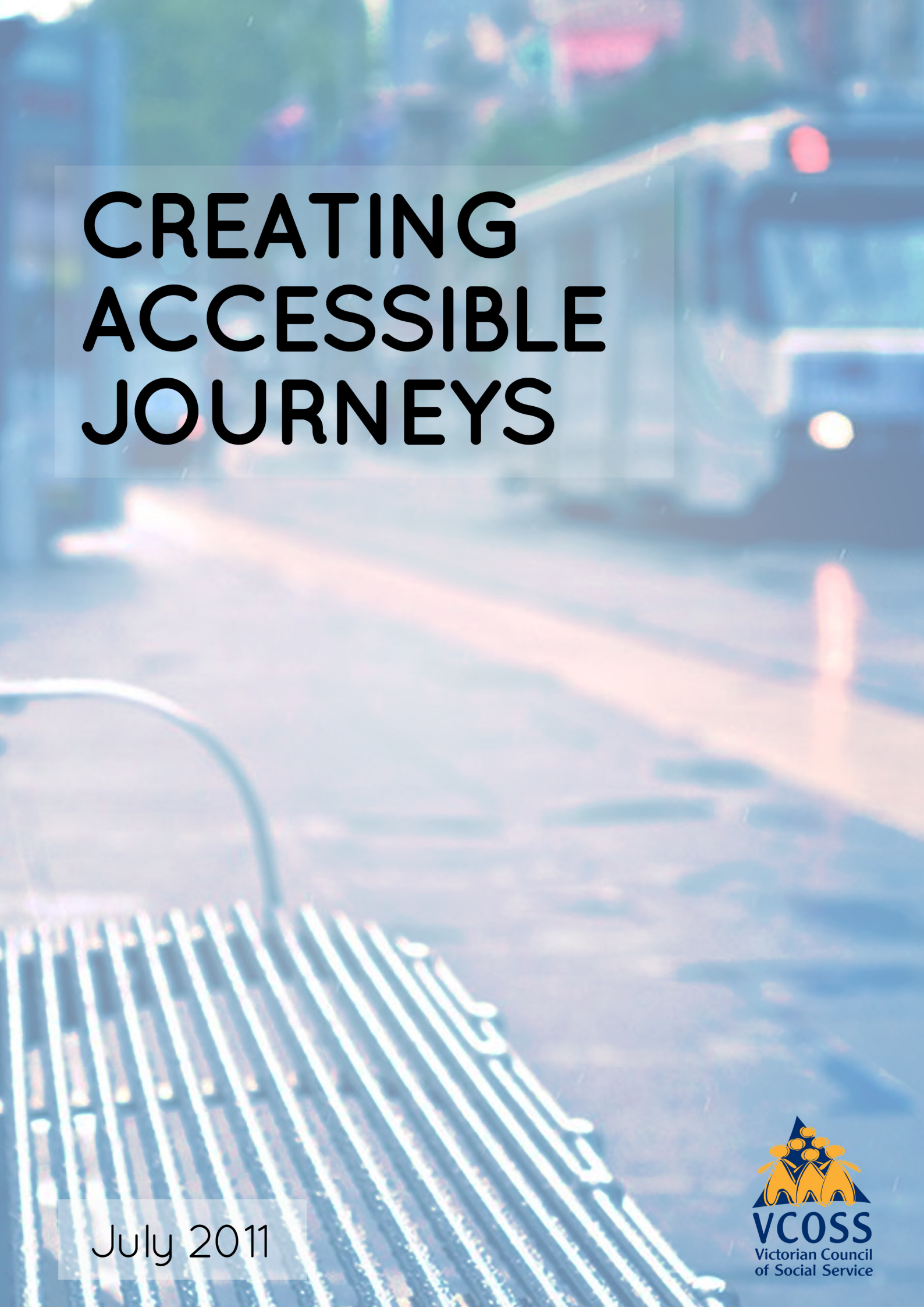

CREATING ACCESSIBLE JOURNEYS

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VCOSS
Victorian Council of Social Service

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The Victorian Council of Social Service (VCOSS) is the peak organisation of the non-government social and community services sector. VCOSS raises awareness of the existence, causes and effects of poverty and inequality, and contributes to initiatives seeking to create a more just society.

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Executive summary

This report has been produced by the Victorian Council of Social Service (VCOSS) to examine the progress towards improving the public transport system in Victoria to meet the needs of a greater variety of users, including people with diverse mobility requirements. It builds upon information collated for our previous report of the *Accessible Public Transport Watch Project*, which surveyed the mobility needs of people with disabilities. This report uses information from that report, combined with interviews with public transport agencies, the results of a public consultation forum on accessible transport, and relevant academic publications to draw its conclusions. While the total transport system also includes private motor vehicles, taxis, aviation, shipping, active transport modes and community transport services, this report concentrates upon land-based scheduled public transport passenger services and related pedestrian movement in Victoria: *i.e.* buses, trains, trams and coaches.

A key goal of this report is to shift the thinking of government, public transport agencies and the wider community on the need for and benefits of accessibility. It refutes mainstream thinking that accessibility is only a concern for a select group of people with specific disabilities, and instead argues that all Victorians are likely to need and benefit from accessible features at some point in their lives – for instance, as children being transported in prams or pushers, when we experience sickness or injury, as we age, or when we need to travel with luggage or shopping. Accessible public transport is not for 'other people', it is for all of us.

Improving access to public transport does not mean simply providing more services or carrying more passengers – although these are important. It also means changing the way we deliver transport services to meet the diversity of the travelling public. This means understanding the range of requirements necessary for public transport users, and examining the best way to cater to everyone. In particular, public transport planners, designers and operators need to move away from designing public transport services for a 'representative person' – who has a pre-conceived set of presumed capabilities, travel times, destinations, and journey purposes, and instead design for adaptable and multi-use public transport that can cater for a wide variety of people and purposes that are likely to change over time.

A greater emphasis on producing access *outcomes* in the public transport system is required. The ultimate goal of public transport accessibility is that more people with a diversity of mobility requirements actually use the public transport system to reach valuable destinations, and as a result, are able to have a better quality of life. This is the real 'pay-off' or 'value-add' of accessibility improvements. Yet virtually no-one in the transport system tracks, measures or evaluates these outcomes – with the result that we do not know what real benefits have been created by accessibility investments, nor can we easily determine which investments, or combinations of investments, work best.

One problem identified by this report is that there remains a focus on making isolated pieces of public transport infrastructure compliant with accessibility standards, while often ignoring broader concepts of accessibility, whether these pieces fit together, or failing to consider the impacts of operational decisions or the skills of staff on access outcomes. If a journey does not provide a continuously accessible path from beginning to end, then it cannot be used, regardless of how many pieces of compliant infrastructure exist along the way. To address these shortcomings, agencies responsible for public transport planning and operations need to collaborate to ensure that their activities are co-ordinated, as a fragmented, piece-by-piece approach will often miss many opportunities to produce better outcomes.

Similarly, the way public transport is planned and designed needs to change to emphasise universal design principles. Universal design is now a widely understood and utilised concept, which is readily adaptable to public transport design, but is not necessarily incorporated or required by public transport agencies. To facilitate universal design and promote consistent levels of accessibility across the public transport system, design, construction and procurement should be underpinned by strong and future-orientated

specifications and guidelines that ensure that the system will provide long-term accessibility improvements.

It is not merely the physical design of transport infrastructure and vehicles that produces good access outcomes. Operational decisions, information resources, and staff attitudes and skills are also essential in creating accessible journeys. If operational decisions impede access, information is not inclusive and neglects to provide for people with diverse capabilities for travel, or staff members do not understand the requirements of different users, then the benefits of physical infrastructure can be undermined and the investments wasted.

Improving public transport accessibility has many benefits for the people of Victoria. It improves the ability of people with mobility restrictions to make the most of employment opportunities, gain skills and education, access social services and maintain connections with the community. It supports positive and healthy ageing as Victorian society undergoes a demographic change. It supports families with young children by expanding their transport choices and assisting them in managing family budgets. It helps expand mobility options for everyone, including when travelling with trolleys or luggage, or when injured, and thus assists in reducing car dependence. However, these benefits will not materialise if the current *ad hoc*, uneven, and fragmented approach to accessibility is maintained. Only by making co-ordinated, informed, and widespread changes to the public transport system can we realise the value generated by accessible public transport.

Summary of recommendations

(The following is an edited summary of all recommendations in this document. For the recommendation in full and preceding information, please refer to the given recommendation number and reference page.)

1. There should be a systemic shift in the recognition, understanding and attention given to the accessibility of Victoria's public transport system, including that public transport agencies and operators should:
    a. Use a broad definition of accessibility (R1: p.12)
    b. Prioritise improvement in accessibility outcomes, not merely compliance activity (R2: p.13)
    c. Incorporate the principles of universal design for construction of infrastructure and purchasing of vehicles (R10, p.28)
    d. Encourage broader community consultation, engagement and public debate on improving the accessibility of public transport (R9: p.26), including engaging in user consultation before determining the specifications for infrastructure (R11: p.28)
    e. Develop capabilities to measure and monitor accessibility outcomes and benefits (R8: p.25)
2. Governance and co-ordination of the public transport system should be strengthened by:
    a. Ensuring the PTDA has the resources and power to effectively co-ordinate the accessibility outcomes of the system (R3: p.16)
    b. Maximising the opportunities to create continuously accessible journey paths (R4: p.19)
    c. Incorporating long-term accessibility improvements into client design requirements and procurement specifications (R12: p.29)
    d. Producing an Action Plan that provides a framework for sequencing investments (R6: p.19)
    e. Funding a long-term program of accessibility improvements (R7: p.24)
3. The accessibility of public transport vehicles should be improved by:
    a. Ensuring that the procedures and specifications for new vehicle purchases incorporate universal design principles and user consultation (R15: p.34), including better placement and identification of priority seating (R17: p.34)
    b. Aiming to provide long-term level boarding access that is independent, gapless and equal (R13: p.30), whilst pursuing interim solutions (R14, p.33)
    c. Funding the installation of automated audible announcement and visual display units on all vehicles (R27: p.46), and further ensure everyone can determine the correct vehicle to board (R28: p.47)
    d. Phasing out inaccessible vehicles for school bus routes, rail replacement vehicles, or any other public use (R16: p.34)
    e. Improving the capacity for mobility aids to be used on public transport vehicles (R23: p.41)
4. The Department of Transport, and other transport agencies should improve the broader accessibility of the whole journey path by:
    a. Including assessment of pedestrian infrastructure, road and rail crossings, boarding and waiting places, vehicles, signage and information (R5: p.19)

b. Ensuring that stations and stops include design features that create access, safety, and comfort, including lighting, shelter, seating and appropriate allocated spaces (R18: p.37), including facilities such as equal access to accessible toilets (R19: p.37)

c. Ensuring that demarcation of responsibilities results in the best use of the available space to provide access at bus stops (R20: p.37)

d. Ensuring that the entire pedestrian catchment of a boarding place is accessible (R22: p.40), with special attention to the use of Tactile Ground Surface Indicators (TGSIs) (R21; p.39)

5. Improve access to public transport through better information and services by:

a. Implementing a code of conduct for all service staff (R24: p.44), and ensure they receive appropriate training (R25: p. 44)

b. Ensuring full accessibility information is collected by Metlink (R30: p.49), and present this data on improved maps and timetables (R29: p.49)

c. Reducing or removing requirements for pre-arranging travel (R31: p.50)

d. Reviewing the current structure of concessions and travel passes to reduce the complexity of the system (R32: p.51)

e. Providing a broad community education program improving holistic knowledge of transport accessibility (R33: p.51) and maximise opportunities to encourage pro-social behaviours by passengers on public transport (R26: p.44)

1. The value of access

The opportunity of access

During all our lives, we will experience times when our ability to go places is compromised: we have to carry luggage or shopping; we need to ferry around children; and we experience injuries and/or illnesses that may leave us temporarily or permanently without a full range of motion. Some of us have been born with an impairment that reduces our movement or senses; others will acquire one during their life. As children, we were limited in how we could travel and, as we all continue to age, most of us will experience a loss of hearing, reduced vision, or find our bodies become frailer. But these experiences do not mean our lives must get worse as result. If we can retain our dignity and independence, and if we can still get to the places required to achieve the things we want to do, then everyone can lead a meaningful, valuable life. Accessible public transport is not for 'other people' – it is for all of us.

Victoria currently faces a number of opportunities and challenges. The population is undergoing demographic ageing — a positive and welcome development, as it results from Victorians leading longer and healthier lives. Economic activity in Victoria remains resilient, even after the Global Financial Crisis, and presents continuing opportunities to support more people to move into paid or voluntary work. At the same time, Victorian families face rising cost-of-living pressures in certain goods and services –with the price of fuel for motor vehicles rising and significant risks of a further oil price shock and sustained high petrol prices in the future. A range of other essential goods and services have also seen price rises in excess of the Consumer Price Index over an extended period, including electricity, water and food. Housing costs also remain high in Melbourne and are rising in Victoria's regional cities, forcing many families to relocate further away from the centre of cities to find more affordable accommodation.

