

PUBLIC TRANSPORT AUTHORITIES AND COVID-19

SHORT TO MEDIUM-TERM IMPACTS AND INTERVENTIONS

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INTRODUCTION

As economies commence opening up, and some geographies experience new waves of COVID-19 cases, transport authorities continue to manage their operations to protect the health of passengers and operators, while ensuring the gains made in positioning public transport as a strong viable alternative to the private car, are not lost.

Public transport is a vital service, facilitating community needs. Service continuity is important not only for sustaining economic activity, but also necessary in a situation where passengers require access to public health care facilities and other essential services.

In response to the COVID-19 outbreak, public transport operators globally have been taking a range of measures to protect both the community and its workers, in line with their respective health authority guidelines.

Public transport authorities must now manage and innovate, many with the ongoing presence of COVID-19, in the short to medium-term. In addition, as decisions are made, operators can use this time to better shape resilience into their network, revisit their transport offer and take steps to restore confidence in the value public transport delivers.

In early July 2020, [UITP](#) and Arthur D. Little released a report detailing the potential for the future of mobility post-COVID, with a focus on mobility patterns, and identifying a path to move forward.

Interventions and implications for the short to medium-term should consider protective safety measures, informing and educating passengers, capacity management and policy and governance. There is time to plan for an increase in demand and to collaborate with government agencies to align on the next steps to take and the investment decisions that need to be made. This paper highlights those short to medium-term considerations for public transport authorities drawing upon examples from operators in North America, Asia, Europe, New Zealand and Australia.

PROTECTIVE SAFETY MEASURES

Public transport authorities and governments have developed robust policies and have started to pilot sustainable solutions to protect drivers, support staff and passengers across four categories:

- Face mask protection
- Disinfection and sanitisation
- Driver and operator protection
- Ventilation



FACE MASK PROTECTION

Governments and public transport authorities have implemented recommendations or mandatory requirements to wear face masks or face coverings when using public transport, especially when social distancing is not possible. The timeline of implementing such requirements varies across cities and countries (see below).

To service face mask demand, vending machines have started to be installed in major public transport hubs within New York, Austria, Germany, Taipei, Czech Republic and

Turkey¹, with more being setup each day. As it is anticipated that the use of masks will continue being a fixture in public transport into the long term, the end-to-end passenger experience should be further analysed to see where investment and improvements could be made.

