

Transforming Public Transport Forum

Report and findings
October 2022

Making public transport
the first choice



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Foreword

COVID-19 has been a major disruptor to public transport globally and how people move around our cities and regions. However, the pandemic has also provided an opportunity for authorities and operators to accelerate major public transport innovations, including real-time passenger information, contactless payments and improved network integration.

The **Transforming Public Transport (TPT) Forum** was an invaluable opportunity to curate and collect the lessons learnt, share case studies of local solutions to global challenges and facilitate an industry-wide conversation about how we can improve public transport and sustainable mobility in the Australian and New Zealand context.

Over five sessions, nearly 300 delegates from across Australia and New Zealand came together to hear from 40 subject matter experts from our region as well as the United Kingdom, United States, Singapore, China, Switzerland and Finland. They offered insights and inspiration for how we can not only get our pre-pandemic passengers to return to public transport, but also win new customers.

The Public Transport Association Australia New Zealand (PTAANZ) is delighted to present this summary of the key findings and knowledge exchanged at the TPT Forum to serve as a lasting record of this pivotal time for our industry and provide a roadmap for a bright future for our cities and regions where public transport and sustainable mobility are the first choice for all.



Sue Chan
Acting Chief Executive Officer
Public Transport Association Australia New Zealand (PTAANZ)



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About this report

This report contains views shared at the Transforming Public Transport Forum (the TPT Forum), which was held online over 5 sessions between 28 September and 21 October 2021. The Forum brought together nearly 300 delegates who heard from 40 local and international speakers. This report was prepared by Aurecon based on the views expressed at the Forum, which might have changed.



About the authors

Public Transport Association Australia New Zealand

The Public Transport Association Australia New Zealand (PTAANZ) is the peak body for all modes of public transport and sustainable mobility in this region. We represent the interests of over 70 key transport authorities, major operators, industry suppliers, manufacturers, advisory firms and universities. PTAANZ partners with our members to champion a sustainable public transport future in Australia and New Zealand and build and sustain world-class public transport networks that meet the needs of the communities we serve.

After 20 years operating as a regional branch of a global public transport association, in 2022 we underwent an exciting transformation to a regionally based organisation with a new brand, PTAANZ. This pivot allows us to focus on the unique public transport landscape in our region while continuing to draw on best practice and lessons learnt from cities locally and abroad.

Under the stewardship of our Board of Directors, which comprises industry leaders from Australian and New Zealand public transport authorities and C-suite executives from operators and suppliers, PTAANZ envisions a future of mobility excellence, innovation and sustainability. Our association, together with our members, are the driving force leading the way to realising this vision.

As part of our goals to **inspire curious minds, cultivate relationships and champion the future of sustainable mobility**, PTAANZ provides members with opportunities to share knowledge, develop skills, gain industry expertise and interact with decision-makers in policy discussions. We also amplify our members' capacity to deliver their public transport and sustainable mobility options.

Aurecon

Aurecon is a design, engineering and advisory company that brings ideas to life to create a better future for people and the planet.

In 2020, the Australian Financial Review named us Australasia's most innovative company and most innovative professional services company.

Our clients' ideas and aspirations drive all that we do. We work alongside them like no other firm to co-create clever, innovative solutions to some of the world's most complex challenges, adding value across the project lifecycle through deep technical and advisory expertise.

We serve our clients across a range of markets and international locations. Hardwired in our DNA are engineering, design and the deep need to leave a legacy. We are as diverse as we are dynamic. As curious as we are clever.

Drawing on our deep pool of knowledge, we bring vital engineering experience, technical capability and design expertise to the table. Then we listen deeply and intently.

We see the opportunities, possibilities and potential that others don't. Through a range of unique creative processes and skills, we collaborate with our clients to re-imagine, shape and design a better future.

We believe humanity depends on engineering; and we recognise we have a broader stewardship role to play. A deep responsibility to hold. As we continually strive for a life in balance, Aurecon clients will be ready for the future and engineered for life.



Sam Linke

Integrated Transport & Mobility Capability Leader, Aurecon
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1. Executive Summary

The **Transforming Public Transport Forum** was proudly presented in 2021 in partnership with the Victorian Department of Transport and Aurecon.

Almost 300 virtual attendees took a deep dive into how authorities and operators could innovate and amplify the resiliency of public transport networks and customer offerings in Australia and New Zealand. The aim was to ensure that public transport remains the backbone of mobility in cities and towns, elevates its role and attractiveness to customers, and mitigates the risk of a car-led recovery from the COVID-19 pandemic.

A public transport sector that transforms with innovation and resilience in the face of the “COVID-comet” (the term coined by author and demographer Bernard Salt AM) will provide customers with travel options that are flexible and useful, with amenity and functionality.

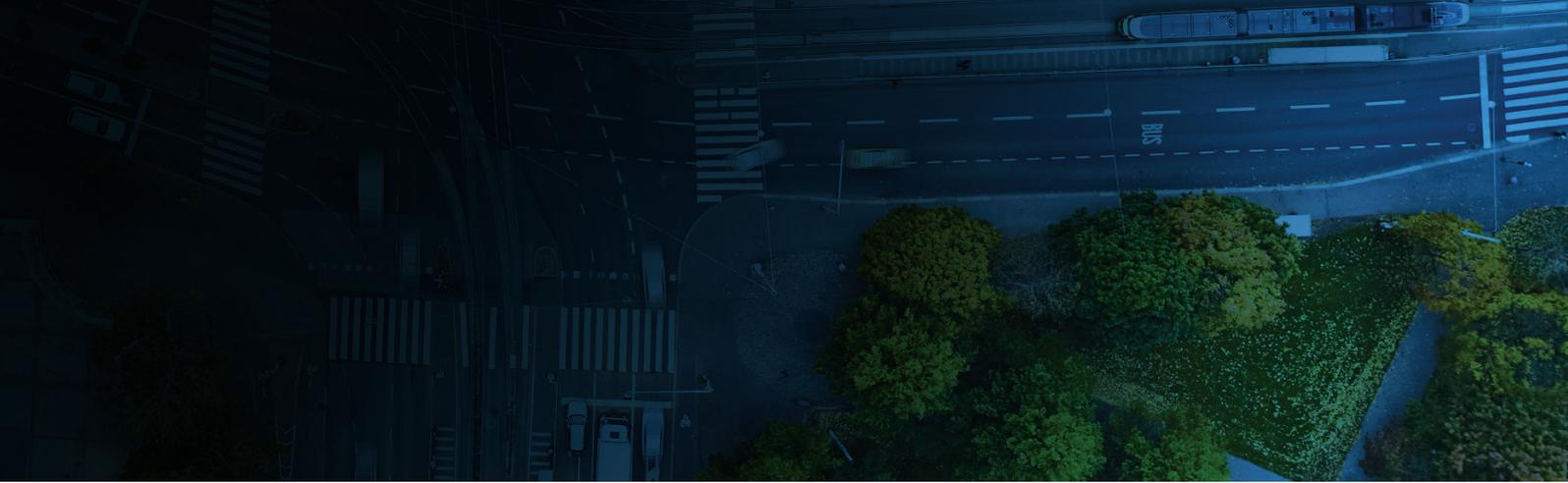


“COVID is like a comet. We’ve had a collision with this comet called COVID, and it’s knocked us off our trajectory, taking us in a different direction, creating opportunities. And I think particularly, opportunities in public transport.”