Accessible public transport assists Victorians to take advantage of these opportunities and meet the challenges. For people who cannot drive, or wish to reduce their driving, it allows a viable alternative while maintaining independence. This will become more important as the population ages, with increasing numbers of Victorians who would benefit from the opportunity to cut back their driving, while still being in control of their mobility, as their driving capacity changes. If age-adjusted disability rates stay reasonably constant, demographic ageing will also mean there will be greater numbers of people in this group, which will add to the numbers of people experiencing mobility challenges more generally.

Victoria's low unemployment rate currently offers opportunities to support more people into work, but lack of access to public transport needs to be recognised as an important consideration, especially for people with reduced mobility. Accessible public transport also gives people a low cost alternative to running a motor vehicle, and families especially may wish to reduce their motor vehicle costs by becoming a 'one-car-family' to help manage rising fuel costs – especially if parents know they can easily take their children on public transport. This is particularly the case when families try to manage their housing costs by moving further away from employment, social facilities, friends and relatives.

It is also important to recognise the real costs borne by Victorians if they cannot get access to public transport. Many more Victorians will have to pay more to travel by car or taxi, increasing their cost-of-living pressures. This could create escalating cost pressures on transport alternatives like the

Multi-Purpose Taxi Program, as well as more congested roads. Worse, they may simply opt to reduce the extent (and costs) of their travel by declining to take up valuable opportunities that would otherwise improve their lives.

However, if we are to realise the benefits of accessible public transport, Victoria's public transport agencies and operators need to adopt policies that better understand and promote access to public transport. This does not mean simply providing more services or carrying more passengers – although these can be important ways of improving access. It also means changing the way we deliver transport services in a way that recognises diversity of the travelling public. The provision of access to everyone would be welcomed as a proud accomplishment.

The value of transport

Moving around is usually not important in and of itself: we generally do not travel for its own sake. Rather, we can think of transport as being of *instrumental* value: it is valuable because it allows us to do something else. Transport lets us be in other places, and do things there that are important for our lives: to work, learn, connect with friends and family, shop, play, volunteer and receive care. The main value of transport is not in the journey – it is in the destination.

The value of transport, then, is in providing *access:* moving people to valuable destinations. Access can also be improved through other mechanisms; for instance, telecommunications can provide access to work and services, and urban planning can help ensure minimal distance between the places people live and important destinations. However, these cannot completely eliminate the need to move around. While many objectives are pursued in the transport system – efficiency, sustainability, patronage growth and safety, these goals are only means to an end. There is little benefit in making the system more efficient if that prevents significant numbers people from getting to their destination. These and other goals such as capacity and timeliness are understood to be 'means' which serve the 'ends' of achieving access. In this way of thinking, there is no trade-off between intermediate goals because it becomes possible to make a judgement about their relative contribution to the ultimate purpose: access.

Public transport has a central role in providing access. While private forms of transport such as the motor vehicle provide access, they rely on individuals to provide large amounts of resources and time in order to purchase and maintain vehicles, as well as high levels of biological movement and cognitive function, and the capacity to learn the necessary skills to drive safely. Given these barriers, private motor vehicles can never provide access for everyone. Public transport, by contrast, has the potential to provide access at low cost with few demands on travellers, making it more able to provide access to a diverse range of people if managed effectively.

Defining accessibility

If the purpose of transport is access, then *transport accessibility* means the extent to which transport provides access: it is judgement about how well transport performs in allowing a diverse range of people to get to their destinations. An accessible public transport system is one which provides good access: it can successfully transport people to the places they need to go. Importantly, the concept of accessibility is relative and continuous: we can think of many gradations and dimensions of accessibility, each providing different levels of access and often to different people.

There are different ways in which public transport provides access, and different strategies by which accessibility can be improved:

- ***demographically:*** by allowing a greater diversity of people to reach their required destinations;
- ***spatially:*** by allowing more linkages between more places;

- ***temporally:*** by allowing more frequent and faster services so destinations can be reached more quickly and more often, including operation for a longer span of hours to achieve opportunities at more times of day and week;
- ***financially:*** by reducing the monetary cost associated with making a journey.

In this report, we will use the term 'accessibility' to mean demographic accessibility. While these four aspects of accessibility are interlinked, we are interested in focusing attention on the first: the diverse nature of the travelling public and the spectrum of their requirements, as the other aspects often receive far greater attention. Importantly, demographic accessibility is distinct from patronage, as we are interested in *who* can use the transport system, not simply *how many*. The difference is that patronage simply measures the number of people who use the system, but an increase in patronage does not tell us whether these are the same people making more journeys, or more people electing to use public transport choices that have been available all along. The goal of expanding accessibility demographically is to ensure that people who could not previously use the system are now capable of doing so.

However, in order to achieve this increase in access, there needs to be a greater understanding of how people's transport needs are different and change over time. Academics note that part of the problem is that transport agencies often use an implicit idea of the 'universally able and disembodied subject',[1] that is, that all of their passengers have the same standard needs – those of an unencumbered, unimpaired, healthy, employed adult of working age who is fluent in the dominant language — and design transport systems primarily for this group, even though people who fit this 'representative person' mould are actually a minority of the population. To increase public transport accessibility, there needs to be an understanding that the needs and abilities of passengers are diverse, and will change over time.

Furthermore, accessibility is a systemic concept – it is a quality that applies to a transport service or system working as a whole. This means we need to understand not only how a transport system is built, but also how it is operated and used, in order to make a judgement about its accessibility. Importantly, research shows that features of public transport that assist in providing access, such as comfort and safety, are properties that emerge from the interaction of both social and technical factors.[2] In this understanding, it is not only the design of infrastructure, vehicles and information systems that provide accessibility; it is also the information that is available about the transport system, and the behaviour and attitudes of transport agencies' staff and fellow passengers.

Accessibility is for everyone

When decisions are made about public transport – what infrastructure to build, which vehicles to operate, what services to run, and how to interact with passengers – they involve implicit value judgements about who will be able to use the transport and why they will use it. An understanding of accessibility can make these value judgements explicit, so that decision makers are aware of who will be affected by their choices, and act to ensure that as many people as possible can use the public transport system for as wide as possible range of purposes.

Importantly, to understand how public transport systems provide access, decision makers need a good understanding of how people are different and how their needs change. Of particular relevance are differences and changes in:

- ***Morphology and development:*** people come in different shapes and sizes, including the length of and presence of their limbs, their body mass and differences in gender, and these characteristics change as they progress from being children to adults, and as they age;

1 Audirac, I. (2008) 'Accessing Transit as Universal Design', *Journal of Planning Literature*, vol. 23, no. 1, p.8

2 Wretstrand, A. *et al* (2008) 'Wheelchair users and public transit: Eliciting ascriptions of comfort and safety', *Technology and Disability*, vol.20, no.1, p.46

- ***Bodily movement:*** people have different abilities to move their bodies, limbs and heads, including the ability to walk, balance, co-ordinate the movement of limbs, bend their knees, climb stairs, stand, sit, raise their arms, make fine motor movements with their fingers, and move their facial muscles to make culturally appropriate facial expressions;
- ***Senses:*** people have different sensory capabilities, meaning they will have different abilities to hear audible language, sounds, music or alarms, and different abilities to see other people, as well as read text, numbers, hazards, and symbols;
- ***Language and speech:*** people have different abilities to understand language in spoken and written English and numerals, for a range of reasons, including language background (including sign language), their ability to form spoken words or their capacity to use writing or typing technology, and their level of instruction in literacy and numeracy;
- ***Cognitive abilities:*** *p*eople have different capacities to undertake cognitive tasks, including remembering, understanding and following instructions, deciphering tables, maps and symbols, expressing their needs, locating their position in space and time, recognising and reproducing appropriate social and cultural behaviours, and maintaining their psychological resilience;
- ***Reactions:*** people respond differently to both physical and social stimuli in their environment, including physical reactions to movement, response times to hazards, exposure to weather, sunlight, heat and cold, and to the presence of chemicals, pathogens and allergens in the environment. They will also have different emotional responses to stress, noise, lighting levels, colours, crowded or isolated spaces, odours, and the behaviour of staff and other passengers. These reactions may differ for reasons including culture, social status, gender, age, mental health and identity;
- ***Resilience to injury:*** the consequences of injury or accidents may vary from person to person, including for reasons of age, physical and mental health conditions, and employment, and influence different perceptions of safety;
- ***Familiarity with the environment:*** people have different levels of knowledge about their location and how to make journeys in the public transport environment, such as when they are going to an unfamiliar place, or if they are new users of public transport;
- ***Possessions and equipment:*** people need to bring different possessions and equipment depending on their needs and the purpose of their journey, including handbags, briefcases, laptop computers, work tools, books and papers, backpacks, prams and strollers for children, personal shopping trolleys, shopping bags and purchases, luggage, disability and mobility aids such as walking frames, wheelchairs, mobility scooters or oxygen cylinders, and recreational equipment such as sports kits, bicycles, surfboards, or musical instruments; and
- ***Availability of alternative transport:*** people have different access to other transport options to reach their destinations, including motor vehicles, taxis, community transport, active transport modes including walking and cycling, and air and water transport services, so they will be affected in different ways by lack of access to public transport.

Using public transport is an inherently social activity, as its focus is on allowing *different* people to travel *together*. Understanding the diverse needs of people is essential to understanding accessibility, and the diversity of uses and purposes for which it can be accessed. Importantly, human difference exists on a continuum; people have different characteristics and capabilities that vary on a spectrum, and over a lifetime. We cannot divide people into neat categories.

From the interviews conducted in this study, we conclude that this diversity is only partially recognised within Victorian transport agencies, with heterogeneous values being expressed about accessibility, and noticeably different levels of enthusiasm for the concept. More generally, while there was widespread acknowledgement that accessibility was a concern, there was not a consistent expression of what the term meant.

Occasionally interviews with transport agencies revealed a perception that different transport users and purposes competed for public transport resources. This often led to a view that recognising the requirements for a specific user or purpose would lead to a conflict over resources and that meeting a broader range of requirements would impose costs on others (for instance, that changing vehicle design to suit some users would reduce the

number of seats, or that creating easy access to facilities would increase maintenance costs). A similar idea was occasionally raised that access improvements should not be 'just for one group', as this represented unfair distribution of resources.

However, this view rarely reflected upon the implicit value judgement that it contains: namely, it presumes that access for some people is more important and more valuable than access for others. In effect, this competitive logic follows that providing for passengers whose needs are easier to meet should be preferred over those with more complex requirements. Moreover, it neglects to acknowledge that while a person may be easier to transport now, they may have more complex needs for transport at some other time – for instance, when they attempt to travel with small children or as they age. Accessible transport aims to manage the transport system to meet the diverse needs of different people through their life cycle, rather than require people to adapt to the needs of the transport system. At its core, accessibility is a fundamentally democratic concept – its aim is to provide equal access to destinations for people with a diverse range of needs and capabilities, rather than selectively transporting passengers who are the cheapest and most convenient to move, or who are the most vocal. Moreover, while accessibility improvements might be incorporated for a particular set of needs, the benefits of the improvement are usually more widespread, helping provide a better level of service for everyone.

On occasion, the objection is raised that there are a group of people for whom it is not reasonable to expect the public transport system to carry. This is demonstrably true – there are individuals whose physical or cognitive impairments are so great that independent mobility is near impossible. However, on some occasions this fact is used to argue that public transport should restrict access to people whom are merely inconvenient to carry, rather than designing and operating the system to maximise the possible diversity of passengers able to be accommodated.

Recommendation 1

Public transport agencies and operators should use a broad definition of accessibility that encompasses the broad diversity of real people and purposes of travel, in contrast to presuming the capabilities and destinations of a 'representative person'.

From compliance to accessibility

In 2002, the Australian Government enacted the *Disability Standards for Accessible Public Transport* (DSAPT), made under the Disability Discrimination Act 1992 (DDA) which requires that various aspects of public transport services meet the standards set by DSAPT. In particular, a number of elements for transport infrastructure and vehicles are required to be met progressively, with certain milestone compliance targets set at five year intervals. To date much of the effort and resources in improving public transport infrastructure has been aimed at meeting the compliance schedule, rather than necessarily being focused on maximising access.

To understand the difference, it helps to provide a clearer distinction between the two concepts. Compliance is focused on meeting the technical requirements of a particular set of standards, especially DSAPT, so is therefore a set of categorical *obligations* that transport agencies are required to meet. Accessibility, however, is the *outcome* that allows people to actually make use of the public transport system to complete journeys.

We can think of compliance as being one 'means' of reaching the 'ends' of accessibility. Put simply, compliance involves reaching the standard, whereas accessibility involves reaching the destination.

There is some evidence that different transport agencies have begun to shift towards a broader concept of accessibility rather than merely compliance – although in some cases this appeared to be a change in language rather than intent, for instance by simply renaming a compliant piece of infrastructure as accessible. On the other hand, there were instances where agencies embraced the idea with enthusiasm, producing a range of ideas and projects designed to promote and enhance access for a wider group of users.

Yet in many cases the holistic approach of accessibility remains lacking and seldom is it acknowledged that operational practices and social factors may need to be examined. Moreover, many of the barriers to increasing accessibility can only occur if there is coordination

between the compliance regime and other initiatives; to date, only tentative steps have been made towards this.

Just as importantly, there is often too little attention or focus on whether the accessibility outcomes are actually achieved. At this point in time, it is hard to tell whether there is a greater diversity of people using the public transport system as a result of many years of investment, and whether it is used more by people who have higher access requirements. In comparing the feedback of the VCOSS Accessible Transport Forum with the earlier finds of the report of the *Accessible Public Transport Watch Project*, it is certainly clear that the frustrations and problems experienced by users have changed little in the last few years.