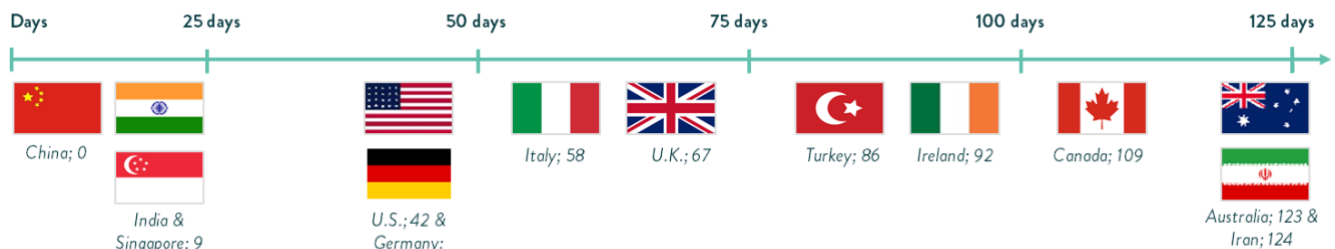


DISINFECTION AND SANITISATION

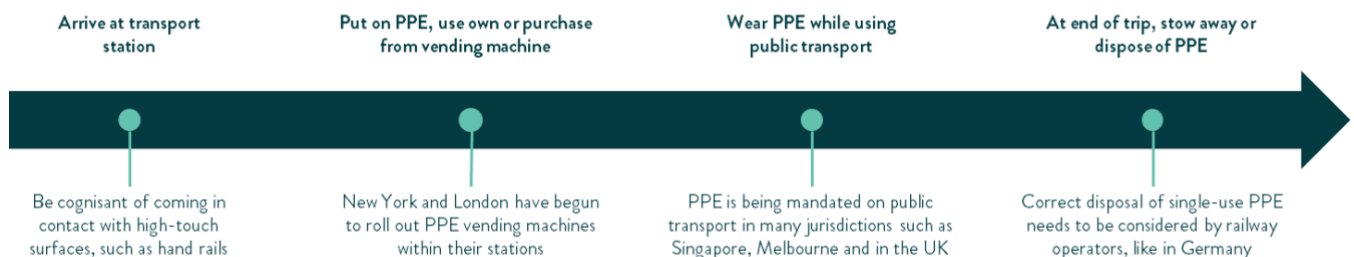
An increase in the sanitisation of surfaces, alongside hand disinfectant stations readily available for passengers at platforms and within vehicles, as seen in Melbourne² stations, have been the most common responses taken by transport operators as a control measure against the COVID-19 spread. Alternative cleaning measures, such as ozone gas in the Czech Republic and dry fogging in Dallas are being trialled as sanitisation methods.³

Cleanliness in transport will be a long term necessity. Innovative solutions like the V.H.P. robots used for deep cleaning and improving air quality in Hong Kong⁴, ultraviolet light cleaning disinfecting buses in Shanghai⁵ or even the redesign of vehicle interiors for easy cleaning could deliver long term safety and cost efficiencies.

Days taken to implement mandatory mask wearing on public transport following 1000th case (2020)



Process for PPE usage by passengers on public transport





DRIVER AND OPERATOR PROTECTION

Public transport staff are exposed to a large number of commuters daily and require protection at all times. The continuation of regular temperature checks, and supply of P.P.E. including face masks, gloves and hand sanitisers by transport operators is largely the new standard. Transit agencies have invested in further infrastructures such as contactless payments and protective screens or shields, to reduce any physical interaction between operators and passengers, like in London where front door boarding was prohibited until a satisfactory level of operator protection had been achieved.⁶



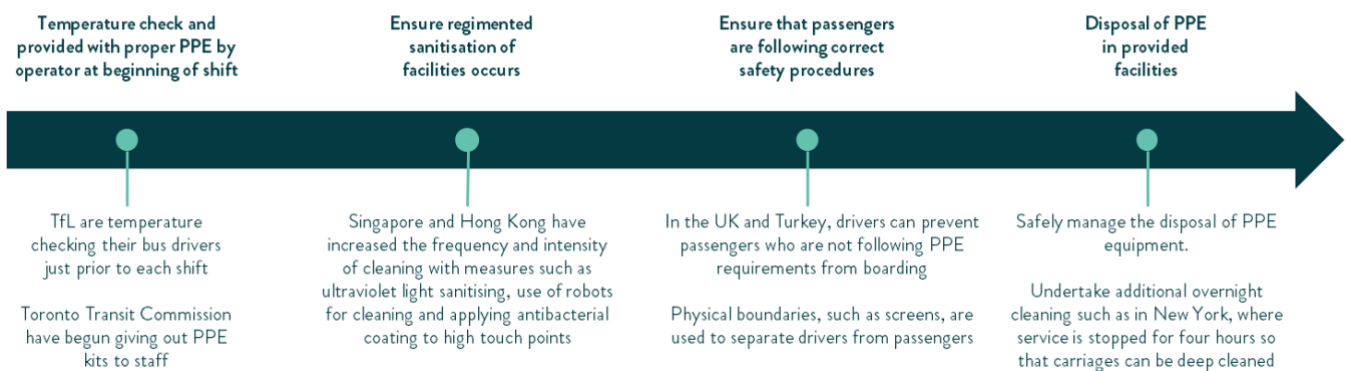
VENTILATION

With the further recognition that COVID-19 travels through airborne transmission, transit authorities invested in ways to

improve ventilation.⁷ Berlin has programmed its trains to automatically open their doors at every stop in a measure to promote fresh air and reduce the use of high touchpoint surface areas.⁸ This programming can be replicated across transport modes, such as bus and light rail. Other operators have refurbished or reprogrammed air conditioning units for drivers to draw primarily from fresh air, rather than recirculated air.⁹ Most notably, was the work conducted on the air conditioning units in London after over 30 bus drivers died from COVID.¹⁰

Availability of fresh air, protection of drivers and operators, stringent cleanliness and use of face masks are the safety components of the COVID driven 'new normal'. Governments can strategically review options that will suit their fleet and needs for the medium to long term, as protective safety measures will be key in ensuring public trust for a safe transport experience.

