with external partners, including online transportation platforms, retailers, educational institutions, and workplaces, can both attract new riders and stimulate new ridership behaviors (e.g., integrating directions and schedule information when customers search for nearby restaurants, events, or attractions).¹⁹ An example of such a partnership is when the Santa Cruz Metro in California collaborated with local wildlife conservation organizations to enable bus riders to receive points for ridership, which could then be easily converted into charitable donations—a platform that highlights public transit’s role in addressing environmental concerns.²⁰

Innovate to unlock revenue beyond the farebox:

Ridership will likely take several years to recover—and may never rise to pre-pandemic levels. Leveraging public transit’s other assets, from real estate to ridership data, could be a way to cultivate new revenue streams that insulate transit agencies from relying on farebox revenue alone. Examples include monetizing station space and leveraging customer data for retail partnerships. Already, best-in-class agencies—Hong Kong’s MTR being a prime example—have been able to achieve non-ridership revenue of as high as ~30%.²¹ Its strategies include leasing shops and advertising space in stations, receiving payments from telecom players offering mobile coverage inside the system, and realizing revenue from real estate development in MTR’s land holdings (e.g., above stations).

Sustainably Control Costs

Invest in technology and leverage existing data to lower costs: Predictive maintenance and the use of telematics (real-time monitoring of components) can significantly drive down maintenance costs without impacting reliability. For most transit agencies, these maintenance costs represent 30%+ of operating expenses (the largest pool of spend).²² However, US transit agencies often lag behind peers, with the vast majority using interval-based schedules across both Maintenance of Way (MoW) and Maintenance of Equipment (MoE). In Europe—and in other countries that are shifting to condition-based methods—MRO costs are significantly lower than for their peers.

14. PricewaterhouseCoopers. “Global M&A Trends in Industrial Manufacturing and Automotive Sectors: 2023 Outlook.” PwC, www.pwc.com/gx/en/services/deals/trends/industrial-manufacturing-automotive.html. Accessed 14 June 2023.

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19. “Rail Industry.” BCG Global, www.bcg.com/industries/transportation-logistics/rail-industry. Accessed 14 June 2023.

20. Hattis, PK. “Santa Cruz Metro Launches One Ride at a Time Program.” *Santa Cruz Sentinel*, 23 Jan. 2023, www.santacruzsentinel.com/2023/01/23/santa-cruz-metro-launches-one-ride-at-a-time-program/.

21. *How Hong Kong’s Subway Makes Huge Profits - South China Morning Post*, multimedia.scmp.com/widgets/hong-kong/mtr/. Accessed 14 June 2023.

22. “2019 Operating Expenses.” *2019 Operating Expenses | FTA*, www.transit.dot.gov/ntd/data-product/2019-operating-expenses. Accessed 14 June 2023.

Outside of investments in new assets, opportunities exist to adopt usage-based maintenance (as opposed to fixed intervals) as part of a transition to a fully predictive—not reactive—maintenance regime. Using existing maintenance and sensor data, this strategy can reduce unnecessary work and lengthen the service lifetime of key parts. In addition, modernizing the shop floor by investing in new automated tools could significantly enhance employee productivity.

One successful example is Deutsche Bahn's (DB) collaboration with General Electric (GE): DB implemented GE's RailConnect 360 monitoring system to analyze rolling stock performance data to optimize its own maintenance, driving a 25% reduction in costs in one pilot alone, with DB Cargo.²³

However, while sensors and telematics are a key component of the future state of predictive maintenance, many transit agencies are already sitting on a trove of data with untapped potential that could be leveraged today. For example, load-weight data for trains that provides information to passengers about how crowded each car on a given train is could also be leveraged for railcar cleaning cycles based on tonnage and passenger usage. Even relatively simple data regarding failure rates by assets could be used to inform maintenance intervals.

Empower the workforce to enable employee growth:

New policies could improve employee retention, with a focus on creating career pathways for frontline workers, ensuring competitive compensation (especially when compared with the private sector), and offering a positive employee experience (e.g., providing a safe and modern workplace).²⁴

Training programs could be modernized, blending pandemic-era digital tools with proven in-person training methods. And to build morale and trust, agencies should provide workers with clear rationale behind any changes coming to their day-to-day jobs.