Recommendation 2

Public transport agencies should prioritise improvement in accessibility outcomes, not merely the extent of compliance with access standards.

2. The whole journey

Seamless journeys

While a piece of infrastructure may be compliant, it will only create access if it can be used. For people to complete a journey, they need a continuously accessible path, because a single obstacle or barrier on the journey – any link in the 'journey chain' that is broken — stops the journey being made. Every journey has both a point of origin and a destination, and access requires everything in between to be negotiated – the pedestrian infrastructure, the road and rail crossings, the boarding point, the vehicle, the disembarking point, and the pedestrian infrastructure at the other end[3]. The first challenge for transport agencies is to ensure that all of these features line up to create accessible journeys, a commitment which requires more detailed planning, co-ordination and sequencing than is currently the case. Perhaps the most obvious example is the common occurrence of DDA-compliant tram and bus stops being installed where no low-floor services are scheduled, and vice versa, which means that no access is actually created for people who require both these facilities.

The second, and equally important, challenge is that for a journey to provide access, people have to know that it exists and be able to actually navigate the system. Currently, it is difficult to discern the level of access a given journey will provide, or whether a person will be able know when and where to use it. For example:

- On the tram network, timetables do not indicate when a low-floor tram will be deployed, other than on two specified low-floor routes
- While low-floor routes are designated on bus timetables, this does not always mean the bus will necessarily be able to deploy a ramp at a given stop.
- If you cannot see the bus or tram stop 'flags' as your vehicle passes, you may not know when to get off, even if you can find the right vehicle to get on.
- The current mechanism of DDA reporting for train stations measures against DSAPT elements, not whole stations. This means, for instance, that while a certain percentage of stations have DDA-compliant ramps and the same percentage has a DDA-compliant wheelchair boarding point, there is no guarantee these features occur on the same station.

While there are some good projects and programs underway to begin to address some of these issues, which will be documented in more detail in subsequent sections, they show that public transport users need to be confident they can complete their whole journey without becoming lost, stranded, frightened or mistreated. If the system cannot provide this reassurance, and if users find that they cannot trust the information they receive, then they will have to find an alternative transport option, or simply not make the journey at all.

Some of the transport agencies interviewed put forward the view that it did not matter in what sequence the compliance regime occurred, given that the system would be 100 per cent compliant at some point in the future. But it matters a great deal from an accessibility perspective. Firstly, presuming that transport systems actually meet the final target

3 Maynard, A. (2009) 'Can measuring the benefits of accessible transport enable a seamless journey?', *Journal of Transport and Land Use*, vol.2, no.2, p.24

dates, it will still be more than two decades before all infrastructure is compliant – and many opportunities for access would be missed in the interim. Secondly, the system and infrastructure requires operational specifications not covered by the DSAPT if it is to meet the requirements of users: the DSAPT should be considered a minimum threshold for the issues it covers, rather than a total solution for accessible design. Thirdly, producing infrastructure that does not 'join up' will generally mean that the possible increases in usage – including additional patronage and revenue – will not be forthcoming. Finally, and most importantly, people would be prevented from building better lives for themselves and their families through the real benefits that additional access would provide.

Current prioritisation methods

One goal of this report was to document how various transport agencies made decisions about how to improve the accessibility of the transport system. It was very clear from the interviews that there is no common method of determining what access features to improve and in what order to complete them. While meeting the DSAPT progress targets was foremost in determining what to upgrade or where to deploy vehicles, there was often little understanding of what might be needed in order for people to actually use the system. In particular, agencies did not co-ordinate their schedules to ensure that improvements worked together to produce accessible journeys.

The responsibilities for meeting the DSAPT schedule are dispersed against a number of different transport agencies, and other parts of the journey chain lie with still more agencies. Where these improvements are funded by the Victorian Department of Transport (DoT), it must approve the specific use of resources, although these are similarly dispersed among DoT branches and sections and not necessarily co-ordinated. The actual planning and sequencing of improvements is often completed by an external organisation, usually through negotiation and consultation with some part of DoT.

Major drivers and decision-makers for the location and deployment of DDA-compliant elements include:

- ***Low floor trams*** are deployed by the tram franchisee, Yarra Trams. Two low-floor routes have been designated, the 109 and 96, which aim to use 100 per cent low-floor vehicles, although this still does not occur on a small number of trips. Low-floor trams are also deployed irregularly on other routes. It was pointed out during consultations that all new floor trams are also high-capacity vehicles, and the major priority in their deployment is to reduce overcrowding on routes with high passenger volumes.
- ***Level boarding tram stops*** are determined by DoT, with the major factor in their location being available road space as, until recently, the platform tram stop has been the only way to provide level access boarding. Platform tram stops are also preferred for high-use stops, as they can significantly improve tram boarding times, regardless of the type of vehicle deployed.
- ***Low floor buses*** are provided under replacement schedules through contracts with private bus operators serving both regional and metropolitan routes. The replacement schedule generally prioritises the oldest buses for replacement. Within contractual parameters, such as 'using the best available contract buses at the time', operators have significant freedom about where to deploy buses, although DoT also retains some capacity to direct the use of rolling stock on certain routes. Factors for deployment often include high volume routes where operators may increase patronage from deploying newer vehicles. DoT currently has an objective to ensure all metropolitan routes use low floor buses on weekends, and specifies some routes as low-floor, such as SmartBus services.
- ***DDA compliant bus stops*** are delivered by local governments with funding and coverage negotiated with DoT. Their location is affected by a number of variables, particularly the willingness of individual local governments to engage in the compliance program. A number of other factors may also affect the location of stops and shelters, including complaints received by local government, heritage values of existing bus stops and the economic value of the advertising space generated for potential private bus shelter providers. It has been suggested that a risk-based model may be used in future to inform upgrades.

- ***Train station*** improvements in Melbourne are negotiated between DoT and Metro Trains, with Metro Trains delivering the projects. As previously noted, the main driver of upgrades is meeting the DSAPT target, without necessarily requiring that these occur at the same station. A number of factors influence priorities, including complaints, geographic coverage, and priority for the least accessible sites. Some refurbishment of V/Line stations are undertaken by VicTrack, with funding from DoT.
- ***Pedestrian infrastructure*** is generally the responsibility of local governments, although there may be specific instances where it is funded or delivered by another agency. The process for improving pedestrian infrastructure varies from council to council, and is not bound by progress targets.
- ***Road crossing improvements*** over arterial roads are undertaken by VicRoads, which has a small funding program for DDA compliance improvements. Prioritising is generally informed by the local knowledge of VicRoads regional offices, and complaints received.
- ***Rail crossing improvements*** are generally undertaken by Metro Trains in the metropolitan network and by VicTrack in regional Victoria. VicTrack has a small program for DDA compliance upgrades of rail level crossings, which are decided by an Inter-agency committee and informed by a rail safety risk model.

Our research demonstrates there is a wide variety of agencies undertaking DDA compliance improvements, all working largely independently from one another, and each focused on their own 'pieces' of the system. The core problem for users with this set of arrangements is that an accessible journey can only be created if it manages, *largely by chance*, to create a seamless path of access. As has been documented elsewhere, fragmentation of responsibilities and lack of co-ordination conspire to prevent anyone in the system from having 'a clear view of the whole journey'.[4]

A complex system of governance

Finding a fast and effective means to resolve this quandary of fragmented response is difficult, not least because the option of advocating greater centralisation in the management of the transport system is only partially possible, at least in the short and medium term. This is because the roles of various transport agencies are enshrined in legal contracts with, for instance, rail franchisees and bus operators. Similarly, there is a significant and ongoing dispute about the relevant roles of local government and DoT in providing for accessible infrastructure for road-based public transport, including the surrounding pedestrian infrastructure. While Metlink receives much of its funding from DoT, it is technically a private company owned by franchisee and operator representatives. There are also complexities involving local government and bus shelter management, which involves private bus shelter advertising providers. In one instance there is an unusual management arrangement at Southern Cross Station, resulting from a public-private redevelopment partnership.

While it may be possible to renegotiate or unpick some of these contractual arrangements or governance structures, the potential cost and impact of doing so may prevent government from proceeding. Currently the Victorian Government is undertaking a review of the governance of public transport in Victoria, with a view to establish a more integrated Public Transport Development Authority. This should open up opportunities for greater co-ordination and centralisation of the DSAPT compliance program and to ensure resources are deployed more strategically in order to maximise access.

Yet the centralisation approach can only ever provide a partial solution to some the issues raised in this document, other than in the very long term. More immediately, transport agencies will need to take a more co-ordinated approach by negotiation and resource sharing rather than by fiat alone.

Recommendation 3

The Public Transport Development Authority should have sufficient power, resources and structure to ensure co-ordinated planning and co-ordination of accessibility improvement that result in improved access outcomes, including through co-ordinating efforts of other transport agencies, operators and local government.

4 Maynard, A. (2009) 'Can measuring the benefits of accessible transport enable a seamless journey?', *Journal of Transport and Land Use,* vol.2, no.2, p.23

Accessible journeys, not just compliant pieces

Regardless of what level of centralisation might be achieved in the development of a new Public Transport Development Authority, there will need to be far more co-ordinated and strategic means of implementing access across the system.

As outlined above, scattering improvements across the network means that little access, in fact, is produced, as most of the time the pieces do not coalesce into a continuously accessible journey chain. A major concern of users is that accessibility 'improvements' appear on the public transport system and surrounding pedestrian infrastructure, apparently divorced from any consideration of what else exists in that location. Platform tram stops appear where there are neither low-floor trams, nor any plan to introduce them. Platform tram stops are built randomly in the middle of parks, or are missing pedestrian crossings to reach them. DDA-compliant bus stops appear unattached to any access path, or are built on bus routes serviced only by high-floor buses. Users find that they may be able to access a vehicle at the beginning of a journey, only to find that they cannot disembark the vehicle because there is no access at the end. Major train station refurbishments are untaken, but a low-quality rail crossing is left in place. A new rail crossing is built but the main footpath is un-ramped 50 metres up the road. New audible pedestrian signals are built over roads with no Tactile Ground Surface Indicators (TGSI) markings. The list goes on and on.

These repeated instances of mismatched levels of access occur because each agency tends to focus on improving the accessibility of the 'pieces' it is responsible for, while nobody is concentrating on improving the accessibility of the system overall. Thus agencies tend to concentrate on mapping out an improvement plan for their 'pieces' in isolation, and often make a presumption that the rest of the system is fully accessible. The type of vehicles used for a service is usually ignored, as is the level of access given by the surrounding infrastructure. Agencies focus most upon the number of pieces they have improved – and not whether this results in any actual improvements in access.

A second, usually ignored, result of this patchwork of access is it creates a further problem of high variability and unreliability in the accessibility of the system. The standard of access may change from stop to stop, from station to station, from vehicle to vehicle, from driver to driver. People will not necessarily know what type of vehicle will turn up next, or whether there will be the right level of access at their destination stop or station. In other words, if you require a better standard of access, you are forced to undertake extensive additional research in order to make a journey. Not only do you need to know when your service is scheduled, but you need to check what type of vehicle will be used, and what type of access is at either end of the journey. Often these pieces of information are not available, or are very difficult to find, or may change without notice. The uncertainty created means that trust in the public transport system is undermined.

This also produces a much higher consequence of failure in using public transport if something goes wrong. If accessible vehicles are intermittent, then missing a service (or an unknown rescheduling of the vehicle) may result in a delay of an hour rather than 10 minutes. If accessible stops are only occasional, then missing a stop may mean travelling for some distance in order to be able to disembark, and then perhaps having to make a return journey to 'try again' for one's destination. In any case scattered access features mean that users requiring these features face a far lower level of service than the rest of the users on that route, and hence are far less likely to make use of it.

In contrast, consider the proposition that instead of improving particular 'pieces' of the system, the system aims to improve the accessibility of specific services. A case in point might be the Smart bus system, where new services were introduced with not only higher frequencies, but a higher level of service, signage and stop infrastructure which were timed to occur with the roll-out of new vehicles. All Smartbus vehicles were low floor, and had automated visual and audible announcements. New striking signage was introduced, with space for information display, and electronic Passenger Display Units were introduced at major stops, many with audible 'press-button' alternatives. At the same time, Smartbus stops were prioritised in the stop upgrade program, with the aim of improving the level of DDA-compliance and new waiting infrastructure put in place. In this co-ordinated approach, a new standard of access was put in place for these routes in a relatively short space of time. As a result, patrons have come to understand that these specified routes have a higher level of access, which can be trusted in a way that general route bus services cannot.

To increase our understanding of the properties of different sequences of access improvements, we undertook a simple modelling exercise, which is detailed in Figures 1 to 3 (p.20-23). The basic premise of these models is to examine how different configurations of accessibility improvements might result in the creation

of accessible journeys. In these simplified models, we consider that a journey can be considered accessible if, and only if, there is accessible infrastructure at both ends of the journey, and the vehicle connecting the two points was also accessible. The results of the modelling exercise demonstrated that under the model assumptions, the greatest number of accessible journey opportunities was created in systems that concentrated accessibility on particular routes, rather than dispersing these features across the system. In short, the level of access created depends not just on how many pieces of infrastructure are compliant, but where these are located on the network.