Bernard Salt AM

Rethinking mobility is now a priority to build better, safer, more resilient and efficient public transport systems for all. With an increased passenger preference for personalised travel options and the emergence of shared transport solutions, the case for, and scale of, transformation is significant. Public transport must confront change and determine what the future of the sector could look like.

TPT Forum attendees heard from world-renowned experts in public transport and mobility, and participated in interactive workshops that considered how the industry could shape the future of mobility in a post-COVID-19 world.



In order to become a real alternative to the car, and to attract other customer groups as well as retain existing passengers, public transport services must be tailored to customer needs. A customer-centred public transport network contains two core aspects:



A strong focus on customer satisfaction: Research customer satisfaction thoroughly and take a closer look at different perceptions of service quality amongst various customer groups.



Involving customers in the design, planning and implementation of public transport services.

Pre-pandemic, a customer's perception of public transport – and certainly the core targets for operators – focused on reliability and service. In the future, safety will feature more heavily. Customer tolerance for riding shoulder-to-shoulder on public transport has diminished due to the concerns of possible virus transmission. It's important for public transport operators to frequently communicate and demonstrate to customers their safety initiatives, and to encourage existing and new customers to feel comfortable when choosing public transport.

Using new and rich sources of data from travel and behaviour patterns, public transport operators will be able to build 'data trust' with customers with two-way engagement – providing them with immediate personalised results in response to sharing of information.

Fostering innovation through decarbonisation will be another core component of building enduring behaviour changes. Continued displays of technological and process innovation in the public transport industry will be critical to achieving climate and other sustainability goals, together with attracting customers again in a post-COVID-19 world.

Data is an important component for developing an integrated public transport network to improve travel experience. It is crucial that the entire public transport industry maximises opportunities to work together and utilises the latest research and data to optimise integration, customer safety and journey personalisation, decarbonisation and digital-enablement.



2. The case for transformation

Before the COVID-19 pandemic, travel and transport were entrenched as part of our daily lives, and shaped the movement patterns within cities, suburbs and regions.

The pandemic showed just how quickly people's travel behaviours and movement can change. Nearly overnight, much of the public transport network's activity came to a grinding halt with stay-at-home orders and restricted movements.

The University of Melbourne reported in August 2020 that during the first wave of COVID-19 transmission (March through May 2020), Melbourne, Australia, experienced a more than 70 per cent reduction in public transport use across all modes (trains, trams and buses). There were similar scenes echoed in other cities across the globe.

Travel patterns changed through a combination of a general avoidance of crowded spaces, full-time remote working, or the changing of travel choice from public to private transport.

Living under stay-at-home restrictions has emphasised the benefits of the 15 or 20-minute neighbourhood – a focus in both New Zealand and Australia. People working mostly in corporate environments aren't commuting every day – in fact, they're saving a great deal of time and carbon emissions by not commuting, and valuing more of the benefits of their local neighbourhoods.

Forecasting travel demand in any set of conditions is a challenging task for transport system managers, particularly now as we transition to a post-pandemic environment. The COVID-19 disruption has provided an opportunity to embrace uncertainty, refresh experiences with scenario planning and seek to identify interventions that can be adapted to a changing future while increasing network resilience to ensure preparedness for the next disruption. Whilst the next disruption may not be as enormous as a global pandemic, any disruption creates large-scale opportunities to create more sustainable, distributed and efficient behaviours as new habits are formed.



The prevailing sentiment from the TPT Forum is that now is the opportune time for the public transport industry to make policy, operational and investment decisions to unveil great innovation and improvements in mobility.

A great proportion of TPT Forum attendees agreed (Figure 1) that the biggest challenge facing the future of the public transport sector is rebuilding customer confidence post-COVID-19. It's worth noting that the second and third biggest challenges identified by TPT Forum attendees, the transition to zero emissions and embedding new mobility into the broader public transport ecosystem, were still rated highly. This demonstrates a clear link between embedding new mobility options and achieving decarbonisation, with the ability to rebuild customer confidence. These factors will be crucial for shaping the future of public transport.

What, in your opinion, is the biggest challenge facing the future of the public transportation industry?

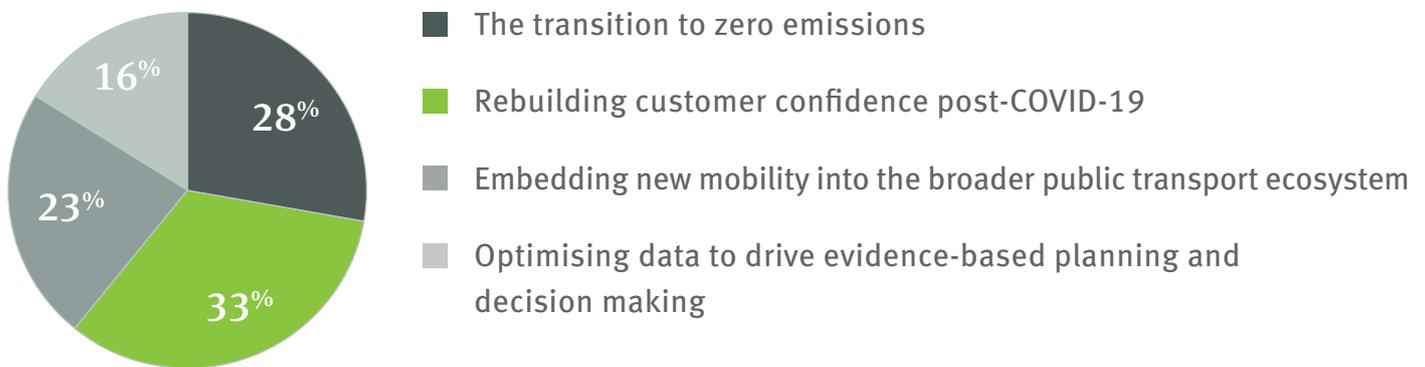


Figure 1: TPT Forum attendees were asked, in their opinion, what was the biggest challenge facing the future of the public transport sector.

