TSC
TRANSPORT STRATEGY CENTRE

31st October 2022

COVID-19 Cross-Group Benchmarking Review of Recent Activities: Public Report

Contents

Imperial College London
Projects

Overview

The purpose of this document is to help operators optimise their response to the ongoing COVID-19 pandemic by sharing knowledge and experience from a wide range of organisations globally, including many of the largest operators in the world's major cities.

This document summarises recent updates and key findings related to COVID-19, sourced from the benchmarking group members and activities within the groups: over 100 metro, rail, bus and light rail operators participate in the international benchmarking groups (see Appendix A for a list of benchmarking groups and members) managed through the Transport Strategy Centre (TSC) at Imperial College London.

In this edition we review the latest developments around public transport ridership recovery in the context of ongoing repercussions from the pandemic and emerging economic conditions. We also provide a brief discussion of select findings from this year's multi-modal Customer Satisfaction Survey on satisfaction by age and on individual journey points.

All information provided is anonymised to respect confidentiality rules of the benchmarking groups (unless any information has been sourced publicly).

Full references of relevant literature on COVID-19 in the transport industry are provided at the end of this document, along with a short description for each piece of research.

ABBG COMET IMRBG IBBG GOAL ISBERG RIAMBIG

As the focus is shifting away from the pandemic, the role of public transport is redirected towards supporting current economic conditions and decarbonisation

A key question during the pandemic period has been around the concept of the "new normal" - what will this look like and what does this mean for public transport. 28 months on since the emergence of the COVID-19 virus which changed our lives almost instantly, we can now start to understand what this "new normal" may look like for public transport use: never before has there been this much freedom on how and when to travel, particularly for employment purposes (although there are significant regional variations).

In recent weeks and months we have seen governments continue to lift restrictions introduced during the pandemic. In some regions all remaining restrictions have been removed. Much of the world is readying itself to emerge from the pandemic, with new habits and preferences in many areas of life shaped by the pandemic experience, including for travel. This change has meant that the public transport sector has also had to adopt a "new normal", evolving and adjusting to the current needs of its customers.

We can see in this report, as well as past editions, examples of public transport operators continuing to launch marketing strategies to make use of new travel patterns and to target specific market segments to boost post-pandemic demand recovery (e.g. leisure travel), whilst at the same time offering financial relief and equitable access to customers, which will be much welcomed in the context of the current cost of living crisis. As an example, Rhode Island Public Transit Authority in the US is trialling free fares for a year on its highest ridership/frequency bus route.

As the focus shifts away from the pandemic to other critical issues, policies around the value of public transport contributing to, and supporting, environmental ambitions (e.g. government decarbonisation plans) need to move into the forefront of discussions. In addition, customers value the importance of public transport being an environmentally sustainable transport mode: this report discusses select findings from this year's Customer Satisfaction Survey, with satisfaction results from bus users surveyed indicating a general satisfaction with the environmental performance of buses.

It is clear that the public transport sector will have a crucial role to play in economic terms over the coming months and years amidst soaring prices and fuel costs, as well as ongoing COVID which continues to present global challenges. Yet, whilst average public transport demand has recovered to the highest levels since the start of the pandemic, the fact that public transport operators will continue to feel the financial repercussions of the pandemic for some time must not be ignored. Adequate financial support and investment into public transport systems remain a key requirement for operators to deliver the necessary service safely and reliably, which will ultimately provide significant input into a region's economic recovery.

All regions continue to see public transport demand recover to highest levels since the start of the pandemic

Recent Metro Demand Trends

Average **metro ridership** by region as a proportion of pre COVID-19 demand *(monthly demand indexed to the corresponding 2019 month)* is shown in Figure 1. The graph is based on daily demand data collected in the COMET metro benchmarking group. *Note that this graph shows average ridership across all days of the week versus only average weekday ridership in previous issues of the report; this change has been made due to all regions, except for Asia-Pacific, increasingly seeing much stronger weekend recovery versus a flattening out of weekday demand.*

All regions continue to see their highest demand since COVID-19 began, with some initial signs that **demand has been stabilising** in recent months. This can be seen in the latest available demand data which is shown in the dotted lines in Figure 1:

- On average, **European metros** are experiencing the highest demand globally at **87%** of pre COVID-19 levels throughout the week.
  - Germany's popular 9-Euro ticket promotion, valid for unlimited public transport travel throughout the country during June, July and August, has contributed to significant ridership growth on Berlin BVG's network. BVG's metro ridership exceeded pre-pandemic levels for the first time in recent months, with 1 million of this specific ticket type sold by BVG in the first week of June and totalling 3.3 million tickets by August[1].
- The **Asia-Pacific** region is seeing metro demand remain at an average of around **80%** of pre COVID-19 levels for recent months.
  - In contrast to all other regions where trends are reversed, many metros in the Asia-Pacific region continue seeing demand below levels seen in previous pandemic years due to significant outbreaks experienced earlier in 2022.
- Similarly, metro demand in **Latin America** has seen little fluctuation in recent months and has stablised just above an average of **70%** of pre COVID-19 levels since May 2022.
- **North American metros** continue to see their ridership sitting at around **60%** of 2019 levels, on average. *Note that the inclusion of weekend data in the analysis has pushed the North American average nearer to the other regional averages (based on latest available data, the weekday average is around 54% of pre COVID-19 levels vs a much higher weekend average of around 81%).*

Anecdotally, a finding noted by a European and Latin American metro (and perhaps shared more widely) is that **weather conditions** are having a greater influence on travel patterns. For example, there appear to be correlations between adverse wether conditions and lower ridership numbers vs. warmer weather resulting in higher ridership numbers/trips to leisure destinations in cities. This is not surprising given that public transport users have more choice than ever before about when and how to travel, and discretionary journeys (i.e. leisure and retail trips) not only represent a larger proportion of overall trips compared to pre-pandemic times, but are also more influenced by weather conditions.