From the modelling exercise, we can tentatively draw some initial conclusions:

- The proportion of 'pieces' that are compliant is not the same as the proportion of journeys that are accessible, for instance, a system might be 50 per cent compliant, but only 11 per cent of journeys on it might be accessible.
- Dispersed distribution can 'waste' access opportunities by involving large numbers of cases where inaccessible vehicles service compliant stops, and vice versa.
- The creation of accessible journeys is exponential to the proportion of compliance along a route
- Concentrating access improvements on specific routes may result in the creation of more opportunities to use the system to make accessible journeys.
- Focusing on interchange points does not necessarily maximise the number of accessible journeys created.
- Care needs to be taken when considering journeys that involve interchanges to ensure that the quality of the connection is taken into account.
- The trade-off between dispersing and concentrating accessibility features is potentially very large (in Figure 2 it is by a ratio of 25).

Of course, this is a very simple modelling exercise, and the limitations of the model need to be taken into account. The model makes no distinction between the levels of importance of particular journeys, nor does it consider that there may be improvements in access even if the whole journey is not fully compliant. It makes no distinction between modes, and presumes that all locations are equally easy to upgrade. It uses a simplistic uniform network that does not capture the complexity of connections in a real world transport system, where these considerations might alter the conclusions of the model. Given the size of the effect, however, we might expect that the findings are relatively robust.

This idea of progressing accessibility improvements along a route is in keeping with international practice; for instance, there are requirements in France that the 'travel chain is organised to facilitate total accessibility to disabled people and those with reduced mobility.'[5] From a governance perspective, the identification of routes also provides a co-ordinating principle around which agencies can collaborate to ensure their different roles work together to create access. By focusing on particular routes, an audit can be undertaken at a level of detail that would be impossible to achieve across the whole network simultaneously, including the detail of the pedestrian catchment. Not only can the vehicles and boarding places be made accessible, but more detailed planning of the whole route can occur, including considering the appropriate location of stops, stop spacing, traffic management strategies, and pedestrian infrastructure and crossing points. It becomes possible for agencies to co-ordinate specific activities in both time and location: operators can ensure they deploy 100 per cent compliant vehicles; a program of stop upgrades can be planned, including on intersecting routes at the point of interchange; local governments can engage in addressing problems in the pedestrian infrastructure; VicRoads can examine traffic management strategies and ensure road crossings are compliant; and rail authorities can improve rail level crossings and access at nearby train stations. Without this level of detail and co-operation, making continuously accessible pathways becomes very difficult.

One concern with this model of delivery is that, while maximising the number of journey permutations and maximising local access along public transport corridors, it would mean that some areas would get large and immediate investments in infrastructure, while others were postponed. This is a reasonable concern, although it could be pointed out that giving everybody a small amount of poor access, and wasting opportunities to create whole journeys, may simply result in people not using a bad service. Access needs not only to be theoretically possible, it needs to provide a quality that will encourage people to trust and rely on the service. Dispersed distribution also excludes people from the system; for instance, few people who require access at their nearest local stop will be lucky enough to have an accessible boarding place. When there are fewer destinations available on each route, or intermittent

5 Dejeammes, M. (2009) 'Urban Mobility Plans and Accessibility', *Journal of Transport and Land Use*, vol. 2, no.2, p.71

and unreliable use of accessible vehicles, fewer people will be able to make useful journeys. There is potential, however, to recognise geographic needs by ensuring a good distribution of accessible routes across geographic regions, including consideration of the access provided by a range of different public transport modes. For instance, it may be a lower priority to improve a tram route that is duplicated by a nearby train corridor or low-floor bus route. Geographic priorities for accessible routes should include different parts of metropolitan Melbourne and rural and regional Victoria.

That being said, it is important to acknowledge that advocates are not united in this view. While some accessibility advocates respond positively to this proposition, others view dispersed models as superior, as it is clear that no community is being advantaged over any other.

The current Action Plan for Accessible Public Transport in Victoria concludes in 2012, and states an intention to meet or exceed all of the progress milestones[6], some of which are unlikely to be met, particularly on the tram network. The next Action Plan should not repeat this compliance focused strategy, which concentrated heavily on progress milestones, with little planning or thought to how this would be conducted. Instead, the new Action Plan should prioritise accessibility: its intention should not simply be to make elements of the system more compliant, but to set out a strategy to use these compliance upgrades, deployment of existing resources and engagement with other transport decision-makers in a co-ordinated manner to create a greater number of accessible journeys that maximise access to destinations for a greater diversity of passengers.

Just as there may be benefits to prioritising particular accessible services rather than upgrading isolated pieces of infrastructure, the program of train station improvements should focus on providing allowing full accessibility for everyone, rather than the current practice of changing a single DDA element at a station at a time. This should include examination of how train stations connect with other modes to form journeys, including pedestrian connectivity, motor vehicle parking (including disabled access parking and disability drop-off points), and modal interchanges with trams, buses and coaches.

In addition, the new Action Plan needs to acknowledge that having a piece of infrastructure which is compliant at the current standard will not make it universally or permanently accessible. It needs to acknowledge that standards will continue to evolve over time and it is likely that, at some future point, some current solutions will become untenable. For instance, while the current solution for level-access boarding for trains is compliant, significant growth in the number of passengers requiring this type of access will make it unsustainable – both from the perspective of operators and users. The Accessible Transport Plan needs to contain a capacity to develop future-orientated standards that go beyond DSAPT, to ensure that items built and purchased now will have the ability to meet likely future requirements as well as those in the present.

Recommendation 4

Future access improvements should maximise the opportunities to create continuously accessible journey paths, including a greater emphasis on creating fully accessible service routes.

Recommendation 5

When improving accessibility on public transport routes, attention should be given to all aspects of the journey, including pedestrian infrastructure, road and rail crossings, boarding and waiting places, vehicles, signage and information.

Recommendation 6

The Victorian Government should produce an Accessible Transport Action Plan for 2013-17 that sets out a long-term framework for sequencing investments, so that adequate planning and co-ordination can take place between agencies.

6 State of Victoria (2006) *Accessible Public Transport in Victoria: Action Plan 2006-12*, p.6

Figure 1: A simple model of accessible journeys

We have developed a simple model to predict how different arrangements of infrastructure might result in different numbers of opportunities for fully accessible journeys. In the first instance, we can imagine a simple 'public transport system' composed of two separated routes, each with 10 stops. For our model, we will suppose that each route operates two services per hour, meaning services operate at 30 minute headways. In this model, we can calculate the number of different possibilities to make journeys, using a simple formula:

(number of original points on each route)	×	*(number of destination points from each origin)*	×	*(number of routes)*	×	*(number of services per hour on each route)*

For our system, the number of total possible different journey permutations commencing each hour is:

10	×	9	×	2	×	2

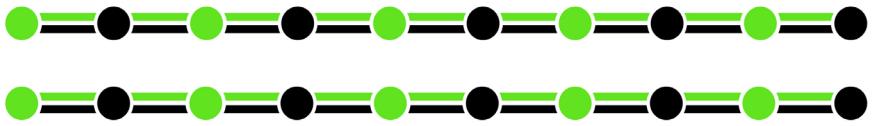
= 360 possible different journey opportunities commencing each hour.

If we make this system 50% compliant, we can also calculate the number of journeys that will be potentially accessible on the system. However, because the outcome will be affected by where the compliant stops are located and the routes compliant vehicles are deployed upon, we consider two different scenarios. In order to calculate the number of different accessible journeys commencing each hour, we need to modify our formula:

(no. of compliant origin points on each route with compliant vehicles)	×	*(no. of compliant destination points from each compliant origin on routes with compliant vehicles)*	×	*(no. of routes running compliant vehicles)*	×	*(no. of compliant services per hour on compliant routes)*

<u>Scenario 1: Dispersed distribution</u>

In this scenario, we evenly space the compliant stops and run compliant vehicles half the time on each route. In the diagram, green dots represent compliant stops, and green lines represent compliant vehicle paths. Black dots represent non-compliant stops, and black lines represent non-compliant vehicle paths.

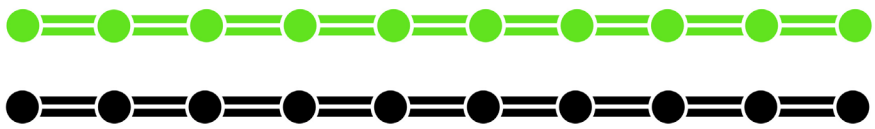


In this scenario, using our model, the number of possible accessible journey opportunities commencing each hour is:

5 × 4 × 2 × 1 = 40 possible accessible journeys commencing each hour (or 11.1% of total journeys)

<u>Scenario 2: Concentrated distribution</u>

In this scenario, we arrange all of the compliant stops and vehicles on the one route, leaving the other route completely inaccessible.



The number of accessible journey opportunities available each hour in this system is:

10 × 9 × 1 × 2 = 180 possible accessible journeys per hour (or 50% of total journeys)

This simple modelling exercise demonstrates that where stops are located and vehicles deployed influences the number of opportunities for access. In particular, simply because a system is 50% compliant, that does not mean 50% of journeys are accessible. The difference can be considerable: in this simple example, a concentrated distribution created more than four times as many opportunities to make unique accessible journeys as a dispersed distribution.

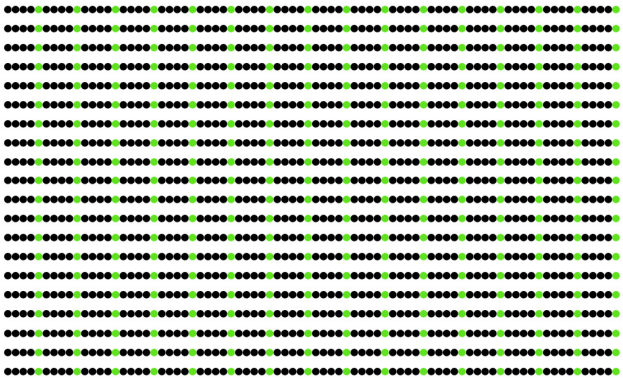
Figure 2: Modelling a large system for accessibilty

In this example, we look at how the model performs in a much bigger system. Instead of 10 stops on each route, let us put 80 stops on each route. Instead of 2 different routes, let us try 20 different routes, and instead of 2 services per hour, let us increase the frequency to 5 services an hour (meaning vehicles run at 12 minute headways). Let us also reduce the level of compliance in the system; instead of having 50% of stops and vehicles compliant, let us only have 20% of the system compliant. We can use exactly the same formula in Figure 1 to calculate the total number of possible different journey opportunities that can be made on this system:

$$80 \times 79 \times 20 \times 5 = 632{,}000$$ possible different journey permutations commencing each hour

Scenario 1: Dispersed distribution

As before, we first model the journey possibilities of a dispersed system. Every 5th stop is compliant, and every 5th vehicle is compliant, meaning compliant vehicles would run once an hour on every route.

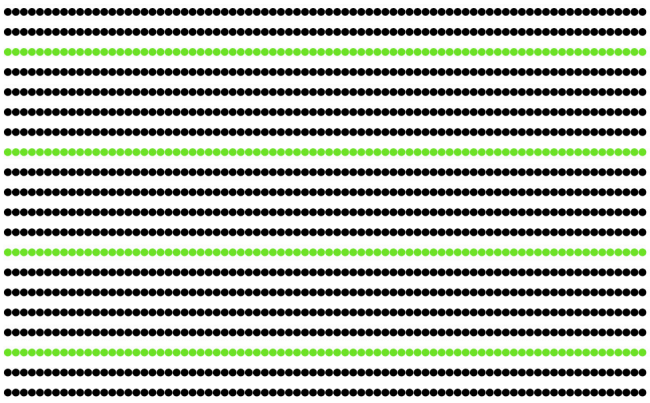


Using the same calculation as before, the number of possible different accessible journeys available in this system is:

$$16 \times 15 \times 20 \times 1 = 4{,}800$$ possible accessible journeys commencing each hour (or 0.76% of total journeys)

Scenario 2: Concentrated distribution

In this scenario, we arrange all of the compliant stops and vehicles on four routes, leaving the other sixteen completely inaccessible. On our four accessible routes, compliant vehicles run 5 times an hour.



The number of accessible journey opportunities available each hour in this system is:

$$80 \times 79 \times 4 \times 5 = 126{,}400$$ possible accessible journeys commencing per hour (or 20% of total journeys)

Using a bigger system with a lower level of compliance provides a stark demonstration of how placement of infrastructure and deployment of vehicles affects the level of access provided. In this example of dispersed distribution, despite being 20% compliant, the proportion of accessible journey opportunities is only 0.76%, or about 1 in 130 possible journey opportunities. The concentrated distribution allows 20% of journey opportunities to be accessible, or 1 in 5.

Figure 3: Modelling two-segment journeys on a network with interchanges

In this example, we develop our simple model to take into account that people may make journeys by combining routes through an interchange point. We will use exactly the same specifications as in Figure 2 - 20 different routes, with 80 stops on each route, with 5 services per hour (12 minute headways). Again we will use a level of 20% compliance of both stops and vehicles. In this model, however, we will create a simple network making 10 of our routes run horizontally, and the other 10 run vertically, meaning there will be interchange points where people can switch from one route to the other.

Given our model is the same as in Figure 2 for direct journeys with only one stage, we will only calculate the number of two-stage journeys possible on the system that require the interchange points to be used. We need to adapt our formula to calculate the number of two-stage journeys opportunities commencing each hour on this network.