This report includes views about transforming public transport in a post-pandemic world and offers insights to help the industry function efficiently and safely as a whole transport ecosystem. TPT Forum discussions highlight the commonality in issues faced and opportunities presented across jurisdictions, and speaker insights provide suggestions on how the public transport industry can learn from other sectors – including health, education, data communications and energy – which have faced, and continue to face, similar challenges around customer demand and confidence.

3. The scale of transformation

In the last two years particularly, people are increasingly leaving cities and taking their jobs with them – either working from home, or moving to outer-city, or regional areas, where public transport (or car transport) can take them easily and reliably into the city for work (Figure 2).

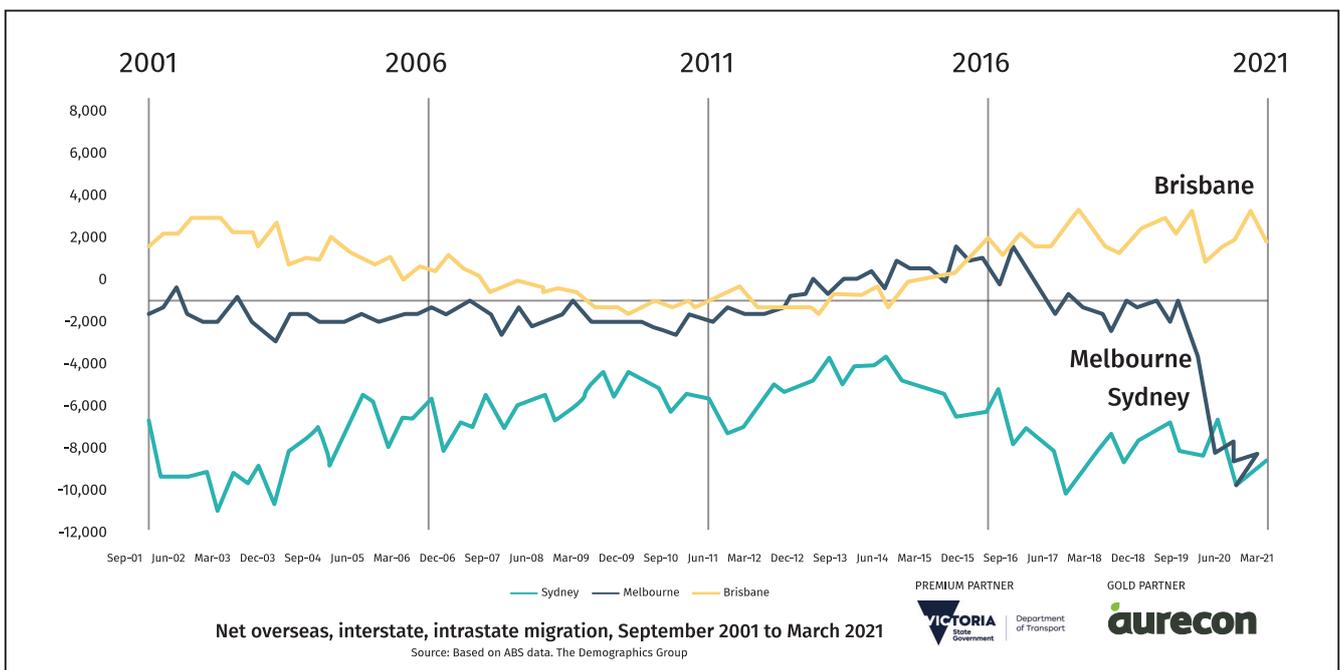


Figure 2: Net migration across three Australian cities in 2021.

Australia’s regional [areas](#) have had their largest net inflow of people since the Australian Bureau of Statistics started measuring internal migration in 2001.

In contrast to Australia’s city to region (or interstate) migration, New Zealand has experienced a [population growth rate that is lower than previous years](#), because of less international migration due to international travel restrictions. Both circumstances have led to lower growth in cities than experienced in decades past.



TPT Forum attendees felt that, despite fears that cities would not recover from the pandemic, they would continue to be relevant in the future, remaining the heaving centres of living, working and leisure that they always have been. The biggest change in a post-COVID-19 world is to the traditional working week.

This presents a number of challenges for public transport operators, including:



adapting service provision to suit customers now living in different places with different and more dynamic demand needs, while still offering the same customer experience.



rapidly adapting to change when facing future disruptions and uncertainty.



a potential change in revenue as a result of passenger demand changes on established corridors during specific days and times such as the Monday to Friday peak hours.

Some commuter expectations for public transport journeys have changed – such as the heightened sensitivity to safety (social distancing and virus transmission) – while some have stayed the same. People moving from the inner-city will have all the same service and access expectations of a regional or outer-city area that they had in the city centre.

Public transport is an essential part of a thriving urban and regional environment, and helps in the management of traffic congestion, human health and well-being, and addressing the impacts of climate change.

With the changes experienced to the traditional working week, high-quality public transport connectivity to suburban or regional areas for part-time commuting could be the key to unlocking future connections.

As public transport networks enter an era of change, the corridors will become more connected if the opportunities for transformation are grasped early and introduced with conviction.

4. Opportunities for transformation

Four common themes emerged from the TPT Forum's presentations and workshops:



To evolve the customer experience to ensure that people actively choose public transport, particularly over private car use. Operators need to build trust with customers by living up to service, amenity, safety and functionality expectations, and share information in a timely manner.



Customers and public transport staff now expect two forms of safety from public transport operations: physical safety when using public transport, and visibility that action is being undertaken to minimise the transmission of the COVID-19 virus.



'Smart' public transport will be enabled by digital data solutions and information transparency from operators to customers, together with information sharing between agencies and systems. If customers do not truly believe their public transport journey can be reliable, efficient and safe, this affects the success and long-term viability of the whole transport system.



The decarbonisation of the public transport industry includes expanding the share of transport on lower emission public transport modes, such as rail and bus, and expanding the use of electric rail rolling stock as well as electric bus, vehicle and ferry fleets, with new electric and hydrogen technologies becoming increasingly explored. From the customers' perspective, the environmental efficiency of a particular mode of transport may have a far greater influence on their mode choice in the future.



4.1 Rebuilding trust in using public transport

Information transparency, crowd management and understanding movement patterns will accelerate the rebuilding of customer confidence and provide needs-based public transport networks.



“The rulebook has changed for customers of public transport. It’s the industry’s turn to respond to the new demand with solutions that more broadly deliver infrastructure that interconnects different modes for the benefit of easy travel.”