Comparison of Recent Multi-Modal Demand Trends

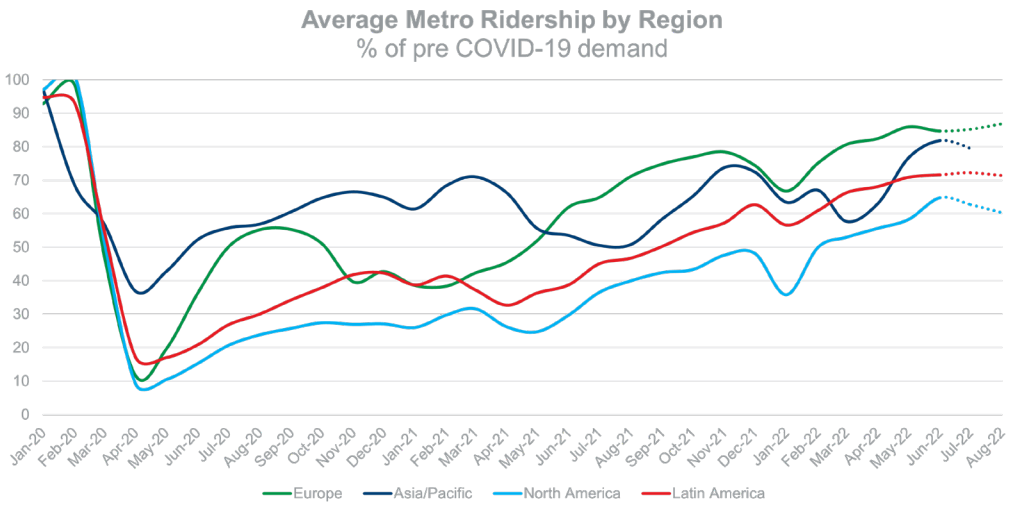
Figure 2 shows average **bus, light rail, suburban rail, and metro ridership** by region *(monthly total demand indexed to pre COVID-19 month, either January/February 2020 or the corresponding 2019 month, depending on the mode)*, based on available data in the benchmarking groups and supplemental data from the US National Transit Database for US operators.

- Further to the significant impacts on demand seen in the **Asia/Pacific** region at the beginning of 2022 due to new COVID-19 outbreaks, public transport ridership has been

Figure 1:

Average metro ridership by region as % of pre COVID-19 demand

Source: TSC/COMET



recovering strongly in recent months. On average, both metro and rail modes have been experiencing their **highest passenger numbers** since the start of the pandemic. *Note that the metro selection for the Asia/Pacific region excludes metros in China and India, and the suburban rail and bus demand trends are based on a small sample.*

- In **North America**, the trends in Figure 2 tell a similar story: multimodal demand across bus, light rail, suburban rail, and metro has recovered to levels not seen since before the pandemic.
  - Light rail, bus and metro have recovered to similar levels of around **63-65%** of pre-pandemic demand on average in June. Throughout much of the pandemic period, the bus mode had led ridership recovery in North America.
    - » In the Benchmarking Group of American Light Rail Systems (GOAL), midday demand has recovered to levels above those seen before the pandemic, reflecting an increase in non-work trips.
  - Demand for suburban rail recovered to just under **50%** of pre-pandemic demand in May.
- Recent months have also brought continued strong demand growth in **Europe**. Already on a strong recovery trajectory during much of 2022, both bus and metro modes have reached levels of around **85%** (June) of pre-pandemic demand as European citizens and visitors continue to return to pre-pandemic life.

Comparison of Recent Service Level Trends

Figure 2 also shows **average service levels by region by mode** as a proportion of pre COVID-19 service *(monthly total service levels indexed to pre COVID-19 month, either January/*