(no. of origin points that directly connect with each interchange)	×	*(no. of additional destination points available from each interchange by switching routes)*	×	*(number of interchanges)*	×	*(number of services per hour on each route)*

For our model network, the number of total different two-stage journey permutations commencing each hour is:

158	×	79	×	100	×	5

= 6,241,000 possible different two-stage journey opportunities commencing each hour.

As in Figure 1, we need to modify our formula to calculate the number of different accessible two-stage journeys commencing each hour:

(no. of compliant origin points that directly connect with each compliant interchange)	×	*(no. of additional compliant destination points available from each compliant interchange by switching routes)*	×	*(number of compliant interchanges)*	×	*(number of compliant services per hour on each route running compliant vehicles)*

<u>Scenario 1: Dispersed distribution</u>

As before, we first model the journey possibilities when a network compliant infrastructure is evenly distributed across routes. In this scenario, we make sure every interchange point is compliant, as well as spacing the remaining compliant stops evenly along each route. Compliant interchange points are marked by an orange dot in this diagram, with green dots indicating accessible stops, as before. Notice that each interchange point requires two sets of compliant stops to be built, one on each intersecting route. Compliant vehicles run once per hour on every route.

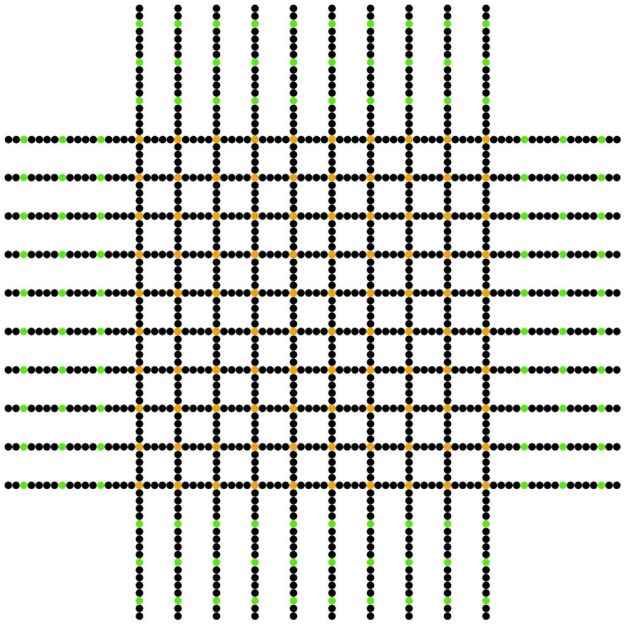


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Figure 3 (continued)

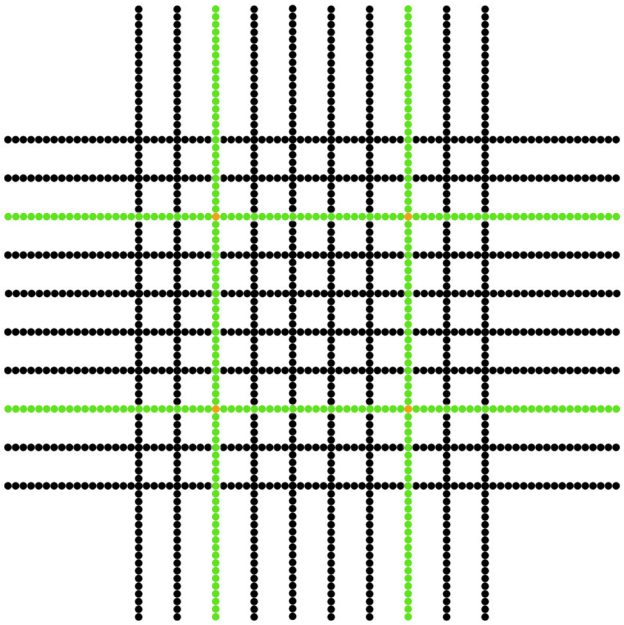
Using the new formula we have developed, we can calculate

30 × 15 × 100 × 1 = 45,000 possible two-stage accessible journey opportunities commencing each hour (or 0.72% of the total).

In addition to calculating that only 1 in 138 possible two-stage journeys on this system are accessible, it is relevant to consider the quality of the connections. In this system, a person may have to wait up to an hour for the connecting compliant vehicle to arrive in order to change routes. Also note that because we have to use two compliant stops at each interchange – one for each intersecting route – we can put compliant stops in fewer locations. While we have 320 compliant stops in this model network, we need two at each of the 100 interchanges, so we can only place stops in 220 locations.

<u>Scenario 2: Concentrated distribution</u>

In this model, we concentrate our stops and vehicles on four routes. We select two of these routes to be horizontal, and two to be vertical, creating four compliant interchange points at the points of intersection between the four routes. As in Figure 2, in this concentrated distribution scenario we have all compliant vehicles running five times an hour on our four compliant routes.



Using the same formula as in scenario 1:

158 × 79 × 4 × 5 = 249,640 possible two-stage accessible journey opportunities commencing each hour (or 4% of the total)

This scenario creates more than 5 times as many two-stage accessible journey opportunities as the dispersed scenario above, in addition to creating more than 25 times more one-stage accessible journey opportunities, as modelled in Figure 2. Also note that there are not only more connecting journey opportunities, but they are better connections, with passengers having to wait a maximum of 12 minutes compared with up to an hour's wait in Scenario 1. Also note that because this model has only four interchanges requiring 2 stops each, we can put stops in more locations: this concentrated distribution scenario has compliant stops in 316 locations, compared with 220 in the previous dispersed distribution model.

Resources for accessibility

The major investments needed to improve accessibility through the Victorian public transport system are almost exclusively funded by the Victorian Government. This includes the major infrastructure projects and rolling stock purchases that are required for an improved level of physical access. Continued investment in improved infrastructure, vehicles and technology is essential for any real progress to be made. Victoria is unlikely to meet all of its 2012 DDA progress targets, especially on the tram system. Meeting the 2017 targets should be a high priority but this will require a much larger level of investment than previous milestone periods. The 2012-17 milestone period requires moving from 55 per cent to 90 per cent compliance and is the largest jump in compliance in any of the five-year periods, requiring more than a third of the system to become compliant over five years.

Interviews conducted for this report not only repeatedly stressed that improvements could only take place where government had allocated resources, but also noted that a lack of long-term funding certainty affected how well resources could be managed. In the past, funding has been provided in four-year funding cycles, often with differing emphases on which pieces of the system should be prioritised. The uncertainty associated with four-year funding blocks means that there is limited time for good planning and sequencing, with funding managers keen to ensure the money is spent in proposed timeframes. In addition, as the previous funding cycle concluded, a number of transport agencies reported that projects had been effectively 'frozen'; this hiatus period drained momentum and uncertainty of future funding levels meant future schedules could not be meaningfully planned. There was some support for the previous Government's proposal to switch to a long-term funding cycle of 10 years, although this commitment was not implemented in the state budget.

In terms of resources for accessibility, while meeting the progress targets will likely continue to drive funding, it needs to be re-iterated that how the system is managed and operated also affects accessibility. Accessibility is not only a matter of 'hard' infrastructure, it also requires a 'soft' development of customer services, navigability and information consistency. The bulk of resources need to be directed at infrastructure, but they should not be limited to these projects, with service initiatives and communication improvements also able to seek resources for better access.

At the same time, a range of other resources can be used in more limited ways. Ongoing maintenance allows certain infrastructure to be made DDA compliant, such as resurfacing station platforms and installing Tactile Ground Surface Indicators (TGSIs). Similarly, a range of other infrastructure improvements occur for other purposes, such as local government pedestrian infrastructure programs, and road changes, which allow for various pieces of infrastructure to be made compliant. Of course, these opportunistic improvements are even more haphazard in their ability to improve access – but if forward schedules can be known or likely future changes identified, it may assist in choosing accessibility upgrades that can leverage off other improvements, thereby creating more access in combination. One particular initiative is the idea to map local principle pedestrian networks in local government areas to prioritise attention to pedestrian infrastructure and provide pathways for continuous access. Linking in public transport route sequencing with prioritisation of pedestrian networks would help ensure the pedestrian links in public transport journeys were continuously accessible.

The role of local government in providing connecting pedestrian infrastructure remains fraught. While this report is not able to fully judge how these relationships might be improved, one suggestion is to open up negotiation on how to combine the resources of local authorities and the State Government to ensure that access to public transport boarding places remains continuously accessible.

Recommendation 7

The Victorian Government should fund a long-term program of accessibility improvements, sufficient to ensure that all DSAPT milestone targets can be met, but allowing for reasonable flexibility to ensure that accessibility outcomes can be prioritised, including for projects outside the direct coverage of the standards.

Measuring and monitoring access

If the purpose of public transport is to provide everyone with access, then we should be able to measure progress to that end. At present, the main accountability mechanism is the level of compliance – which, as has been discussed earlier in detail, is not the same thing as accessibility. It should be noted that this is, nonetheless, useful information, and would be improved if it was supplemented by audits – with this information able to inform future prioritisation.

A number of interviewees noted that detailed information about access features across the public transport and pedestrian networks was unavailable; and that comprehensive and integrated audits at the state and local government levels would help determine which improvements were likely to result in more accessible journey paths. It is important that accessibility audits are able to capture the fine components of journeys, as so often 'the devil is in the detail'.[7] The use of common audit tools and co-ordinated auditing schedules would allow better information sharing between transport agencies and local government and present a better picture of the status of journey paths.

While understanding compliance levels is important, the Victorian Government needs to develop more sophisticated measures of access. Measuring access focuses upon measuring journeys, including potential journeys — understanding that identifying people who make only a few journeys is one indicator that they may have problems with access.[8] Again, information about journeys and access is often aggregated data, such as by local government area, which may miss much the detail or result in important information being 'averaged out'.[9]

A significant issue in measuring access is the limits in many of the data sources. Much of our transport data is concerned with measuring vehicles, or distances, rather than focusing upon the whole journey.[10] While there are some positive developments in this regard, including use of census data and the State Government's Victorian Integrated Survey of Travel and Activity (VISTA), these both have limitations in their application. The census data focuses on journeys to work, without collecting information on other travel behaviour, including trips for social purposes and the purchase of essential goods and services. Conversely, VISTA has limited demographic data that may prevent a more complex understanding of the diversity of people who use different modes of transport.

While some information may be collected from validation of myki passes, this is incomplete as the purpose of some passes, such as the Access pass, is to ensure people can still use public transport in the circumstance where they cannot validate the pass. It is also likely that places with good access are generally used more often by people with access needs – so using this data to identify high-use sites for improvement is likely to miss places that aren't used due to lack of access.

Finally, the Victorian Government, including the Department of Treasury, needs to develop more sophisticated analyses of the costs and benefits associated with access. The total benefits conceived for accessibility may not be captured by existing analytical tools, and fewer are monetised; the values attributed to social benefits are generally far outweighed by economic considerations in current cost-benefit calculations. The result is while technically captured, the attribution of social benefits is often so small that it rarely affects the overall conclusions of a purely economic analysis. Existing tools often only ascribe certain benefits, but approaches using shadow-pricing, existence or insurance values, or attributing benefits to reduced stigma or humiliation for users does not occur.[11] A recent paper, for instance, valued new trips taken by people experiencing transport disadvantage at $20.[12]

Recommendation 8

The Department of Transport should continue to develop its capability to measure and monitor accessibility outcomes and benefits by improving data sources and using more sophisticated measures of social benefit.

7 Maynard, A. (2009) 'Can measuring the benefits of accessible transport enable a seamless journey?', *Journal of Transport and Land Use*, vol.2, no.2, p.23

8 Stanley, J. et al (2011) 'Social exclusion and the value of mobility', *Journal of Transport Economics and Policy*, vol. 25, pt. 2, p.219

9 Preston, J and Rajé, F. (2007) 'Accessibility, mobility and transport-related social exclusion', *Journal of Transport Geography*, vol. 15, no. 3, p.159

10 Litman, T. (2003) 'Measuring transportation: Traffic, mobility and accessibility', *ITE Journal,* vol. 73, no. 10, p. 32

11 Lewis, D. et al (2010) 'Countering the economic threat to sustainable accessibility', *Paper presented at the 12th International Conference on mobility and transport for elderly and disabled persons (TRANSED 2010),* held in Hong Kong on 2-4 June, 2010

12 Stanley, J. et al (2011) 'Social exclusion and the value of mobility', *Journal of Transport Economics and Policy*, vol. 25, pt. 2

Engaging the community

Understanding the access needs of people is the first step to creating an accessible public transport system. By using feedback from users, involving the community in decisions on the requirements and design of transport projects, and engaging with the public in debate about the future needs of public transport, transport agencies can build a better understanding of community needs, and build and operate a system that will attract public support.

Throughout interviews with public transport agencies and in community consultations, a commonly mentioned form of engagement was through presentations and consultations with the Public Transport Access Committee (PTAC). PTAC has an important role in advising the Minister for Public Transport, and transport agencies more generally, about access needs in the community. While this advisory function is essential, it is not a decision-making body, and does not have the capacity to authorise decisions or direct resources.