Natalie Reiter

Deputy Secretary Policy, Precincts & Innovation,
Department of Transport, Victoria

Rebuilding trust with the community to use public transport after the pandemic requires providing customers with timely, accurate information and an abundance of it. Public transport operators should monitor customer movements and patterns, and public opinion, to transmit effective messages on safety and services (Figure 3).



“Trust extends to public transport operators adjusting service frequencies and station occupancy to avoid overcrowding. This is part of the whole ecosystem of public transport service with dynamic prioritisation and automated optimisation. What gets measured gets done.”

Ed Debenham

Executive Director
Customer Strategy & Experience, Transport for NSW



In transitioning from an asset centric to customer centric operation, a suite of new customer metrics takes on more value and meaning. Lead metrics for public transport are:



'customer on time'.



percentage of customers that arrive in less than five minutes of their expected arrival time.



the volume of lost customer minutes.

Using this data fundamentally changes how a network is managed and planned to suit customer needs and expectations.



Figure 3: The needs of customers and staff.



The industry has evolved exponentially in recent years and it is now more important than ever to put the customer at the heart of what we do.

In order to become a real alternative to the car, and to attract other customer groups as well as retain existing passengers, public transport services must be tailored to customer needs.

A customer-centred public transport network contains two core aspects:

1. A strong focus on customer satisfaction: Research customer satisfaction thoroughly and take a closer look at different perceptions of service quality of various customer groups.
2. Involvement of customers in the design, planning and implementation of public transport services.

There is a range of considerations in understanding customer needs (Figure 4).



“SAFETY”

Lighting, visibility, wayfinding, physical distancing, contactless ticketing, queuing and cleaning, service planning.



“ACCESS”

Convenient and equitable access, service reliability, mode shifting.



“INFORMATION”

Audible and visual displays, information on route options, real-time travel data, fare pricing.

Figure 4: Customer-centred focus.



An option for public transport operators is to incentivise behaviour, potentially offering loyalty and reward programs to influence demand. For example: take 10 train trips and receive \$10 to spend at one of the station’s retail outlets.

The TPT Forum recognised that transport infrastructure impacts and accommodates a range of lifestyle needs beyond travel. Customers expect that their needs, convenience and lifestyle factors are considered in public transport route planning and scheduling, such as drop-offs for their child’s schooling, accessing the grocery store, or attending a venue for entertainment.

It is also important to engage with customers to understand their needs by time-of-day, and day-of-week. Ultimately, it is about giving customers the most convenient service at the best price.



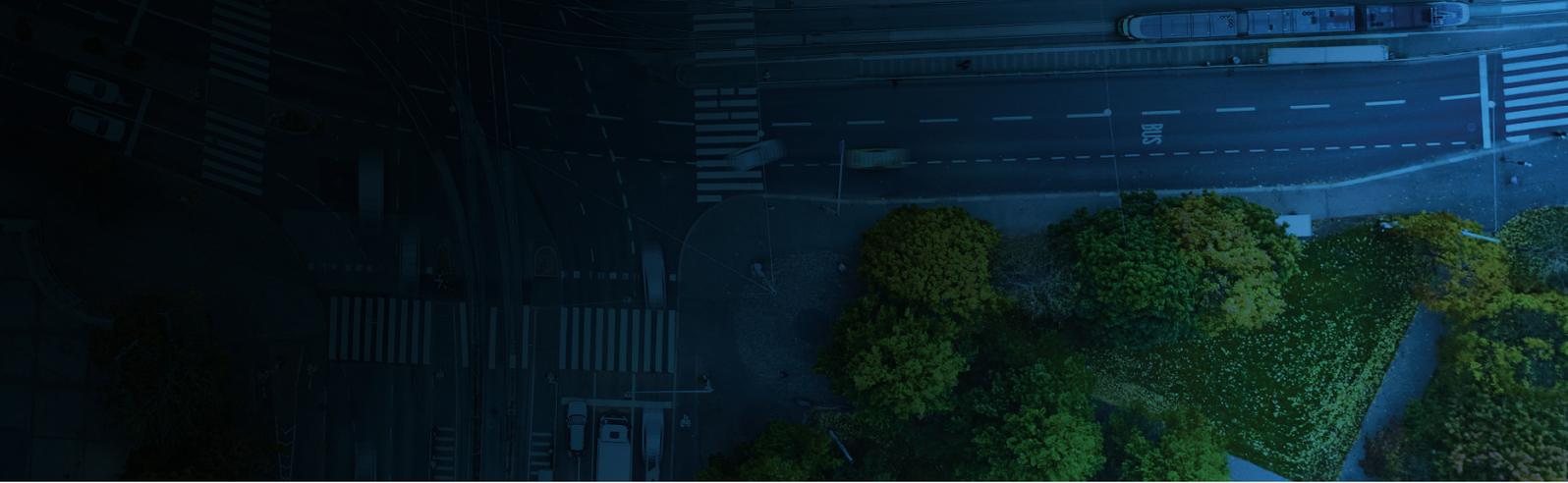
“We need to think about the communities that we serve and keep the public transport ‘product’ attractive and modernised. Above all, we need to avoid a car-led recovery.”

Andy Byford
Commissioner
Transport for London

Over the last two decades, the water industry has faced a similar revolution to the one facing public transport today, enticing customers to use the infrastructure. In water, it has been new pipelines servicing expected future growth in outer-city areas; in public transport it may be a new line spur, bus route and tram investment. Therefore, the infrastructure needs to suit current demand, but also encourage usage in the ‘cold spots’ – where future demand is anticipated.

This speaks to the need for more agile public transport networks that respond quickly to changing ecosystems – pandemic or other – such as the changing needs of customers, climate change, and the pattern of work and leisure.

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4.2 Safety is the new performance measure

Pre-pandemic, a customer’s perception of public transport – and certainly the core targets for operators – focused on reliability and service. In the future, safety will feature more heavily. Customer tolerance for riding shoulder-to-shoulder on public transport has diminished due to the concerns of possible virus transmission.

Data communication centres have faced a similar challenge for decades: providing protection against viruses through cyber security measures whilst retaining service reliability for customers. One of the main solutions for data communication centres has been measurement of data on strategic and high-level security elements.

An opportunity exists for the public transport industry to explore solutions that maintain trust with high availability and service, and safety, in the same way that the data centre industry has done before. Using insights from customer-centric metrics, combined with data gathering on movement and behaviour, the industry could balance safety, security and service level expectations of customers.

Safety provision for public transport operators includes:

1. Safely using public transport (trip hazards, comfort, wayfinding)
2. Security at waiting areas (surveillance at stops and stations)
3. Preventing virus transmission (ventilation, cleaning, physical distancing)



“Shoots of life are appearing back on public transport networks as customers return to cultural attractions, their offices and visiting friends and family.”