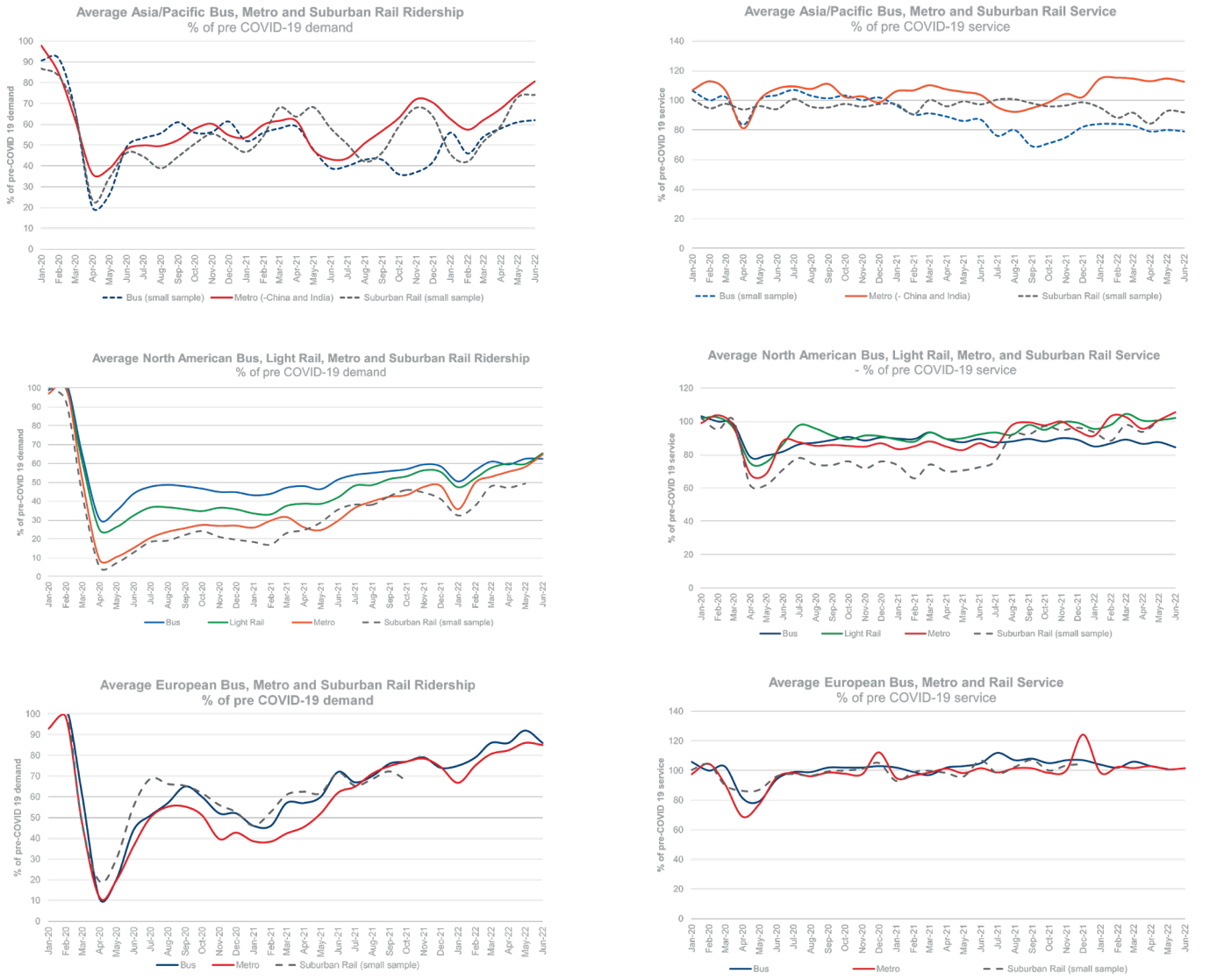


Figure 2:

Average ridership/service by mode/region as % of pre COVID-19 demand/service levels

Source: TSC bus, light rail, suburban rail and metro benchmarking groups / National Transit Database (Federal Transit Administration)

February 2020 or the corresponding 2019 month, depending on the mode). Across the modes, service levels have generally remained at high levels in recent months, which has also been the case for much of the pandemic years.

- In the **Asia/Pacific** region, service levels across bus, rail and metro have stabilised in recent months. Following reductions in service seen in the beginning of the year when the region was battling new COVID-19 outbreaks, bus service levels have now stabilised at around **80%** in June 2022. Suburban rail service has remained at a slightly higher level in Asia/Pacific, sitting just above **90%** based on most recent data for June. Metro service is high at around **115%** of pre-pandemic levels, one contributing factor of which is network expansion. *Note that the metro selection for the Asia/Pacific region excludes metros in China and India, and the suburban rail and bus demand trends are based on a small sample.*
  - Although metros experiencing network expansion in recent years typically exceed 2019 service levels, this is not the case for Singapore SMRT where service levels remain below 2019 levels despite network growth. This is indicative of overall reductions in service across the network.
- Although some fluctuations in service levels can be seen in recent months, modes in the **North America** region have leveled off in June 2022, ranging from **85%** (bus) to **>100%** (light rail, suburban rail, metro) of pre-pandemic service.
  - North American bus operators continue to operate under difficult circumstances whereby staff shortages are impacting on service offer.
- In **Europe**, service levels for bus and metro have returned to pre-pandemic levels and have remained stable throughout 2022. Most recent data suggests just over **100%** of pre-pandemic service on offer for bus and metro, on average.

2022 Customer Satisfaction Survey: New insights on satisfaction levels at individual journey points and by age

CSS Background and Methodology

The satisfaction of customers (i.e. the extent to which organisations meet their customers' expectations) is an important indication of an organisation's success and sustainability. A first Customer Satisfaction Survey (CSS) took place in the International Bus Benchmarking Group (IBBG) in 2009 and expanded to three other benchmarking groups: the American Bus Benchmarking Group (ABBG), the Benchmarking Group of North American Light Rail Systems (GOAL), and COMET. Over 60 members participated in this year's survey, which took place from 28th March until 1st May 2022.

An academic paper[2] by Trompet et al describes the CSS methodology in detail.