PTAC currently meets quarterly for a period of only a few hours. A recent review of PTAC has been conducted, and the role of the Committee was commented upon by the Victorian Auditor-General in its inquiry into accessible public transport.[13] The Committee's structure has now changed, and will in future be primarily composed of individuals rather than organisational representatives. DoT has also created a parallel committee for transport operators, the Public Transport Operators Committee (PTOC), which currently meets monthly.

While discussing an issue with PTAC is an important step in gaining feedback on accessibility issues, it does not substitute for broader community engagement and consultation. At times, both within government and among members of the community, the role of PTAC can be overstated. Community members often understand PTAC's role as driving change within DoT, and transport agencies occasionally assert that, by making a presentation to PTAC, they have conducted sufficient community consultation. Both views may overstate the capacity of a group of individuals who meet only a few times a year.

Feedback and complaints mechanisms were also frequently mentioned as ways that transport agencies receive public input. Indeed they can assist agencies to understand the frustrations of users and identify specific passenger concerns. However, solely relying on these mechanisms can provide a distorted view, especially when the importance of a problem is judged by the number of complaints received. People have different capacities to provide feedback or make complaints, and use these systems for different reasons. Notably, people who are vulnerable may not wish to make complaints for fear of reprisal. More commonly, people may experience 'complaint fatigue' if repeated complaints do not resolve issues, and simply give up. A fall in complaints may represent an improvement, or may indicate that people have lost faith in the complaints system.

Using complaints as the basis for planning access improvements, as was indicated by a number of agencies, does not necessarily represent a strategic investment in improving outcomes. While there should always be a response to an articulated need, agencies must also seek to understand what caused the problem and adopt a strategic approach to reducing repetition in the future.

More widespread and inclusive consultative strategies to understand community concern and allow thoughtful input to decisions would improve users' understanding of the work that is currently being undertaken and the constraints faced by public transport agencies. It would allow the community to engage in the decision-making process, to articulate their needs and observe progress. Recent Tram Accessibility Forums held by DoT in May 2010 and March 2011 have been well received by the community, allowing more detailed dialogue and understanding for both transport agencies and passengers.

Recommendation 9

In addition to continuing to receive advice from the Public Transport Access Committee, the Public Transport Development Authority should encourage broader community consultation, engagement and public debate on improving the accessibility of public transport.

13 Victorian Auditor-General (2009), *Making Public Transport More Accessible for People Who Face Mobility Challenges*, Victorian Government Printer, PP No. 262, pp.16-22

3. Universal design

Designing for access

The difficulties raised by people about using the public transport system result from their needs not being considered during the design of public transport systems and practices. A significant change is required in how transport agencies design the system, including the vehicles and infrastructure, as well as the way they are operated. An important approach is to use universal design principles, which incorporate an understanding of accessibility and social inclusion in the design process.

Important elements of universal design include:[14]

- ***Barrier-free design:*** construction or retro-fitting of infrastructure and vehicles to eliminate barriers and obstacles that would otherwise restrict the range of users and purposes for which the space can utilised;
- ***Accessible design:*** designing for equal useability for people with a diversity of abilities with regards to mobility, facilities, devices, and services, and incorporating disability access standards;
- ***Assistive technology:*** engineering that enables people with a range of abilities to complete tasks by enhancing physical, sensory, and cognitive abilities;
- ***Inclusive design:*** designing products and services for the needs of the widest possible audience, irrespective of age or ability;
- ***User-centred design:*** placing users' perspectives and needs at the centre of the design process; and
- ***Trans-generational design:*** improving the quality of life for people of all ages and abilities, both now and into the future.

By explicitly adopting universal design principles into the transport planning process, transport agencies would build better awareness of the needs of their current and potential passengers, and result in a more useable and better quality transport service.

While there is growing awareness of the broad and diverse needs of the community from its transport system, these concerns are often considered towards the end of the decision-making process, rather than being incorporated from the beginning. For example, current DoT processes develop operational requirements for new spending projects without user input or necessarily considering universal design principles. This means the funding for a given project is decided before the users are consulted about what is required; as a result, there are insufficient resources available if user consultation and the detailed design process require a more expensive option.

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14 Developed from Audirac, I. (2008) 'Accessing Transit as Universal Design', *Journal of Planning Literature*, vol. 23, no. 1, p.4

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Recommendation 10

The Department of Transport should incorporate the principles of universal design into its specifications for construction of infrastructure and purchasing of vehicles.

Recommendation 11

The Department of Transport should engage in user consultation before determining the operational specifications to be used for costing project proposals.

A future-focused standard

Recently, DoT produced a set of *Client Design Requirements for Accessible Tram Stops*. This document was able to set out, in considerable detail, acceptable designs for tram stops that met a variety of relevant standards and additional criteria intended to improve accessibility. This process of developing requirements for infrastructure that goes beyond DDA-compliance to contemplate a stricter set of criteria and incorporate access as an objective is a welcome step forward. It has been suggested that a similar process will be undertaken to produce Client Design Requirements for Bus Stops.

However, the process need and should not stop there. These requirements could extend beyond infrastructure design to vehicle specifications. At present, for example, DoT has a set of specifications that inform the purchasing requirements of new buses. However, these specifications are not publically available, although there is a present proposal to review them. Similarly, a more inclusive process to inform and raise the design standards and performance criteria for trams, trains and coaches could be undertaken to ensure that not only is public transport compliant with DSAPT, but is focused on improving access in the future.

Regardless of the technical specifications of a particular standard, the first priority for setting design requirements and specifications is that designs are fit-for-purpose. If the purpose of public transport is access, then only specifications that result in improved access should be considered fit-for-purpose. Consistent design also assists with improving consistency of service, which allows for greater homogeneity in operational practices, making the system less complicated to use and often results in a better standard of service. Moreover, if these processes are interlinked, the system can begin to produce more consistent design and useability across modes.

Standards evolve over time – so that, for instance, some pieces of infrastructure that met past technical standards are no longer compliant with current requirements. A good set of specifications or requirements will attempt to anticipate future directions in the evolution of standards, as well as be access-oriented to improve the accessibility outcomes of the public transport system. Involving users in this process, and understanding their difficulties with current standards, assists in anticipating the types of concerns that may be addressed by standards in the future, thus helping to 'future-proof' infrastructure and ensure it can be adapted to incorporate greater diversity of passenger usage.

Finally, public transport agencies need to conceptualise the difference between an interim solution, which provides a 'quick-fix' that can be implemented in the short or medium term, from a long-term solution, which

provides a high level of accessibility into the future. A similar distinction may be made to a supplementary solution – which may provide additional access to some, but not all, users. Often users become frustrated at transport agencies that present an interim or supplementary solution as a long-term solution, suggesting that no better accessibility improvements will be considered. This distinction is important because some long-term solutions require long-term planning and future-focused standards for successful implementation, especially if they involve expensive re-fitting of existing infrastructure or purchase of new vehicles which may take many years or decades.

Recommendation 12

The Department of Transport should incorporate long-term accessibility improvements into client design requirements and procurement specifications, and advocate for improvements to national standards to reflect ongoing access improvements.

Level access boarding

An important focus of access to public transport has been its capacity to provide for level access (or 'stepless'[15]) boarding. This is particularly relevant for people using mobility devices including wheelchairs, walking frames and mobility scooters, but is also of concern for other users, such as people who have difficulty walking, parents using prams, stroller and push-chairs, cyclists, and people using personal shopping trolleys or using heavy wheeled luggage.

DSAPT provides that a boarding device (for example, a boarding ramp) must be provided if the vehicle has a boarding gap that exceeds 40mm horizontally and 12mm vertically. Whether a particular solution to provide level access boarding is compliant is important in the short-term, however the transport system needs to be able to articulate and plan for appropriate long-term level access boarding solutions that will guarantee better and more sustainable access in the future.

Currently, the Victorian public transport system has at least five different solutions to enable technically compliant boarding. Level access boarding is provided:

- on ***metropolitan trains*** by the manual deployment of an unattached boarding ramp by the driver, available only at the first door of the first carriage;
- on ***country trains*** by the manual deployment of a boarding ramp by the conductor, and is available at all carriage doors;
- on ***trams***, by direct access to low-floor vehicles from a raised stop, although some low floor trams require additional modifications before this mechanism will become technically compliant. The tram system has still to meet the 2007 milestone targets, and very few level boarding opportunities are currently available. Depending on the tram model, this method of access is may be available at some or all doors of the vehicle;
- on some ***route buses***, by the manual deployment of an attached fold-out boarding ramp on low-floor vehicles, usually available at the front door, with some buses also having a rear door ramp. A less common alternative available on some bus models is an automated boarding ramp, activated by the driver. Boarding ramps are generally deployed in combination with a 'kneeling' mechanism, which lowers the floor height of the doorway; and
- on ***coaches*** mainly by the use of a hoist system – this is installed in the coach upon request, and uses a mechanical lift to provide access to a separate opening in the side of the vehicle.

Such a diversity of accessible boarding methods obviously presents a problem for users. Not only are they often asked to check first or make a special arrangement in order to secure access to a vehicle, they are further required to find out the particular practice of boarding in each situation. Several users have reported confusion about the different procedures for boarding between metropolitan and country trains, while

15 Note: Some stakeholders prefer the term 'stepless' access – noting that many solutions are not technically 'level', but use ramps which are inclined. While this document uses the conventional term 'level access', it should be noted that this is not universally approved or technically correct, although there is general agreement that the goal is to ensure universal access, including for people who have difficulty walking, use a mobility aid, or require access for a wheeled device.

others have been disturbed at the boarding procedure on coaches, when their expectation was of a ramp boarding on a low-floor vehicle.

With the possible exception of the tram system, all these solutions should generally be considered 'interim' solutions while a more accessible method of boarding can be implemented. Even the preferred solution for trams could be improved by reducing or eliminating the gap altogether. Despite being technically compliant, each of the other solutions presents significant access difficulties. Best practice for long-term level-access boarding should be able to provide:

- ***independent access***, allowing people to board the vehicle without the intervention or assistance of another person;
- ***gapless access***, ensuring that no part of a person, their equipment or possessions can be caught or fall into a gap; and
- ***equal access***, ensuring that all people can use all of the entrances and exits on a vehicle.

While these criteria are not currently required by DSAPT, they may well be incorporated in future, even if that is many years or decades away. However, because the transport infrastructure and vehicles we are building and buying today will likely still be operating many decades hence, they need to be able to incorporate these objectives, or at least be designed in a manner that allows cost-effective conversion to provide a better level of access. While it will remain a priority to meet DDA compliance targets, the public transport system needs a more sophisticated response to level-access boarding, understanding there are still many areas of improvement that can be made. Long-term solutions will take careful planning and design, but can be achieved with consequent benefits for all Victorians.

Recommendation 13

The Department of Transport should ensure that the public transport system will be capable in the future of providing level boarding access that is independent, gapless and equal, and incorporate these requirements into current standards and specifications.

Level access boarding on trains

On metropolitan trains, the current methods of boarding are technically compliant with DSAPT standards, but generate many concerns and complaints. Firstly, because they require the intervention of the driver; there are reports that sometimes drivers do not offer to deploy a ramp – particularly in the instance where a person with an ambulant impairment or a wheeled device such as a pram requires ramp access, or where the driver is perceived to make a unilateral decision that the train is too crowded. Others including seniors or persons with heavy luggage also have difficulty navigating the gap, but their difficulties are not addressed by current ramp boarding methods. Because level-access boarding is only available at a single front entrance, the area immediately behind the driver can suffer congestion, with difficulties in requiring other passengers to relocate or simply not enough room to accommodate all people needing to board at that entrance. The single entrance also means that people needing this facility are required to board at one end of the platform and, in some circumstances, traverse the entire length of the platform to do so.

More generally the size of the gap between platform and carriage can be highly variable on both metropolitan and country platforms, particularly on curved stations and stations that have experienced past subsidence – on some country stations the platform does not even have a uniform gap along its length. Stations have not all been built to the same height and distance from the rail line. Similarly, train carriages have not been purchased at a consistent height and width, so the size of the gap will also depend on the model of vehicle.

Our consultations with users also raised the concern that manual boarding ramps may not provide the level of safety required for all. The DSAPT minimum specification for boarding ramp width is 800mm, which is exactly equal to the maximum specifications for mobility aids on public transport advised by the Metlink. It is likely that a more appropriate ramp should be significantly wider, allowing some margin for error by the user of a mobility device. Reports have been made that ramps are sometimes slippery or have an uneven surface that is difficult to navigate.

There are also concerns on the part of the operator and DoT that the manual deployment of ramps requires significant time, and may delay the scheduled timetable. This may have flow-on effects across the network. DoT maintains data records on wheelchair boarding for this reason.

For both operators and users, it needs to be clear that this boarding solution will only remain viable if there is a low demand for level-access boarding. While it may be able to function with one or two passengers who require level-access boarding, any more would exceed the capacity of the front section of the front carriage, and manoeuvring and disembarking would become very difficult – indeed, prevent them from boarding. This would further impact on timeliness of services.

A number of improvements, both interim and long-term, can improve boarding access. It is notable that the V/Line solution appears to function slightly better in some respects, such as allowing use of all carriage doors, due to the availability of a conductor to assist with boarding. As a supplementary measure, the use of staff other than drivers to assist with boarding can immediately improve access. On the metropolitan system, platform staff, host staff or security personnel should be considered. In the interim, the design and materials used for manual boarding ramps should meet a range of user requirements, including people with ambulant impairments such as people using walking frames or who have limited joint movement and be able to function well in a range of conditions, including rain.