Andy Byford
Commissioner
Transport for London



Hospitals have faced the significant question of mechanical ventilation since the pandemic, as they must provide safe areas to treat COVID-affected patients and give healthcare professionals a safe work environment. This factor will become equally as important for the public transport industry, particularly underground trains. Customers will expect and rely on public transport infrastructure to minimise virus transmission:



Public transport must be cleaner than ever. Operators will continue with industrial-grade cleaning of touch points, and work with academic institutions to understand air and touch point virus transmission research. It will be important to share research and cleaning action data with the public to continue to boost their confidence in the safety of travelling on public transport.

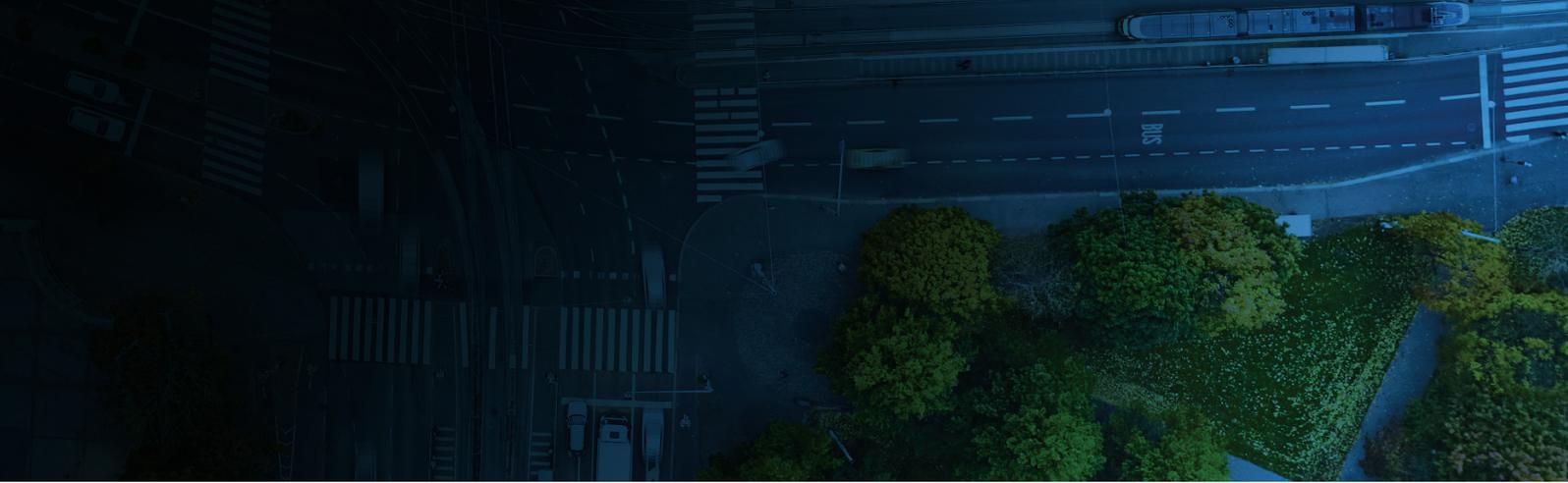


Social distancing while maximising service levels. Operators are working with governments for temporary assistance with ongoing support to maintain service levels while offering safety to passengers with social distancing. This connects with digital solutions and innovations (Section 4.3) to provide real-time occupancy data so that customers can plan their trips based on peak or off-peak travel, and network busyness.

One challenge on safety is that some customers may perceive safety and security measures introduced to avoid contact as service degradation, such as frequency constraints given the longer time to clean inside vehicles and the need to clean more frequently. These are complex conversations to be held with customers about enhanced cleaning regimes that are implemented to minimise virus transmission, while remaining on balance with customer expectations around service delivery.

As these are customer safety concerns – real or perceived – which need to be addressed, they will be ongoing.

It's important for public transport operators to frequently communicate and demonstrate to customers their safety initiatives, and to encourage existing and new customers to feel comfortable when choosing public transport.



4.3 Digital solutions and innovations

Occupancy data can inform passengers about the congestion levels on a particular public transport vehicle, along with arrival times, to give them confidence that their door-to-door public transport trip will be as seamless as possible.

This assumes that all people are digitally adept, however there are still concerns that older or less digitally-experienced customers are not receiving relevant information to support their public transport journeys.

There will be continuing opportunities for transport agencies to manage such information, where people movement technologies predict and visualise occupancy and timing data on vehicles and at stations or stops. As more data is gathered, and in more advanced ways, transport agencies will have more direct ways of managing information and delivering it to their customers via their own channels, in multiple ways.

Trust is key here. Every day of the week, people share data with all sorts of apps, but the hesitancy to share data comes when they do not trust the source or application. Public transport operators will be able to build 'data trust' with customers with two-way engagement – providing them with immediate personalised results in response to sharing of information.



RideSpace

To help increase customer choice and confidence in public transport, the Victorian Department of Transport has introduced RideSpace, a free online tool that displays real-time passenger volumes on trains, train platforms and at stations across the entire metropolitan train network. This tool allows its customers to check how busy their journey will be ahead of time, empowering them to make a decision about whether to travel on a particular service or wait for a different service based on their personal preference and level of comfort. RideSpace was launched in 2021 and in March 2022 was expanded to include 11 of Melbourne’s busiest bus routes.

This suggests that customer movement patterns and occupancy rates can be carefully analysed in real time and that adjustments can be made to routes when maximum desirable occupancy rates are reached.

That said, it is worth noting that some customers prefer the dependability that comes with fixed timetables for predictability and structure. The challenge for public transport operators is that it will vary depending on the city, or place, that a customer is in – some locations dictate the timetable is highly important, where other locations require a ‘turn up and go’ service.



Using data in different ways

Public transport operators are beginning to notice that as customers have increasing access to network data, they are using that data in new, and unexpected, ways. For example, **passengers in wheelchairs using peak network data to find less crowded services so they have more space, or women who feel safer on a service with more people are searching for services with more crowding.** It is highly likely that the industry will continue to see unexpected uses and benefits of travel pattern and service capacity data.

The response to customers wanting to personalise their transport journey data is moving forward at a rapid pace with a major uplift of data, analytics and new vehicle technologies.

This was reflected in TPT Forum attendee sentiment when asked which area provides the most opportunity to accelerate public transport uptake (Figure 5).

As the sector looks to recover and grow modal share, what area provides the most opportunity to accelerate public transport uptake?