New Insights from the 2022 Survey

This year's survey analysis includes new insights into the following two areas:

- Average normalised satisfaction levels at **individual journey points**
- Average overall satisfaction by **demographic factors**, including age

This report summarises a **cross-modal comparison for COMET and IBBG** of the above outputs, as identified from this year's survey results.

Customer Satisfaction at Individual Journey Points

Figure 3 provides a summary of the average normalised satisfaction results at individual journey points for COMET and IBBG, in separate graphs. The scores are ordered by each phase of the customer journey whilst using the metro or bus service (before, during and after the journey):

- The green and red line represents the **average satisfaction of customers at each journey point**.
- The solid grey line is the **member average for all questions** (i.e. the average member customer expectations).
- The line is green if analysis found that a particular journey point **exceeded customer expectations**; red if it **fell below customer expectations**.

The survey results for COMET and IBBG suggest the following for those elements that can be compared between metro and bus journeys:

- Before their journey (left side of the chart), metro customers generally felt satisfied with the availability and reliability of trains and the ability to plan their journey.
- At the station, however, customers felt that station comfort and safety did not meet their expectations.
- During their journey, customers felt very satisfied with the ease of wayfinding and navigating interchanges, as well as getting on and off the train.
- Customer satisfaction fell in relation to train comfort and space availability, train safety, and resolving problems.
  - Some of the scores related to space, comfort and safety on board trains may partly be explained by ongoing pandemic-related concerns that some customers may continue to experience. In particular, concerns may relate to an increasing lack of social distancing opportunities due to the relaxation of restrictions at this stage in the pandemic, increased crowding as demand recovers, and lower levels of mask wearing due to the removal of mandatory masking policies in many cities that COMET metros operate in.
- Before their journey, bus customers, on average, felt satisfied with their bus network and the ease of finding information. However, real-time information, particularly in the event of service disruption, receives a low score from bus customers.

- During their journey, elements related to getting on and off the bus, ease of payment (increasingly cashless for bus travel), and interactions with staff received a high level of customer satisfaction for bus users.
  - The average score for environmental performance also scores above customer expectations and reflects the importance of the bus mode supporting decarbonising road transport (i.e. through both reducing bus emissions and supporting modal shift).
  - Aspects which fell below customer expectations include comfort, cleanliness and ambience, all of which, similar to metro findings, may partly be a result of changing expectations due to the pandemic: recovering bus demand alongside fewer COVID-19 restrictions may impact on customer satisfaction in these areas.

Relative to one another, metros appear to better meet customer expectations around **journey planning**, **frequency**, and **fare payment**, whereas the bus mode seems to better meet expectations around **reliability**, **alternative information in case of disruption**, and **resolving problems**. Both modes are evenly matched for **route network** (above customer expectation), **real-time information** (below customer expectation), and **staff helpfulness** during the journey (at or above customer expectation). Both metro and bus fall below customer expectations for problem resolution after the journey.

Customer satisfaction by age

Figure 4 provides a summary of the average customer satisfaction results by age for COMET and IBBG, in separate graphs:

- The grey line represents the range of scores for COMET and IBBG members, for each age category.
- The median score is labelled with an orange dot for each age category.

A review of customers' overall average satisfaction by age for COMET and IBBG indicates that:

- The under 18s age category generally scores the highest level of overall satisfaction for both metro and bus modes. This may be explained by the fact that the trip purpose of survey respondents in this age group tend to largely be for educational purposes (i.e. to and from school) and may not have the same level of expectations of customers in the older age groups.
- In general, the working age categories (i.e. 19-49 and 50-65 year olds), are less satisfied with metro and bus service, whereas results from the over 65s show an improvement in satisfaction levels. A possible explanation for this may be that the younger customers are likely to travel on public transport more frequently for work purposes compared to the oldest age group. As such, they are more likely to

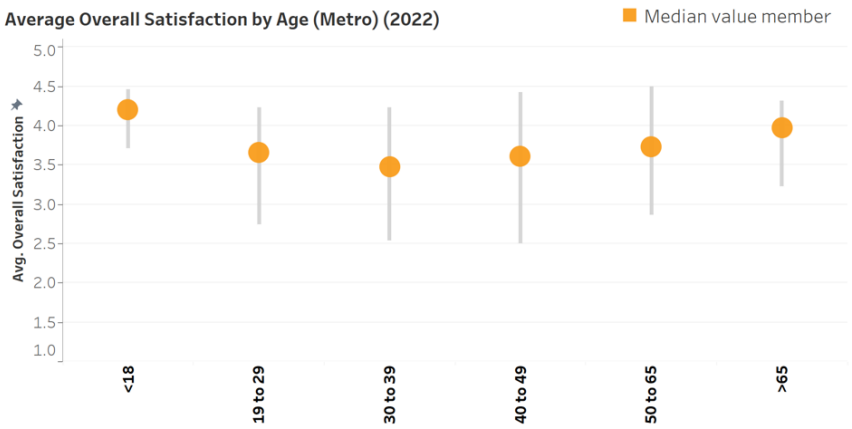
Figure 3:

Average Normalised Satisfaction Levels at Individual Journey Points - Metro and Bus (2022)

Source: TSC/IBBG/COMET

experience dissatisfaction with service than passengers who may travel on a more infrequent basis and who perhaps are also more likely to travel outside of peak hours when many aspects of travel and service are improved due to lower demand and less road traffic (for bus service).