Process for PPE usage by operators on public transport



PASSENGER BEHAVIOUR

The perception is that public transport could be a hot spot for COVID-19, with its historical peak time crowds and confined spaces with limited ventilation. L.E.K. Consulting surveyed over 1,500 Australians who indicated that c.60% intend to resume their use of public transport after restrictions are lifted, while c. 20% plan on less usage for work and leisure-related transport. However, with Melbourne's recent second wave, there are reports of additional wariness of using transport in greater Melbourne.¹¹ A primary concern for public transport authorities is to regain the trust of passengers and attract them back to public transport. Secondly, ensuring passengers are aware of any safety-critical communications and do their part to reduce congestion through travelling in off-peak hours will be a necessity for the medium term. After strong messaging to 'stay at home' by countries' leaders, including the Queen of England, it is a challenge for governments to entice passengers back

to using public transport. Press releases relating to safe practices and procedures implemented for public transport have been the most prevalent intervention used globally. The below diagram details tactics, such as communications and financial incentives that have encouraged the return to public transport as economies open up.

In parallel, public health and transport agencies are communicating to passengers the safety-critical steps they need to take to ensure a high level of hygiene practices and social distancing measures are followed, where required. Signage and visual labelling within transport are most commonly used to direct passengers to keep their masks on, travel during off-peak hours, maintain social distancing and wash and sanitise their hands frequently.

Encouraging the use of public transport post-COVID

Win back passengers

1. Communication and marketing of new precautions and procedures implemented, encouraging people to feel safe while using public transport
 - Sydney's "No dot, no spot" policy is the New South Wales Government's approach to maintaining physical distancing across their transport network as COVID restrictions eased
 - Some have tried to use novel, catchy passenger safety videos, including one created for Skytrain in Bangkok and Denver's "Let's get our region moving again" video
2. Financially incentivise the return to public transport
 - Public transport in Wellington, New Zealand was free during level 3 and 4 lockdown
 - The price of off-peak transport in Auckland has been reduced by 30% **
3. For a lot of routes people travel, public transport is the only feasible means of commuting
 - For sprawling cities, such as Sydney, there is not an appropriate substitute to public transport
4. The fundamental driver to the return to public transport is tied to concerns of contraction of COVID-19, stemming from the number of active cases in the region and the individual's risk appetite
 - Auckland's ridership increase demonstrates best that when concerns of contracting COVID-19 dissipate, public transport volumes spring back to pre-COVID levels

Positive feedback loop

Encourage the continued use of public transport

1. Operators delivering on hygienic and other safety precautions so that users feel safe and have a positive experience while using public transport
2. Ensure a positive passenger experience and that rider will continue to use public transport

Singapore and Japan go one step further to encourage passengers to 'refrain from speaking.'¹² Recognition of frontline workers in Vienna received a positive response from passengers as they could interact with the media and upload their pictures to show pride and thank them for their service.¹³ Auckland Transport used media to attract riders back to their service asking, "Could your new normal include the train? Let's go there."¹⁴ Governments have been collaborating with businesses and schools to promote flexible hours. France has regulated peak travellers with certificates¹⁵ needed to travel during peak hours. These measures are aimed at changing passenger behaviour to ensure safe public transport as COVID continues to impact communities worldwide for the short to medium-term.

CAPACITY MANAGEMENT

Public transport authorities and organisations need to prepare to manage an increase in passengers and what decisions to make with social distancing as demand increases to pre-COVID levels. Operators have invested in ways to promote peak spreading through restricting passenger numbers, maximising the use of the existing transport fleet, timetable management, and enabling alternatives transportation substitutes to cater to demand and reshape public transport services for the medium to long term. The tension for operators is the need to do more with less, as the low demand in the recent past has dramatically affected transport agency revenue; with private operators holding revenue risk the most impacted.