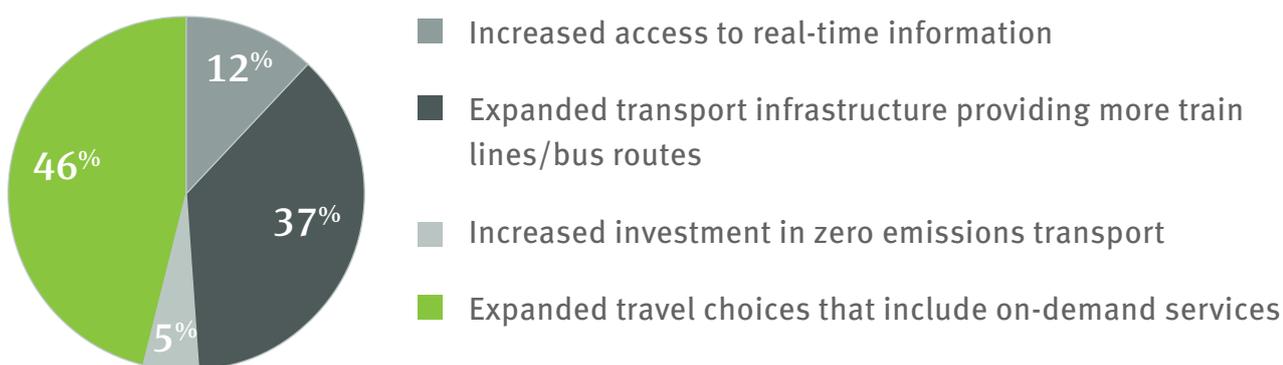


Figure 5: “Expanded travel choices that include on-demand services” is the single biggest opportunity to accelerate public transport uptake.

Besides mass mobility, unique characteristics that distinguish the type of data used by public transport networks from other modes of transportation and accessibility include routes and schedules, locations of customers, and the times of day when trips are made. Data can be used to make informed decisions on infrastructure investment and scheduling changes.

It is clear that data and technology are enablers for a better human experience on public transport.



4.4 Mobility as a Service

Both urban and regional stations (for any form of public transport) require rapid, direct and multimodal access to ensure transfers and door-to-door commutes remain viable.

This requires new transport services to achieve future adaptability and flexibility, such as the demand based MaaS (Mobility as a Service). MaaS is defined as total mobility solutions focused on an individual's need to get from point A to B (and the points in between).

The adoption of these intelligent and seamless transportation mobility technologies will become an integral part of the fabric of cities, and certainly an area that public transport operators should embrace sooner rather than later, particularly to plan how the public transport network connects with an individual's first and last mile of travel.

The first and last mile of a public transport trip is an important component of the overall quality experienced by a customer. It contributes heavily to whether a customer chooses that form of transport repeatedly, and whether routinely or dynamically.

Customers' transport futures are likely to be less routine with more dynamic trip schedules – for example, the peak crowd catching the 7:17am train will not be the same every weekday.

Customers quite often factor in the walk, cycle or bus to connect to another form of public transport. In addition, they choose public transport over peak-hour car congestion. However, now that more people are opting for a hybrid week consisting of remote-working and working in the office, cars may become a more attractive choice as people do not have to look at timetables or plan connections, and can adjust their working times to avoid peak-hour traffic.

To maximise the benefits of public transport – produce less emissions than cars, provide convenient travel and enhance economic growth – first and last mile connections need to be seamless by integrating road, rail and active transport at public transport hubs, including the provision for micro-mobility.

Achieving this requires not only infrastructure, but also the technology for people to plan (sometimes in real-time and rapidly) their end-to-end journey. It is about sharing service, frequency and customer movement data between agencies and jurisdictions while protecting privacy and commercial information.



Mobile phone apps and technology will be core to delivering an integrated Mobility as a Service ecosystem of information.

Public transport customers have high expectations of service, however they do not necessarily see all the challenges and issues the networks have. Customers expect their tram, bus or train to run on time, be accessible, affordable and safe. In addition, a growing number of customers expect that public transport operators are achieving this in an environmentally and socially-responsible manner.

Technology will enable the ongoing development and spread of public transport mobility options which will incorporate every available transport mode, including bike-sharing, car-sharing, ride-hailing, and existing forms of public transport, in a transport planning and payment app.

4.5 Decarbonisation of public transport

The highest contributor to Australia’s transport emissions is private vehicles (Figure 6), at more than 40 per cent. This is in comparison to trains, at 4 per cent, and buses at 3 per cent.