- Both metro and bus survey results show a similar pattern where working age customers are less satisfied than customers in the youngest and oldest age groups.



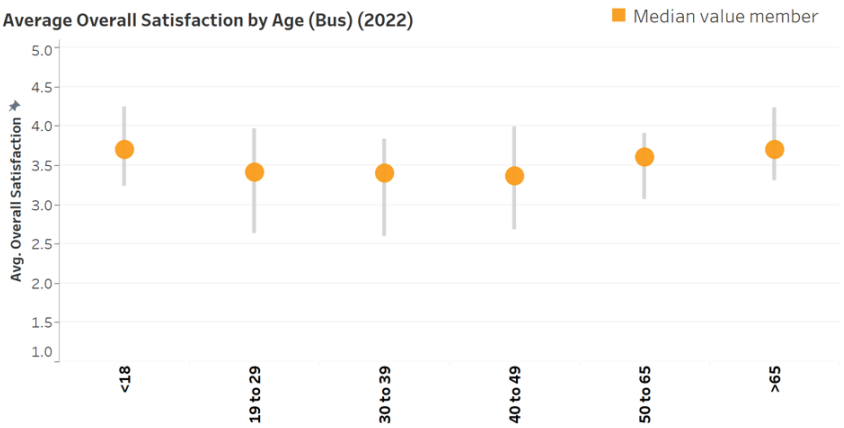


Figure 4:

Average Overall Satisfaction by Age - Metro and Bus (2022)

Source: TSC/IBBG/COMET

Practical Examples

This section summarises recent information on promotional initiatives, political decisions or operational decisions around specific COVID-19 practices as the pandemic evolves.

New York State ends public transport mask mandate on 7th September 2022

After 28 months of mandatory mask wearing on public transport, the state of New York no longer requires passengers to wear a mask on its services. This follows the end of the national US mask mandate in April, which was not adopted by the state of New York at the time.

Greater Dayton RTA extends free weekend rides until 1st January 2023

The Greater Dayton RTA is continuing to offer **free weekend rides until 1st January 2023**[3], a promotion which was first introduced for the summer months and which has now been extended to ensure equitable access and to allow passengers to save money on weekend travel. This promotion applies to both fixed route and paratransit bus service.

Rhode Island Public Transit Authority begins year-long trial of free fares on highest ridership route

The Rhode Island Public Transit Authority (RIPTA) has begun a **free fare pilot programme** on its highest frequency and highest ridership route[4]. The progamme, which launched on 1st September, is the result of state funding and will provide an opportunity to analyse the impacts of fare free public transport to help inform future discussions on fares.

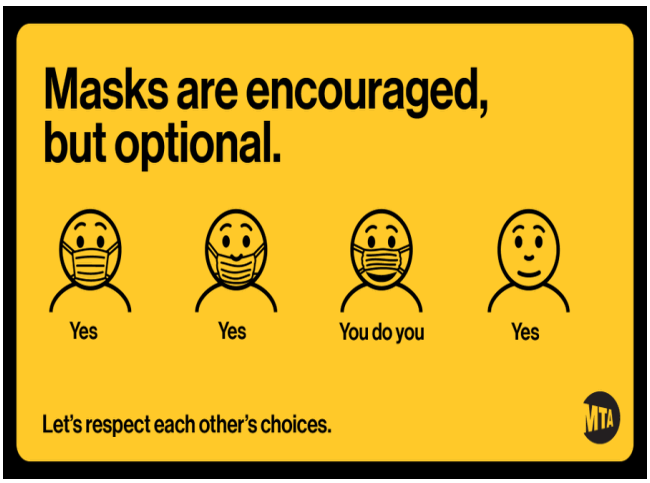
Washington State funding package supports the launch of a free youth fare on public transport

A Free Youth Transit Pass[5] has been introduced in the state of Washington in the US, which gives passengers aged 18 and below access to free travel on public transport. The free pass is a result of Move Ahead Washington, a statewide transportation funding package which was approved earlier this year. Under this package, public transport operators become eligible for grant funding when meeting the deadline of 1st October 2022 for implementing the youth fare policy.

One operator, Seattle King County Metro[6], is estimated to receive USD $31.7 million for implementing the free youth fare policy, far exceeding the annual fare revenue typically generated by passengers in the under 18's age group (estimated to be around USD $10 million).

London's Bus Action Plan to support pandemic recovery and shape the city's future bus network

As the city emerges from the pandemic, London's **Bus Action Plan**[7] targets a transformation in the customer experience for bus users. The action plan targets a bus network that meets the diverse needs of London's bus users, and it sets out the steps to respond to some of the key challenges facing the city, including how the bus network can support the climate agenda and contribute to London becoming a net zero city by 2030 (a target set by the Mayor of London), and helping avoid a car-based recovery from the pandemic through demand recovery.