A particularly welcome initiative has been proposed by Metro Trains to commence a fixed ramp train boarding trial at Box Hill Station. This involves constructing a fixed ramp along a 10 metre section of the station platform which would, as far as possible, minimise the gap between the ramp and the vehicle, allowing passengers to board the train without manual deployment of a ramp. There are some physical constraints to be considered in this arrangement, including the variable floor height of trains servicing this station – currently there are three different floor heights on different models, as well as variation due to wheel wear and passenger loadings. The trail was in place in June 2011, and will collect data on boarding times and monitor ease of use of the ramp.

While this model of boarding would provide better access, it should still be considered an interim rather than a long-term solution, as it still involves unequal access to all entrances, poses a safety risk due to gaps, including those at other doors, and does not resolve overcrowding in the first carriage. In the long-term, a solution is needed that would allow gapless, independent access to all carriage doors. This would likely involve a long-term program to ensure that all platforms and vehicles met the same height dimension and horizontal distance from the rails to minimise gaps. At the same time, installation of bridging plates or gap-filling seals on platforms and/or vehicles would eliminate the gap and reduce safety concerns. While the use of existing stock may constrain implementation, at the very least a standard should be developed so that platforms and stations might be quickly and cheaply retrofitted to provide universal access when sufficient stock and infrastructure was available.

Level access boarding on trams

There has been much discussion of the problems faced by people requiring level-access boarding to trams, not least because of the tram system's laggard performance in achieving DDA compliance targets. It has been particularly difficult for the tram system to incorporate level-access boarding options due to the nature of its vehicles: even low floor trams are too high to deploy a ramp directly onto the road space, notwithstanding the safety implications, and trials with lift systems have proved unsuitable. Despite the slow pace of finding a workable solution, the current preferred option — to provide level access boarding by reducing the gap to within DDA tolerances —may prove to be one of the better available on the overall public transport system in Victoria, as it would meet both the criteria of being independently accessible and available at all entrances (although not all doors on low-floor trams are wide enough to allow access for mobility aids, nor will they have adjacent designated spaces).

This solution will include retro-fitting of existing low-floor trams by installing fixed bridging plates on some tram models, and by changing the floor height of some models. There remains some concern that this solution is currently at the margin of the DDA standards, meaning that, due to the effect of other variables, including wheel wear and passenger loads, the solution may not be fully compliant. There is also concern that the specifications for the purchase of new trams do not guarantee that the vehicles will be able to meet the level access standard. There may be further options to pursue to reduce the gap further, or eliminate it completely, such as by implementing collapsible rubber plates on tram stops, as

has taken place in some French tram systems.[16] Further, the inclusion of self-levelling suspension systems in the specifications for tram purchases would ensure that trams are consistently capable of meeting the DSAPT standard for a horizontal gap of 12mm.

The other innovation in providing level-access boarding on trams is the development and testing of the easy-access tram stop, which is now being trialled on local roads. The easy-access tram stop essentially involves creating a large 'speed hump' on the road surface, continuous with the pedestrian access path, although designed to allow cars to drive over the access path with only a minor reduction in speed. This treatment provides a 'ledge' against which a tram can stop, allowing level-access boarding. It is currently proposed that the model be tested in a constrained location on an arterial road before being installed more widely if that test is successful.

The major challenge for the tram system remains its poor performance in reaching DDA compliance targets. Significant investment is required by government to catch up with the rest of the transport system by purchasing large numbers of new vehicles and installing many more compliant stops. While the Victorian Government has ordered 50 new trams to be delivered by 2017, this would barely allow the system to surpass the 2007 targets, putting it almost a decade behind schedule. The current contract with the tram manufacturer contains an option for an additional 100 trams; exercising this option would only begin the kind of sustained investment that is required for the tram system to deliver access for everyone.

Level access boarding on buses and coaches

The current solution for level-access boarding on low-floor buses is generally manual deployment of an attached 'flip-out' ramp at the front door of the vehicle, with some bus models also having a ramp at the rear door, and less commonly, a driver-activated automated retractable ramp. On some V/Line coaches, the solution is a hoist system. This requires coach operators to physically reconfigure the cabin by removing seats and installing the hoist facility at a depot before commencing the route service. The system operates by mechanically lifting a passenger into the vehicle by way of a separate opening in the side of the vehicle.

Buses and coaches present a more complex challenge for providing full access for people requiring level-access. Because buses do not run on rails, providing access to vehicles without using a ramp is very difficult as it would rely on a driver to make a very delicate manoeuvre at every stop to ensure the correct alignment to minimise gaps. In any case, the current specification of bus stops provides for a significant vertical gap between the vehicle floor level and the height of the stop: certainly larger than the compliance standard of 12mm. While guided bus-ways could eliminate this difficulty in the future, some form of ramp access appears likely to be necessary in the present environment.

However, there are systems in operation internationally that use automated ramps, rather than one that needs to be manually deployed. Early low-floor buses in Victoria had automated retractable ramps, which have been discontinued due to high maintenance and slow responsiveness. However, there are international examples of other ramp models that do not appear to have these problems. These include ramps that deploy automatically at every stop as part of the automated doors at both the front and rear of the vehicle, and have been included on Bus Rapid Transit systems. While specific stop infrastructure is required for this methodology, notably ensuring that stops are at the correct height and position for the ramp to deploy correctly, this type of system makes it possible for the bus system to achieve the access criteria we have specified: boarding can be completed without intervention, there are no gaps to traverse, and users can use all boarding points. These types of systems should be considered for use in Victoria.

16 Dejeammes, M. (2010) 'Overview of technological developments for accessible transport systems and mobility in Europe', *Paper delivered at the 12th international conference on mobility and transport for elderly and disabled persons (TRANSED 2010)*, held in Hong Kong on 2-4 June, 2010, p.5

The more pressing concern, however, is finding a more suitable solution for V/Line coaches. The hoist system is highly problematic for a number of reasons. Firstly, it requires considerable advance notice in order to be used. Secondly, it takes substantial time and effort to board and disembark from the vehicle. Thirdly, it can be distressing to use and is widely reported to make users feel unsafe. Fourthly, it is suitable only for certain passengers, but unable to cater to people who, for example, have an ambulant impairment. Finally, and most mortifying, it creates a spectacle for other passengers and onlookers, situating the user as an object of curiosity, and marking them out as fundamentally different from everyone else. The Government needs to discontinue the use of this form of access as soon as possible.

Trials are currently being undertaken for the use of 'hybrid' coaches, which have a low-floor section at the front of the vehicle, allowing access by way of a manually deployed ramp in the same way as a low-floor bus. This comes at the expense of luggage space — an important consideration, not least for passengers who require a mobility aid to be transported – but this should not override the basic ability for passengers to travel with dignity.

Recommendation 14

The Department of Transport and transport operators should continue to investigate and assess interim solutions for improving level access boarding; including the construction of fixed boarding ramps on trains and improved methods of ensuring tram boarding meets the DSAPT standard. As a priority, an alternative to hoist systems on V/Line coaches should be found as soon as possible, noting the indignity this imposes on users.

Designing vehicles

The application of universal design principles is a useful principle for designing the interior of and facilities available within vehicles. From a universal design view, accessibility is created by ensuring interior design of allocated spaces that can be used by a variety of different people for differing purposes. Naturally, any design task is limited by space but, contrary to the view that places overwhelming priority on capacity maximisation, an accessibility approach understands that public transport should be able to meet the needs of different passengers for different purposes at different times of day. We should not be privileging the needs of a single type of passenger: peak period, unencumbered, 'standardised' commuters.

Current specifications for the purchase of vehicles vary by mode. While it has been proposed that DoT will engage in community consultation on the internal design features of new trams, this process is not currently followed in the design of bus interiors, for instance. While specifications for new vehicle purchases are required to meet DDA compliance standards, it appears that these are primarily decided internally by DoT in consultation with operators, with no opportunities for users to engage in the process. Community engagement in tram design specifications is welcome, and it is advised that this approach should be adopted more generally.

At the same time, once contemporary design specifications are established, it would be useful to examine methods of ensuring consistency with older vehicles, particularly those that are likely to be in continuing service for a significant period. While this may preclude bus retrofitting in some circumstances, there are often good opportunities to make design improvements in rail vehicles. For instance, currently some N-set regional trains are being retrofitted, including access improvements such as wider doors and improved toilet access. Operators can also make small changes to interiors as part of routine maintenance, improving the consistency of the fleet overall. However, there may be old vehicles that are virtually impossible to retro-fit for good access: the W-class tram being a prominent example. Inaccessible vehicles should be retired as early as is possible.

The purchase and management of rolling stock is obviously an expensive exercise, but ensuring that access is prioritised in deployment and contracting of buses is another way to expand the availability of appropriately designed vehicles. Train and tram operators report that they already request low-floor buses for rail replacement services, although they are limited by the availability of these vehicles, particularly in rural areas. Requiring that low-floor buses be used

for school bus contracts would also improve the rural fleet, as would requiring the use of low-floor vehicles when DoT was contracting buses not within the bus replacement program to provide route services.

Particular issues raised by users include the appropriate design, size and demarcation of reserved space in the vehicle, including allocated space for mobility aids and priority seating. A particular instance of poor design was choosing 'flip seats' over allocated spaces as specified priority seating, a frequent occurrence on low-floor buses. Flip-seats are often poorly designed to serve the needs of seniors or infirm passengers, as they often provide few grab-rails to stabilise the passenger, and can be difficult to flip up or down for both frail passengers or mobility aid users. Moreover, if the space is required at the same time by a person with a mobility aid, a conflict is created between most vulnerable passengers. More thought needs to go into resolving this design conflict.

Provision for additional supports to stabilise mobility aids during transit also requires some investigation. The requirement of padded stabilising backrests ('ironing boards') for allocated spaces is currently being considered. Users have also identified anchor points as being a required feature. Yarra Trams are proposing to identify priority seating more prominently by using orange material on these seats, in contrast to their traditional green. This is a welcome initiative, although it would work even better if a similar change took place across all public transport modes. Currently, priority seating is indicated by a small sign near the seat; it is not always clear to which seats it refers, and is often unable to be located by vision impaired passengers.

A number of other important interior design features have been identified during this project. The installation of appropriate hand rails is one. Further issues include the design features of doors, with some passengers noting that manual door opening on older train models can be difficult to negotiate. Yarra Trams have indicated they are undertaking a project to mark exits in yellow for greater prominence. Finally, the design and placement of ticketing machines and validators can present problems; the recent installation of myki readers at different heights at accessible entrances on low-floor trams was a welcome undertaking to help cater for different users.

Recommendation 15

The Department of Transport should ensure that the procedures and specifications for new vehicle purchases incorporate universal design principles and user consultation, with particular emphasis on the location of allocated spaces, luggage facilities, priority seating and hand rails.

Recommendation 16

The Department of Transport and transport operators should phase out the use of inaccessible vehicles for school bus routes, rail replacement vehicles, or any other public use at the earliest opportunity, regardless of their status under the DSAPT.

Recommendation 17

Transport agencies and operators should support more prominent identification of priority seating across all public transport modes, such as using different coloured fabric on seating. The identification of 'flip-seats' as priority seating should be discontinued.

Designing boarding and waiting places

Train stations, tram stops and bus stations and stops are important parts of any public transport network, although it should be remembered that they are not destinations in themselves. Rather, they are pauses on a journey, places to wait. Understanding that well-designed, attractive and pleasant waiting places support access to the public transport system should be a primary factor in their design. Just as important, particularly at large waiting places like train and bus stations, is access to facilities, like being able to purchase a ticket, plan a connection, check the timetable, know when your service will arrive, and use the toilets.

Access to platforms: ramps and lifts

First of all, people need to be able to get to the waiting place. Being able to access train platforms, especially, is an issue that has received considerable attention. One of the physical challenges presented by train stations is that they need to provide some way of getting across the rail line itself. While level-access crossings are still plentiful, they pose significant safety problems – especially for vulnerable citizens – and are currently not a preferred solution. This means that passengers must pass either over or under the rail line, requiring a change in elevation. While traditional train stations have used stairs to accommodate this pathway, access needs (and compliance requirements) demand that an alternative solution be found.

Numerous users and advocates will agree that the best solution is to provide all users with the option of using a ramp or a lift to manage the change in elevation required. However, in some locations, this ideal access combination may be problematic. In particular, engineers will point out that to provide a compliant ramp at some locations – especially when trying to retro-fit a station – the ramp may need to be several hundred metres long, meaning that, for many users, the journey up and down ramps will be far longer than their path to the station itself. It is fair to say that opinion can divide somewhat at this point. While some people steadfastly assert that a ramp should be provided on all occasions, others will acknowledge that a lift only solution might be workable in some locations.

There are a number of objections to using a lift as the only way to access a train platform. Most prominent is concern about what would happen if the lift was to fail – as happens frequently at some stations, often due to vandalism. The failure of a lift risks people being unable to access the platform, or worse, being stuck on it. This could mean being trapped on a platform with no means of escape during an emergency, such as during a power outage or fire. A further concern is about demand for lifts in high-use locations, which may produce significant delays. In circumstances where, for example, a group of people needing level access travel together, they may have to ascend or descend in the lift one after another, consuming considerable time and perhaps causing them to miss their train.