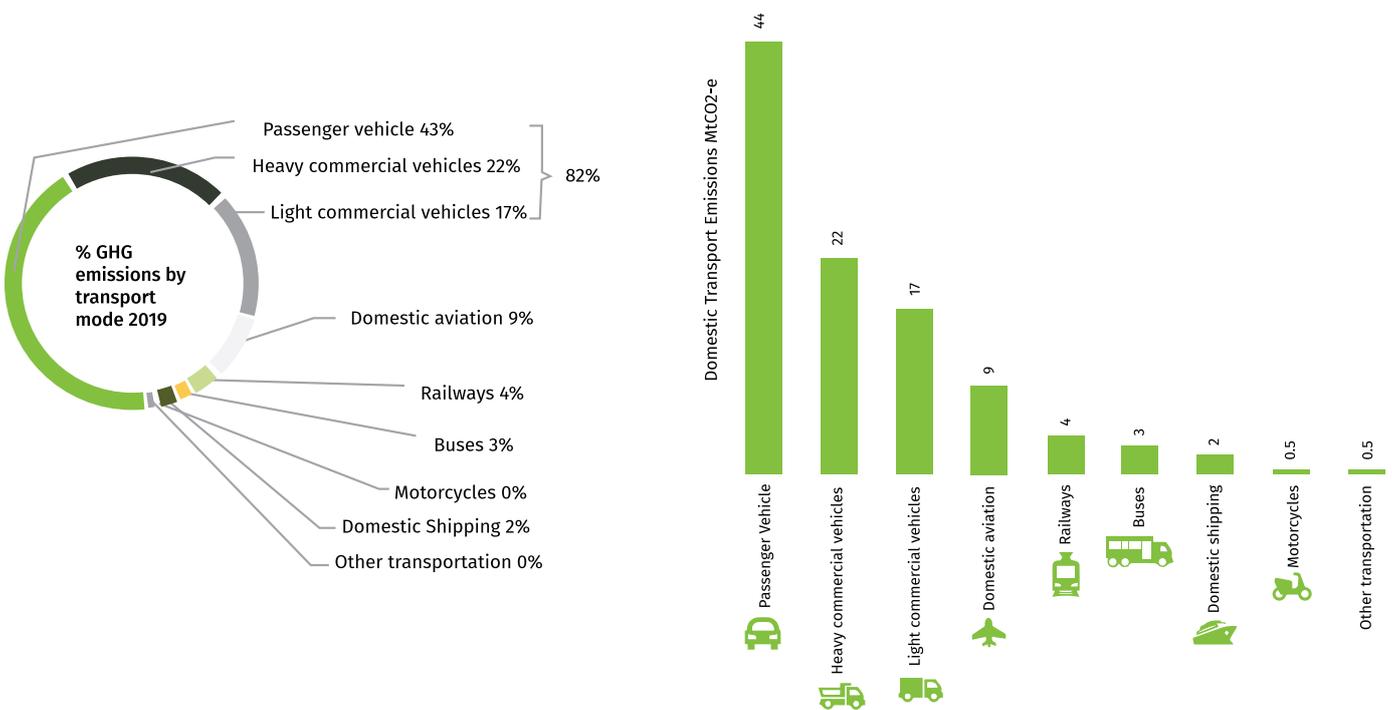


Figure 6: Australian transport emissions 2019.



In New Zealand, the transport sector accounts for 21 per cent of its annual greenhouse gas emissions and is the fastest growing source of emissions. Between 1990 and 2018, road transport emissions increased by 100 per cent, while emissions across the whole economy increased by 24 per cent.

Public transport doesn't contribute the high volumes of greenhouse gas emissions that private vehicles do, as it uses fewer resources and emits less CO2 per passenger.

However, in addition to the initiatives to electrify power distribution systems, decarbonise rolling stock and introduce alternative fuel technologies, governments are commencing programs of work to further reduce emissions in the industry. For instance, the New Zealand Government has released its first discussion paper, [Transitioning to a low-emissions and climate-resilient future](#), which includes the way people travel and the forms of public transport they use.

Fostering innovation through decarbonisation builds enduring behaviour changes. Continued displays of technological and process innovation in the public transport industry will be critical to achieving climate and other sustainability goals, together with attracting customers again in a post-COVID-19 world, such as:



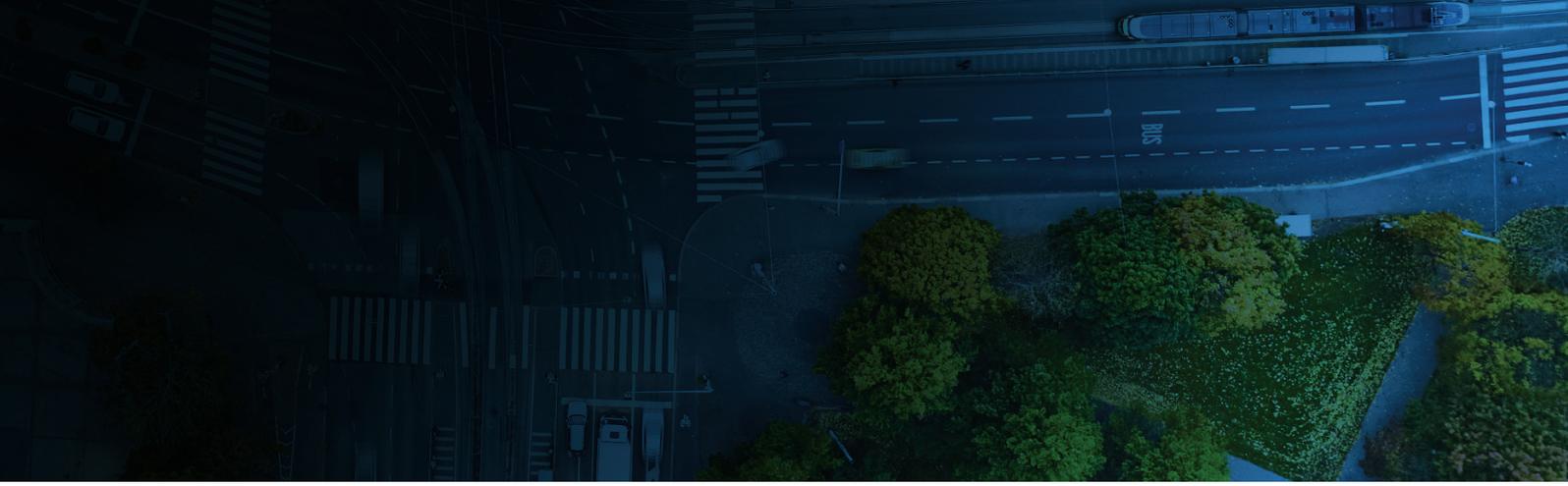
tackling reluctance to take public transport by encouraging measures to reduce crowding, improve hygiene and encourage active transport modes.



introducing measures that better support people's travel patterns in a hybrid working environment.



managing peak demand for public transport.



The end game is sustainable urban and regional area mobility where transport in private cars gives way to different modes of public transport. It is a complex process to achieve, but one that can be addressed with collaboration and innovation across the entire supply chain.

Integration requires thinking about the broader public transport ecosystem; it's much more than just one mode of transport.

Sharing lessons learned between industries can have a cumulative effect. Shared research and development efforts, shared technology and shared experiences, will maximise time and costs for cross-industry innovation and implementation. This is particularly important as the clock is ticking on decarbonisation.



5. Conclusion

This report presents public transport's long-term significance for the environment and our societies by providing mass transit and reliable travel with lower carbon emissions.

It also highlights that public transport must be adaptable in the future to be a resilient mobility option for customers, particularly in encouraging their return after the COVID-19 pandemic.

It is crucial that the entire public transport industry maximises opportunities to work together and utilises the latest research and data to optimise public transport integration, customer safety and journey personalisation, decarbonisation and digital-enablement.