Source: New York MTA

Endnotes

1 https://unternehmen.bvg.de/pressemitteilung/endspurt-fuer-das-9-euro-ticket/

2 https://journals.sagepub.com/doi/10.3141/2351-02

3 https://www.iriderta.org/about/news-and-media/rta-extending-free-weekend-rides-through-new-years-day

4 https://www.ripta.com/ripta-launches-year-long-free-transit-pilot-program-beginning-september-1-2022-on-the-r-line/

5 https://www.communitytransit.org/freeyouthtransitpass

6 https://kingcounty.gov/elected/executive/constantine/news/release/2022/August/25-free-youth-transit-pass.aspx

7 https://content.tfl.gov.uk/bus-action-plan.pdf

References

Relevant COVID-19 Literature

Barbieri DM, Lou B , Passavanti M, Hui C, Hoff I, et al. (2021) Impact of COVID-19 pandemic on mobility in ten countries and associated perceived risk for all transport modes. PLoS ONE 16(2): e0245886.
Description: A cross-country study researching the individual mobility patterns for all transport modes before and during restrictions. The study findings suggest that air and bus travel are perceived by the public to be the riskiest transport modes for COVID-19 transmission, and avoidance of public transport for commuting and non-commuting trips is found across all 10 countries included in the research.

Dai J, Liu Z, Li R (2021) Improving the subway attraction for the post-COVID-19 era: The role of fare-free public transport policy. Transport Policy.
Description: This paper reviews the impact of fare-free policies in three Chinese cities to attract passenger demand. The study identifies that the role of the fare-free policies in helping recover demand is limited and recommends the use of multi-pronged approaches in combination with fare-free policies.

Di Carlo P, Chiacchiaretta P, Sinjari B, Aruffo E, Stuppia L, De Laurenzi V, et al. (2020) Air and surface measurements of SARS-CoV-2 inside a bus during normal operation. PLoS ONE 15(11): e0235943
Description: Air and surfaces of buses in an Italian town were tested during regular operations with average passenger loads of 123 passengers per run. All air and surface samples tested negative for the presence of the Sars-Cov-2 virus, indicating the effectiveness of cleaning, ventilation, and social behaviour policies (i.e. social distancing and wearing of masks). It should be noted that the infection status of passengers at the time of testing was unknown.

Dong H, Ma S, Jia N, Tian J (2021) Understanding public transport satisfaction in post COVID-19 pandemic. Transport Policy, Elsevier.
Description: The aim of this research is to understand passengers' psychological responses to the pandemic over time as public transport begins to resume its operations with the pandemic almost entirely contained in China. A cross-sectional survey was conducted in eight cities of China where the public transport system had been temporarily closed because of the pandemic. The results indicated that (1) passengers' feelings of safety enhanced their overall satisfaction with regard to public transport, (2) state anxiety has a negative effect on perceived safety, (3) state anxiety increases as passengers are psychologically closer to the pandemic, and (4) passengers pay more attention to information that is psychologically closer to the pandemic and perceive lesser safety on public transport. These findings not only reveal the internal mechanisms behind how passengers perceive safety but may also provide insight for future disaster emergency management. Based on the results, some feasible suggestions are proposed to avoid the loss of ridership and help public transport systems recover.

Gkiotsalitis K (2021) Public transport planning adaption under the COVID-19 pandemic crisis: literature review of research needs and directions. Transport Reviews, Volume 41, Issue 3, Taylor and Francis.
Description: This literature review aims to systematically review and synthesise the literature on the impacts of COVID-19 on public transport to identify the need to adjust planning measures, and, on the other hand, the existing methods for public transport planning at the strategic, tactical and operational level. Intervention measures that can support public transport service providers in planning their services in the post-shutdown phase and their respective modelling development requirements are identified. This can support the transition from the initial ad-hoc planning practices to a more evidence-based decision making.

Ku, D., Yeon, C., Lee, S., Lee, K., et al. (2021) Safe traveling in public transport amid COVID-19. Science Advances, Volume 7, Issue 43.
Description: Simulation of the exposure to infection on public transport and analysis of the risk of infection in an environment where mandatory prevention measures are in place. The simulation finds that the mandatory wearing of masks provides a similar effect to a 2m social distance in preventing COVID-19, whereas social distancing with masks during peak hours reduces infection rates by 93.5% and 98.1%, respectively.

Hörcher, D., Singh, R., Graham, DJ., (2021) Social distancing in public transport: Mobilising new technologies for demand management under the Covid-19 crisis. Transportation.
Description: This paper reviews the literature of five demand management methods to enforce social distancing on public transport and the practical applicability of each method: 1. inflow control with queueing, 2. time and space dependent pricing, 3. capacity reservation with advance booking, 4. slot auctioning, and 5. tradeable travel permit schemes.

Hunt, M. (2020) Covid-19 Transmission Rates on Rail, Technical report, RSSB.
Description: A recent report by the UK Rail Safety and Standards Board (RSSB) estimated the infection risk on UK rail as a function of the inter-personal contact risk, the number of contacts per journey, and any mitigating factors. The risk of infection was estimated to be 1 in 11,000 journeys or 0.009% per journey. The report was published in August 2020, and so infection parameters were based on disease dynamics at that

time. Since then, infection dynamics have altered with the introduction of new variants, and the RSSB acknowledges that the quoted infection risk is likely to increase.

Moreno, T. et al (2021) Tracing surface and airborne SARS-CoV-2 RNA inside public buses and subway trains. Environment International 147 (106326) 1-11.

Description: Air and surfaces of buses and subway trains in Barcelona were tested - 30 out of 82 air and surface samples showed evidence of target RNA genes of the Sars-Cov-2 virus, with surface swabs showing more positive results than air samples. After bus cleaning, there was a reduction in positive surface swab samples, however 4 from 30 samples still yielded positive results. Further testing on the efficacy of cleaning is recommended.