The US federal government is moving forward in this area: the Federal Railroad Administration has awarded Amtrak \$8 million to increase its number of skilled workers, funding a three-year mechanic training program in six urban training hubs across the country to provide a pipeline for the future workforce. Another example is the ~\$5 million that will be provided to a railroad engineering program at Morgan State University, in partnership with University of Delaware.²⁵

Re-imagine procurement to manage parts costs:

Transit agencies have a unique opportunity to collaborate with suppliers in order to reduce costs. Large suppliers can be re-engaged with a focus on creating contracts with total cost of ownership clauses to protect downside risk if/when material costs increase. Reducing the use of sole-source contracts or bespoke parts in capital projects could minimize the risk of cost increases over the service lifetime of a part.

Finally, to better manage material delays, inventory policies should be reviewed to both ensure that sufficient parts are on hand and eliminate the risk of delivery delays. LA Metro created an Office of Extraordinary Innovation to review and develop new procurement practices.²⁶ Its study on the optimal lifetime of rolling stock finds that shortening the useful lifetime could *reduce* the overall cost of ownership by minimizing the need for mid-life overhauls and avoiding technology obsolescence.

Match service to new commuting habits: To reduce service costs without sacrificing customer needs, agencies can rethink their operations—from train frequency to station cleaning—to sync with new commuting patterns. While ridership remains lower overall, recovery is uneven across times of day and days of the week, as passenger flows have shifted to previously off-peak trains and bounced back more quickly on weekends.²⁷

23. Redaktion, Silicon. "GE Bekommt Großauftrag Der Deutschen Bahn." *Silicon.De*, 15 Mar. 2017, www.silicon.de/41642157/ge-bekommt-grossauftrag-der-deutschen-bahn.

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25. Lazo, Luz. "\$8 Million Federal Grant to Boost Amtrak Workforce amid Worker Shortage." *The Washington Post*, 1 June 2022, www.washingtonpost.com/transportation/2022/06/02/amtrak-expansion-workforce/.

26. *Creative Procurements to Improve Transit Cost and Effectiveness*, www.transit.dot.gov/sites/fta.dot.gov/files/2021-02/FTA-0186-Research-Report-Summary.pdf. Accessed 14 June 2023.

27. "Transit Ridership: Not Expected to Return to Pre-Pandemic Levels This Decade." *The Eno Center for Transportation*, www.enotrans.org/article/transit-ridership-not-expected-to-return-to-pre-pandemic-levels-this-decade. Accessed 14 June 2023.

This presents an opportunity to rethink the sizes of trains, potentially improving spare ratios and reducing MoE costs. Service plans could be adjusted for passenger loads on specific days, which would provide two benefits: reducing the cost of staffing those trains and creating a longer window of track access time for the MoW departments, thereby improving productivity and efficiency.

For example, coming out of the pandemic's crisis phase in the summer of 2021, Washington Metropolitan Area Transit Authority right-sized its schedule to better match ridership levels, shifting focus from peak-time service to expanding off-peak service due to changing ridership for work versus leisure activities.²⁸

Boost accountability for big capital and IT projects:

Transit projects in the United States continue to incur significant cost overruns. A study conducted by the Federal Transit Administration finds that typical costs run ~40% higher than budgeted.²⁹ And, on average, it takes a US project involving tunneling 1.5 years longer to complete than similar international projects.³⁰ IT implementation projects often see delays—and generally result in lower satisfaction than expected.

As infusions of recovery cash become more common, so does scrutiny of agency spending. It is therefore critical for agencies to ensure that they have a purposeful business strategy and operating model in place for both the budgeting and delivery of capital projects and IT investments.

Another requirement of large capital infusions is to ensure that financial reporting complies with regulations, which may require updating technology systems such as SAP/Kronos to reflect new financial logic. It's also critical to ensure clear communication with external stakeholders about any changes to compliance reporting, if required.

Where Should Transit Agencies Begin?

Given the myriad challenges they face – and also the new opportunities at hand – transit agencies should begin by creating a clear baseline set of information to guide their plan of action.

This can include:

1. An up-to-date overview of their current operations (including where spend is flowing today)
2. Fresh look at how ridership patterns and other key factors impacting customer satisfaction have changed

With the right information in place, transit agencies can develop a plan of action to thrive in a post-pandemic world.

28. *Covid-19 FY2022 Service Update - WMATA*, www.wmata.com/about/board/meetings/board-pdfs/upload/4A-Service-Update.pdf. Accessed 14 June 2023. "Metrorail Service Changes to Begin Monday as Part of Revised Budget Due to Covid-19; Metrobus Changes Begin March 14." *Washington Metropolitan Area Transit Authority*, www.wmata.com/about/news/Metrorail-service-changes-to-begin-Monday-as-part-of-revised-budget-due-to-Covid-19.cfm. Accessed 14 June 2023.

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