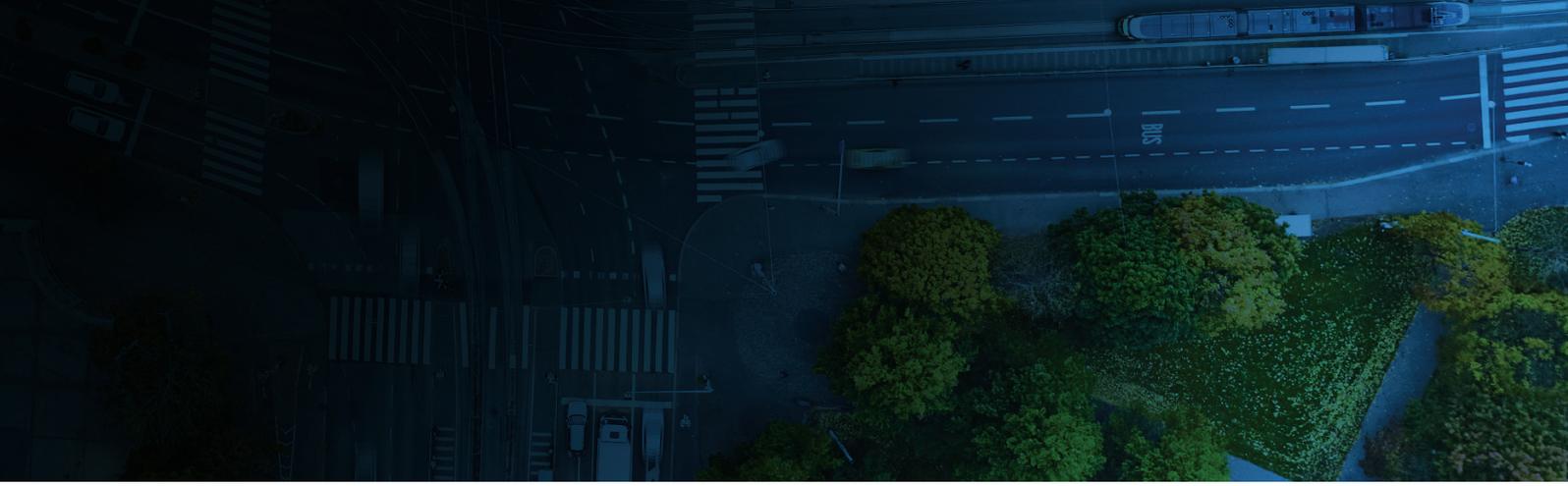
Industry-wide integration

Buses, trains, trams, ferries and other modes of public transport are vital for bringing people together and providing mobility for our populations. Maintaining strong public transport systems will remain a key component of vibrant cities and regions in the future.

This philosophy of integration has a number of dimensions across customer centricity and the varying stages of a project's development.

Encouraging and maintaining public transport usage requires integrated thinking – not only of the different modes, but also the projects, operations and policies that support it.

Creating an integrated public transport network is not only about how to improve the physical integration of the planning, design, delivery and operational aspects but also taking into account passengers and data communications.



Perception of safety after COVID-19

Customers' reality with public transport has expanded beyond purely reliability and service, with safety becoming more paramount after the pandemic.

Safety provision for public transport operators still includes managing trip hazards, providing comfort and wayfinding. It also still includes security for customers at stops, stations and on vehicles. However, it now extends to preventing virus transmission with ventilation, different cleaning regimes and the management of physical distancing.

Customers have safety concerns – real or perceived – which need to be addressed. It is important for public transport operators to frequently communicate and demonstrate to customers their safety initiatives, and to encourage existing and new customers to feel comfortable when choosing public transport.

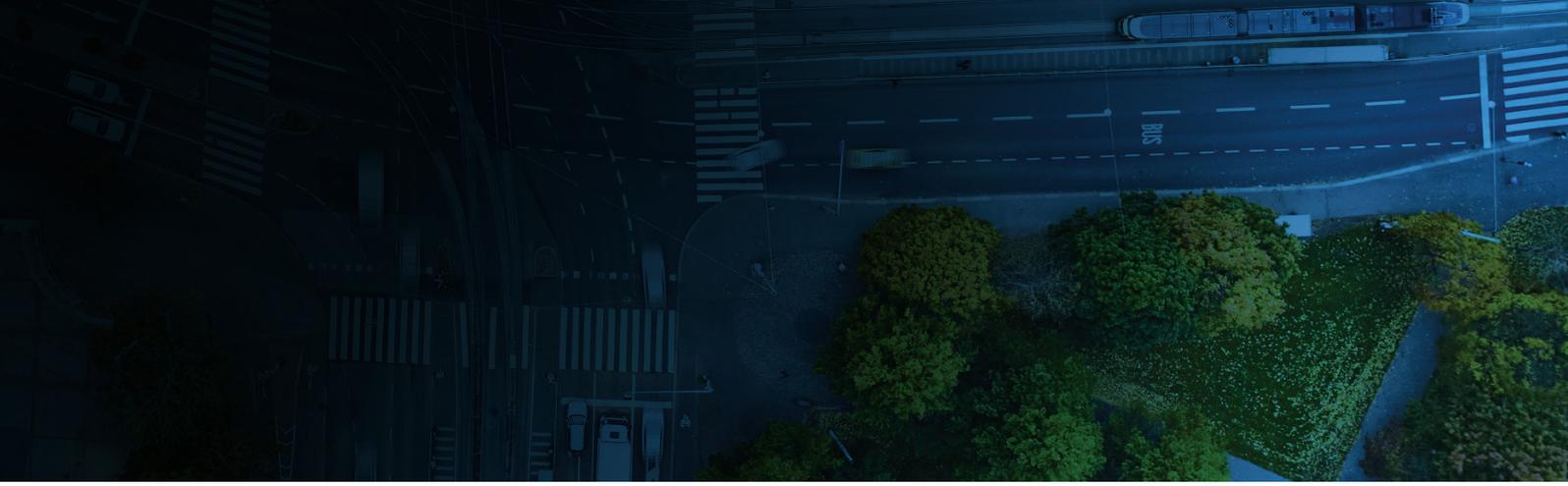


Maintaining the sustainability momentum

Sustainable transport includes public transport with systems that can carry people far more efficiently than cars. The pandemic presents a unique opportunity to transform public transport systems as we open our eyes to what's possible. Response and recovery efforts, including stimulus packages to boost economies, can improve both the environment and human health if they are aligned with low carbon development pathways.

Rethinking and revamping public transport by taking hold of structural and operational change opportunities will go a long way toward reinforcing some of the positive impacts on emission levels and sustainability fostered by efforts to curb the pandemic.

The multitude and breadth of innovations that can be learned from other industries is encouraging for the future of sustainable public transport. These include decarbonisation research, using data to determine demand, and optimising operations and schedules with high availability and service, and safety.



Destination digital

Change is now occurring more quickly in public transport with the digital transition. Some of it has been forced by the pandemic, with agencies using new forms of digital communication to entice customers back to public transport with greater journey personalisation. However, the wave of digital disruption across the world is rapidly driving change and the public transport sector can capitalise on this.

Digital data arms customers with information that helps their journeys to be as simple and efficient as possible. Examples of next-generation applications, such as RideSpace from the Victorian Department of Transport, improve customer experiences.

Digital data also provides agencies and operators with information to determine timetables and develop services to meet their customer's needs more easily.

As never before, it is only a customer-centred approach that will create sustainable, connected and more resilient public transport networks in the future. This will ensure that public transport continues to play a significant role in creating transit-friendly cities and regions that are greener, more inclusive and equitable.

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