Mutambudzi, M. et al. (2020) Occupation and risk of severe COVID-19: prospective cohort study of 120 075 UK Biobank participants. Occupational and Environmental Medicine.
Description: Research identifies that essential workers have a higher risk of severe illness from COVID-19. Risk to public transport workers is found to be double that of non-essential workers.

Tardivo A , Zanuy AC , and Martin CS (2021) COVID-19 Impact on Transport: A Paper from the Railways' Systems Research Perspective. Transportation Research Record.
Description: Analysis of the impact of the COVID-19 pandemic on the rail sector identifies resilience, return, reimagination, reform, and research, as the necessary steps to provide service and enhance rail competitiveness and resilience in the event of future crises.

Yabe, T., Tsubouchi, K., Fujiwara, N. et al. (2020) Non-compulsory measures sufficiently reduced human mobility in Tokyo during the COVID-19 epidemic. Scientific Reports 10, 18053.
Description: A study of mobility patterns in Japan showed that reductions in mobility (attributed to soft lockdown policies) were associated with reductions in the case reproduction number.

Zachreson C, Mitchell L, Lydeamore MJ, Rebuli N, Tomko M, Geard N. (2021) Risk mapping for COVID-19 outbreaks in Australia using mobility data. Journal of the Royal Society Interface 18: 20200657.
Description: COVID-19 outbreaks in Australia were found to be well predicted by mobility data - especially at locations associated with habitual travel patterns e.g. workplaces.

Contact us

The TSC at Imperial College London

The Transport Strategy Centre (TSC), previously known as The Railway and Transport Strategy Centre, was established in 1992 as a centre of excellence serving the railway industry on strategic, economic and technology issues. Today, the TSC is a globally recognised team specialising in performance benchmarking, research and policy for industry and government.

The Applied Research Team within the TSC works directly with industry to improve performance in public transport worldwide, based on a systematic process managed and facilitated by the TSC through multi-year international benchmarking projects.

Imperial College London is a global university with a world-class reputation in science, engineering, business and medicine. Well known for its excellence in teaching and research, Imperial College London is consistently rated in the top 10 universities worldwide.

Thank you for reading this report.

For any enquiries, please contact the TSC.

Richard Anderson
Managing Director
richard.anderson@imperial.ac.uk

Alex Barron
Head of Metro and Light Rail Benchmarking
alexander.barron@imperial.ac.uk

Ben Condry
Head of Railway Benchmarking
b.condry@imperial.ac.uk

Mark Trompet
Head of Bus Benchmarking
m.trompet@imperial.ac.uk

Alexandra Williams
Centre Support Manager
alexandra.williams@imperial.ac.uk

Transport Strategy Centre
Department of Civil and Environmental Engineering
Imperial College London
South Kensington Campus
London, SW7 2AZ
United Kingdom

Appendix A

List of Benchmarking Groups and Members

COMET
Community of Metros
Benchmarking Group

American Metros

- Emova (Buenos Aires – Argentina)
- Washington Metropolitan Area Transit Authority (Washington DC – United States)
- Honolulu Rail Transit (Honolulu - United States)
- MTA New York City Transit (New York – United States)
- New York PATH (New York - United States)
- Ottawa OC Transpo (Ottawa – Canada)
- Metrô Rio (Rio de Janeiro – Brazil)
- Metro de Santiago (Santiago – Chile)
- San Francisco Bay Area Rapid Transit (San Francisco – United States)
- Sistema de Transporte Colectivo (Mexico City - Mexico)
- Société de transport de Montréal (Montréal – Canada)
- Metro São Paulo (São Paulo – Brazil)
- Toronto Transit Commission (Toronto – Canada)
- Vancouver SkyTrain (Vancouver – Canada)

European Metros

- Transports Metropolitans de Barcelona (Barcelona – Spain)
- Berliner Verkehrsbetriebe (Berlin – Germany)
- Société des Transports Intercommunaux de Bruxelles (Brussels – Belgium)
- Docklands Light Railway (London – United Kingdom)
- Metro Istanbul (Istanbul – Turkey)
- Metropolitano de Lisboa (Lisbon – Portugal)
- London Underground Limited (London – United Kingdom)
- Metro de Madrid (Madrid - Spain)
- Tyne and Wear Metro (Newcastle – United Kingdom)
- Oslo Sporveien (Oslo - Norway)
- Régie Autonome des Transports Parisiens Métro (Paris – France)
- Régie Autonome des Transports Parisiens RER (Paris – France)

Asian Metros

- Bangalore Namma Metro (Bangalore – India)
- Bangkok Expressway and Metro Public Company (Bangkok – Thailand)
- Beijing Mass Transit Railway Operation Corp. (Beijing – China)
- Delhi Metro Rail Corporation Ltd (Delhi – India)
- Roads and Transport Authority (Dubai – United Arab Emirates)
- Guangzhou Metro Corporation (Guangzhou – China)
- MTR Corporation Limited (Hong Kong)
- MRT Jakarta (Jakarta – Indonesia)
- Nanjing Metro Operation Corp. (Nanjing – China)
- Seoul Metro (Seoul – South Korea)
- Shenzhen Metro Operation Corp. Ltd (Shenzhen – China)
- Singapore Mass Rapid Transit Corporation Ltd (Singapore)