RESTRICTING PASSENGER NUMBERS

Social distancing requirements, which depend on country-specific regulations, can cause up to 85% less capacity in transit vehicles.¹⁶ Designating green dots to where riders can sit, in Sydney¹⁷ and the use of queuing systems or passenger loading management by a 'COVID ambassador'¹⁸ at stations, like that in New York, regulates passenger flow and minimises crowding. Peak spreading technology-driven interventions such as CCTV crowd management, Wi-Fi / Bluetooth scanning devices to measure the number of mobile phones or devices equipped with an app in a predetermined area and loading pneumatic weight sensors to track the weight of passengers in transport vehicles¹⁹ are longer-term investment options. Operators, like BART, already have the technology to monitor loading and have leveraged that capability to share live rail capacity levels enabling passengers to make informed decisions before heading to the station.²⁰



LEVERAGING EXISTING FLEET AND RESOURCES FOR TIMETABLE MANAGEMENT

Cities, like San Francisco and Singapore,²¹ have decided to manage capacity by increasing train frequency and using longer trains to satisfy current levels of demand.²² Toronto has used its bus fleet for a program called Run-as-Directed to run additional services, in parallel to rail, along specific routes experiencing higher demand.²³ Separately, TFL recently unveiled the "24-hour corridor" prioritising and extending bus lane usage to around the clock, while

guarding against a damaging and congested car-led recovery.²⁴ Dubai altered its timetable to increase space per rider. However, some countries don't have this capability – studies show that India would require 660,000 more buses to

effectively social distance when they currently have a fleet of 25,000,²⁵ rendering socially-distanced travel impractical without substantial investment and modal shifts.

Levels of demand affecting public transport operators' ability to supply a socially-distanced service

	Phase 1	Phase 2	Phase 3
	Public transport use limited to essential workers	Social distancing feasible with limited demand	Demand exceeds social distancing capacity
Details	<ul style="list-style-type: none"> As jurisdictions are in lockdown, public transport is utilised only by essential workers such as health workers and those involved in the food supply chain The significant drop-off in demand enabled operators to provide services to accommodate the limited demand, albeit for higher cost and more vehicles to satisfy social distancing 	<ul style="list-style-type: none"> As restrictions ease, a proportion of users slowly return to public transport usage Operators are able to boost the level of supply to enable social distancing on public transport, in line with the demand increase Some regions have experienced a shift in transportation mode usage or have supplied additional programs to cater to the demand for socially-distanced transport 	<ul style="list-style-type: none"> Demand for public transport has resumed to near pre-COVID ridership levels, rendering social distancing travel impractical Regions are instead choosing to forego previous social distancing and focus on the maintenance of a safe public transport environment, drawing upon mandated mask usage, greater cleaning practices and discouraging speaking
Examples	Melbourne, Washington State (USA)	New York, London, Sydney	Singapore, Mumbai, New Zealand



MULTI-MODAL INITIATIVES

Governments are investing in alternative modes of transport to move the public around in a more dispersed manner. Some regions, such as Germany,²⁶ and Paris,²⁷ have fast-tracked infrastructure projects to facilitate micromobility, walking and biking post-lockdown. At the same time, new bus lanes have been swiftly set up in cities like New York.²⁸ Others have rapidly deployed solutions, such as designating more bike lanes on roadways, setting up park and rides, establishing new micromobility regulations and encouraging the take up of multi-modal transport and avoiding the use of personal vehicles which will undoubtedly cause a sharp increase in city congestion.

These rapid measures for multi-modal transport have experienced a mixed level of success, with TfL forecasting up to a tenfold increase in the distance cycled in London and up to five times the amount of walking compared to pre-COVID levels.²⁹ However, initiatives like Sydney's pop-up park and ride at Showground field in Moore Park saw minimal uptake,³⁰ demonstrating the limits to which travel behaviour will respond to new initiatives in some instances. Optionality for passengers will be a strong focus for medium to long term investment as governments continue to balance managing COVID-19 while ensuring safe transport options as economies open up.

The outbreak of COVID-19 has led to a shift in demand behaviour across transport modes, predominantly with a sharp decrease in metro usage and an increase in bus usage.