- Shanghai Shentong Metro Group (Shanghai – China)
- Syarikat Prasarana Negara Berhad (Kuala Lumpur – Malaysia)
- Taipei Rapid Transit Corporation (Taipei – Taiwan)
- Tokyo Metro Co., Ltd. (Tokyo – Japan)
- Sydney Metro (Sydney – Australia)
- Sydney Trains (Sydney – Australia)

ISBERG
International Suburban Rail Benchmarking Group

- Ferrocarrils de la Generalitat de Catalunya (Barcelona – Spain)
- Queensland Rail (Brisbane – Australia)
- S-Tog, Danish State Railways (Copenhagen – Denmark)
- PRASA – Metrorail (Cape Town – South Africa)
- MTR Hong Kong (East Rail, West Rail, Tuen Ma & Tung Chung Lines – Hong Kong)
- MTA Long Island Rail Road (New York – United States)
- London Overground (London – United Kingdom)
- Metro Trains Melbourne (Melbourne – Australia)
- MTA Metro-North Railroad (New York – United States)
- S-Bahn Munich, Deutsche Bahn (DB) Regio (Munich – Germany)
- Commuter Rail, Vygruppen (Oslo – Norway)
- San Francisco Bay Area Rapid Transit (San Francisco – United States)
- Sydney Trains (Sydney – Australia)

IMRBG
International Mainline Rail Benchmarking Group

- Danish State Railways (Denmark)
- Irish Rail (Ireland)
- Nederlandse Spoorwegen (Netherlands)
- Société nationale des chemins de fer belges (Belgium)
- New South Wales TrainLink (New South Wales, Australia)
- Via Rail Canada (Canada)
- V/Line (Victoria, Australia)

GOAL
Benchmarking Group of North American Light Rail Systems

- Niagara Frontier Transportation Authority (Buffalo – United States)
- Maryland Transit Administration (Baltimore – United States)
- Calgary Transit (Calgary – Canada)
- Charlotte Area Transit System (Charlotte – United States)
- Dallas Area Rapid Transit (Dallas – United States)
- Edmonton Transit System (Edmonton – Canada)
- Hampton Roads Transit (Norfolk – United States)
- Ottawa OC Transpo (Ottawa – Canada)
- Pittsburgh Regional Transit (Pittsburgh – United States)
- Tri-County Metropolitan Transportation District (Portland – United States)
- San Diego Metropolitan Transit System (San Diego – United States)
- Sound Transit (Seattle – United States)
- Toronto Transit Commission (Toronto – Canada)
- Utah Transit Authority (Salt Lake City – United States)

International Bus Benchmarking Group

- Transports Metropolitans de Barcelona (Barcelona – Spain)
- Société des Transports Intercommunaux de Bruxelles (Brussels – Belgium)
- Dublin Bus (Dublin – Ireland)
- IETT Isletmeleri Genel Müdürlügü (Istanbul – Turkey)
- Rapid Bus Sdn Bhd (Kuala Lumpur – Malaysia)
- Companhia Carris de Ferro de Lisboa (Lisbon – Portugal)
- London Buses (London – United Kingdom)
- Societe de Transport de Montréal (Montréal – Canada)
- MTA – New York City Transit & MTA Bus (New York – United States)
- Régie Autonome des Transports Parisiens (Paris – France)
- King County Metro Transit (Seattle – United States)
- SMRT Buses (Singapore)
- Coast Mountain Bus Company (Vancouver – Canada)

American Bus Benchmarking Group

- Capital Metropolitan Transportation Authority (Austin – United States)
- Maryland Transit Administration (Baltimore – United States)
- Niagara Frontier Transportation Authority (Buffalo – United States)
- Charlotte Area Transit Systems (Charlotte – United States)
- Dallas Area Rapid Transit (Dallas – United States)
- Des Moines Area Regional Transit Authority (Des Moines – United States)
- Greater Dayton Regional Transit Authority (Dayton – United States)
- Lane Transit District (Eugene – United States)
- Mass Transportation Authority (Flint – United States)
- Foothill Transit (West Covina – United States)
- Hampton Roads Transit (Hampton Roads – United States)
- Jacksonville Transportation Authority (Jacksonville – United States)
- Milwaukee County Transit System (Milwaukee – United States)
- Orange County Transportation Authority (Orange – United States)
- Pittsburgh Regional Transit (Pittsburgh – United States)
- Regional Transit Service (Rochester – United States)
- Rhode Island Public Transit Authority (Rhode Island – United States)
- Greater Richmond Transit Company (Richmond – United States)
- Omnitrans (San Bernardino – United States)
- San Joaquin Regional Transit District (Stockton – United States)
- Pinellas Suncoast Transit Authority (St. Petersburg – United States)
- Spokane Transit Authority (Spokane – United States)
- Utah Transit Authority (Salt Lake City – United States)
- Clark County Public Transportation Benefit Area (Vancouver – United States)

Railway Infrastructure Asset Management Benchmarking Group

- Queensland Rail (Brisbane – Australia)
- KiwiRail (New Zealand)
- Public Transport Authority Perth (Perth – Australia)
- Sydney Trains (Sydney – Australia)