For example, pre-COVID, the Shenzhen underground metro comprised c. 75% of total transit volumes, while bus usage was c.20%. However, in February, with a sharp drop in absolute rider volumes, riders pivoted to bus usage (55%), while metro ridership shrunk to 35%. Over time, this shift has gradually made its way back to its pre-COVID composition.³¹ Similarly, in New York bus usage surpassed subway usage for the first time since the M.T.A. began recording data in 1963.³² City officials have responded to this modal shift announcing an additional 32 kilometres of bus lanes to be developed within Manhattan.³³

POLICY AND GOVERNANCE

COVID-19 has changed the way Governments operate, make decisions, choose investments and enforce regulations. COVID has led operators and government health organisations to collaborate and publish guidelines, recommendations and enforceable rules for which they intend to operate.

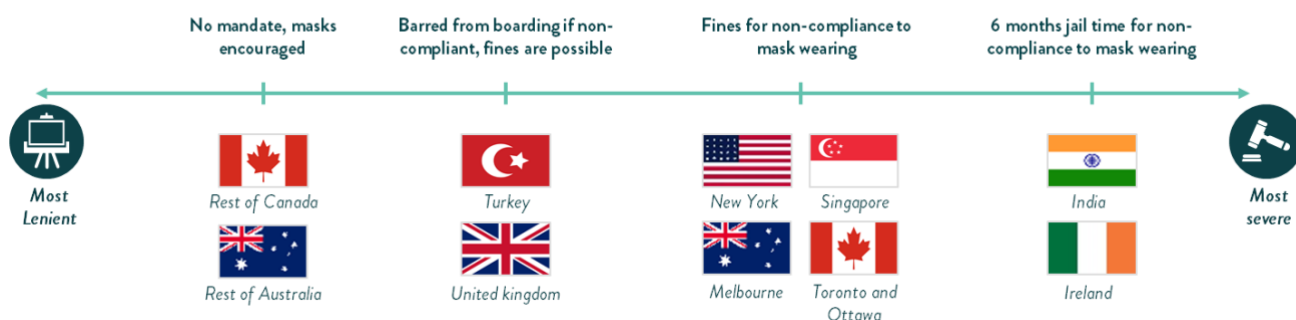
An important part of planning for the ease of restrictions and increased usage of public transport is to prepare frameworks and recovery plans that articulate the steps a public transport authority will take to provide riders and transport stakeholders transparency of what is to come while restoring confidence in its services. BART has developed their fifteen step plan to welcome passengers by investing in best

practice new technologies for air ventilation, cleaning and data collection, as well as accelerating infrastructure projects.³⁴ Auckland Transport has taken measures to embed optionality in its timetabling system to allow for better agility to respond to future outbreaks.³⁵

The required use and enforcement of face masks on public transport has varied across countries and cities. The first affected city, Wuhan, mandated the use of face masks in public three days before reaching 1,000 active cases.

Australia, however, had a longer lead time and lower quantity of cases, only recently making public mask-wearing compulsory in Melbourne amidst the second, larger flare-up of the virus.³⁶ This enforcement ranges in severity, from public advertising campaigns encouraging the use of P.P.E. to 6 months in jail. Most jurisdictions' severity sits between these measures, with masks being mandatory to access the service and fines³⁷, ranging from \$95 to \$1400 AUD, for continued non-compliance.³⁸

Severity of PPE enforcement across jurisdictions (2020)



CONCLUSION

In the past months, governments have begun to open up their economies. They are working to manage the impacts of COVID across its behavioural changes with working from home and perceptions of risk with using public transport, alongside the economic impacts including unemployment, broader economic impacts, changing activity and constrained funding. The return to public transport has largely been related to the elimination or significant suppression of COVID within a region, with New Zealand demonstrating the rapid return of passengers in a COVID-free environment. This outcome will not be achievable in all regions. However, the interventions mentioned in this paper can guide governments on ways to drive riders to return to public transport.

While managing the challenges of financial pressures, reduced transport demand, ongoing safety in the transport network and road congestion as some turn to higher personal vehicle usage, governments have the opportunity to reshape public transport, further

improve the transport experience for passengers and invest in interventions that will work well into the future. By refocusing the system to support economic recovery with protective safety measures, informing and educating passengers, managing capacity and establishing robust policy, governance and enforcement, governments will be well-positioned for the short to medium-term.

FURTHER INFORMATION

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