It is agreed that having both options would be the best solution to maximise access – providing a reassuring alternative, if necessary, for people who would prefer to use a lift. However, in circumstances where it is near impossible to incorporate a ramp, then a number of considerations need to be understood. Firstly, people will generally be more confident about using lifts at a station that is continuously staffed and heavily used, both because it is likely any failure will be promptly attended to, and because someone is likely to render assistance in an emergency. Secondly, the size of the lift should be considerably larger than the minimum compliance standard, and should comfortably fit two mobility aids (and, in extreme cases, an ambulance trolley). Thirdly, it will be less likely that people will become stranded, or that lifts will result in queuing, if a station has two lifts to each platform, providing some redundancy in case of mechanical failure. Fourthly, the location of the lift may assist in reducing safety concerns, and locating lifts in well-lit locations with good lines of sight and significant pedestrian traffic may increase passive surveillance. A further option to consider is the use of subways, although these have their own problems, particularly around safety fears.

Designing places to wait

The design of waiting places, including train platforms, bus stations, tram stops and bus stops, influences who can use these places and how. Universal design principles direct us to examine closely how they can be used by different people, at different times and for different purposes. While space is sometimes at a premium, providing places that feel safe, are comfortable and protected from the elements, pleasant to be in, and allow a diversity of people to use them, including with luggage and equipment, helps facilitate greater public transport access. Waiting places should provide seating that is designed for a range of different users, and adequate lighting should allow signs to be read and access paths to be followed, including to car-parking facilities.

A particular concern raised by users is the need to provide adequate space and shelter for people waiting to board at a level access boarding point on train stations, and for these areas to be appropriately indicated. Metro Trains undertook a trial project to mark allocated waiting points for level-access passengers on the Frankston line; however they advised that the trial received little feedback and has not been extended to other areas. Attention should also be paid to ensuring level-access waiting points have appropriate safety features, shelter and manoeuvring space, especially where there are narrow platforms which require widening. The recent reduction in the use of 3-car trains also assists in ensuring that the level-access boarding point is consistently in the same place.

A recurring issue raised by users of train stations is the design, location and availability of accessible toilets. Users requiring these facilities are particularly frustrated at having to ask permission to use the facilities when other users are not required to do so, again meaning they have to take additional steps for access, and disclose their impairment publicly. It remains unclear what the exact policy is regarding the availability of accessible toilets at metropolitan train stations, with variations of the policy being expressed by different agencies. It appears that the particular procedures may vary from station to station. For instance, all toilets may be locked at 'host stations', which are only attended for part of the day. At premium stations, accessible toilets may be locked if they are not in the direct sight of host staff. Agencies advise that this is to prevent possible anti-social behaviour which may reduce the safety and cleanliness of the facilities, and increase maintenance requirements. Currently, the issue is receiving ongoing attention. For instance, one option discussed is the use of an 'access key' that could be issued to allow independent access. Another is to trial unlocking the toilets to determine the impact, if any, on maintenance and anti-social behaviours. While the issue may seem trivial to some, current arrangements that provide differential access to toilet facilities create considerable distress and indignation among users in what is a sensitive concern. A solution needs to be found that allows users equal and independent use of transport toilet facilities.

A further consideration is the particular design of bus stops. Waiting infrastructure such as bus shelters is important to ensure a diversity of users can access bus services.[17] During the course of this project, it has also been suggested that some shelter designs, including recently installed models, do not meet DSAPT compliance standards for allocated waiting spaces. Further, it is noted that the design of the shelter, including the available space for buses to manoeuvre, can cause obstacles preventing buses from aligning correctly with TGSIs or deploying a boarding ramp. A particular problem is that local parking is located too close to the bus stop, effectively 'parking in' the bus stop and preventing the bus from docking correctly. Waiting infrastructure can also obstruct access paths that continue past the stop, or provide insufficient space for mobility aids and other equipment to manoeuvre around them or in boarding. In December 2010, the Australian Human Rights Commission (AHRC) released a new guideline for compliant bus stops to assist with addressing some of these issues.[18]

Complicating these matters is a complex set of arrangements between local government, DoT and private shelter providers, such as Adshel and JC Decaux for the design, construction and maintenance of bus waiting infrastructure. Metlink also has a role in providing signage and information. Under the current program for upgrading bus stops to DSAPT compliance standards, the design and placement of waiting infrastructure is negotiated between these parties. There are not necessarily clear lines of responsibility for how problems of design, facilities, signage, compliance and maintenance are coordinated in these relationships to

17 Broome, K. et al (2010) 'Age-friendly buses? A comparison of reported barriers and facilitators to bus use for younger and older adults' *Australasian Journal on Ageing*, vol.29, no. 1, p.34

18 Australian Human Rights Commission (2010) *Guideline for promoting compliance of bus stops with Disability Standards for Accessible Public Transport 2002*, published online at: http://www.hreoc.gov.au/disability_rights/standards/AHRC_Bus_Stops_Guidelines_November_2010.htm

maximise access for users.

A further issue to manage is that changes in the design and location of waiting and boarding places may affect local movement for private motor vehicles and cyclists.

A key frustration often expressed by users is that while various agencies may be responsible for different elements of waiting infrastructure, it seems it is no-one's job to make them work. Maintenance arrangements are usually in place, but this is often not the same thing as thinking how waiting places could be changed to facilitate access and use. Small, inexpensive changes can make a large impact on the aesthetics, safety, protection and accessibility of a waiting place, but they require someone to actively make the most of available opportunities. Reliance on complaints as the only means of identifying improvements to waiting places is a poor substitute to proactive initiatives.

Recommendation 18

The Public Transport Development Authority and other transport agencies and operators should ensure that the stations and stops include design features that create access, safety, and comfort, including lighting, shelter, seating and appropriate allocated spaces.

Recommendation 19

Public transport operators should ensure that facilities, including accessible toilets at train and bus stations, are provided under the same arrangements as those available to other passengers.

Recommendation 20

The Public Transport Development Authority should review the current responsibilities for bus stops and shelters, with a view to making the best use of the available space to provide access, and promoting clear lines of responsibility between the Department of Transport, local government and bus shelter providers.

Pedestrian connectivity

Access paths

When we move from thinking about isolated pieces of infrastructure, and begin to consider the whole journey, the design and construction of the pedestrian infrastructure that connects origins and destinations to boarding places becomes much more important. People do not simply materialise at boarding points, and evaporate after they disembark. If a person cannot get to the bus stop, it does not matter whether the bus vehicle or bus stop is compliant. As Alice Maynard explains:

> *'The devil is in the detail of the pavements and paths, the buildings and bollards, but such details in the environment surrounding the transport systems are often not considered when developing or upgrading those systems'*.[19]

Recently, the phenomenon of the 'orphan bus stop' has been noticed, where a compliant bus stop is built with no connection to any access path.[20] For people to access the transport system and complete whole journeys, it is not just the physical design of the stops and stations that needs to be compliant, but the surrounding pathways and access routes. This includes assistance for people with impaired vision, hearing or cognitive capabilities, such as Tactile Ground Surface Indicators (TGSIs) and audible and visual pedestrian signalling. Ultimately, the whole pedestrian 'catchment' of a boarding place needs to be considered, and not only the immediate vicinity of the bus stop or only the area within the 400 metre 'ped sheds' that are used in transport modelling.

19 Maynard, A. (2009) 'Can measuring the benefits of accessible transport enable a seamless journey?', *Journal of Transport and Land Use,* vol.2, no.2, p.23

20 Royal Automobile Club of Victoria (RACV) (2009), *Outer Melbourne Connect: Footpaths*, Special Report: August 2009

In addition, particular attention needs to be paid to the pedestrian paths *between* connecting stops and stations; if a person cannot move quickly and easily between the two, they will not be able to complete a connection. Similarly, as people will interconnect with the transport system using motor vehicles and community transport, it is important to ensure there are nearby parking opportunities, including disability access parking, as well as accessible drop-off points for people being ferried to boarding places by friends, relatives and community transport services.

A consistent problem in ensuring accessibility in a pedestrian environment is the lack of co-operation and consistency between transport and other agencies, because responsibility for pedestrian infrastructure falls to the agency or organisation which owns or manages the particular piece of land the access path traverses. This includes rail authorities, local governments, road authorities and private businesses such as shopping centre managers. In addition, there are responsibilities for the placement of potential obstacles on access paths, including commercial providers of waiting shelters, telecommunications companies that locate public phone boxes, electricity authorities that place power poles, private businesses that place merchandise or signage on access paths, and postal authorities that place post boxes. Similarly, technology that improves access, such as pedestrian signalling, is often managed by VicRoads. Pedestrians can also face a host of temporary obstacles in the urban environment, such as road and building works, mis-parked vehicles or bicycles, or occasional local events, which can produce unexpected changes in access. Temporary changes can also produce temporary re-routing of bus services, often neither notifying users nor alerting information providers (such as Metlink) to allow them to inform passengers.

As discussed previously, disputes remain between state and local government about responsibility for building and maintaining boarding places for on-road public transport, with added complexities in the management of shelters with private companies. Most of the responsibilities for pedestrian infrastructure fall to local government, whereas most of the responsibilities for public transport fall to the state government. This relationship is complicated by two additional factors. Firstly, while there are legal requirements for pedestrian infrastructure owned by transport authorities to meet DSAPT progress milestones, these milestones do not apply to pedestrian access paths owned by local government, or for pedestrian access over roads. This means that even if the entire infrastructure directly managed by public transport agencies is compliant, there may continue to be access problems on the parts of journeys located outside it. A second complication is that local government bodies differ in their engagement with access issues; often there are no detailed records of where DDA-compliant pedestrian infrastructure is located on the ground.

In current arrangements for bus stops, the DoT bus stop upgrade program generally makes individual agreements with local government to fund a particular set of stop upgrades with an overall funding grant, using a particular design standard and an average amount of funding per stop. Councils have some flexibility in how funds are spent, including incorporating access path extensions for instance, although ultimately they must achieve the upgrades within the funding envelope. Regional and rural councils often have greater difficulty in providing access paths, given they generally have smaller revenue sources and greater lengths of path to provide.

Ensuring the pedestrian infrastructure allows people to actually get to a public transport boarding point is an essential part of an accessible journey. In conducting upgrades of public transport infrastructure, the changes need to be part of an agreement with local government to ensure the surrounding pedestrian infrastructure is capable of allowing people to complete their journeys.

Tactile Ground Surface Indicators (TGSIs)

A common concern amongst people who use canes, or otherwise use TGSIs to assist with navigation, is that they are used inconsistently across the urban environment. There are concerns about inconsistent use in the rail environment, including differences between metropolitan and country station platforms. There are also differences in usage between local government areas and variable knowledge of their use and installation by building contractors who install them. Other concerns include how to use directional TGSIs, especially when pedestrian routes are not perpendicular, and the use of poor quality products that may deteriorate quickly and pose a hazard, or be subject to vandalism. In some cases TGSIs may be overused, or combined with pavement patterns that obscure their presence, producing confusion for people relying upon them. It is not uncommon for there to be little consistency along a footpath in TGSI usage, as they are placed on an ad hoc basis' for instance, one side of a pedestrian crossing will have TSGIs, while they are absent on the other. The

Australian Standard for TGSIs has recently been revised, including updated specifications for placement, colour contrast and luminosity.

A consistent and agreed use of product quality and placement of TGSIs is required if they are to result in greater access for people who use them. Improved standards for materials and instructions on placement need to be produced, with co-ordination between public transport agencies, local government and VicRoads to ensure that access paths marked with TGSIs result in seamless journeys. While there has recently been a new Australian Standard developed for TGSIs, there remains variability in its application and stakeholders report uncertainty about its application.

Recommendation 21

Clear guidelines should be established for DDA compliance in the pedestrian environment, particularly for the use of TGSIs and better knowledge and implementation of AS1428.2, for pedestrian paths, road and rail crossings and boarding precincts.

Rail and road crossings

One of the most significant obstacles on any journey is getting across vehicle thoroughfares, both road or rail, with a wide variety of needs compromised if accessibility features are not present. Once again, the responsible authority for a crossing varies across the system. VicRoads is responsible for pedestrian crossings over arterial roads, but crossings over local roads are the responsibility of local government. Regional train line crossing upgrades are generally the responsibility of VicTrack, whereas metropolitan train line crossings are generally upgraded by Metro Trains. Yarra Trams is responsible for maintaining the part of the crossing immediately over the tram tracks, although the road treatment and pedestrian signalling either side of the tracks is managed by VicRoads. The footpath either side of pedestrian crossings is generally managed by local government.

There is a significant community concern about the safety of rail crossings, including both trams and heavy rail. A particular concern is how wheeled devices, including prams, bicycles and mobility aids, are able to negotiate the 'flange gaps' in the access path surface (the gaps on one side of a rail to allow the vehicles wheels to pass through), particularly if the access path is at an acute angle to the rails. A further concern, particularly with heavy rail crossings, is the width and surface of the access path, which can be prone to deterioration or be too narrow to allow two mobility aids to pass one another, or provide sufficient room for error. Finally, safety escape bypass routes do not always provide sufficient room for a wheeled device if they are too narrow, open in the wrong direction, or are left filled with broken glass and debris due to poor maintenance.

Several inquiries and task forces have investigated these issues previously, including the *Wheelchair Safety at Rail Level Crossings Taskforce* in 2002 and the *Parliamentary Road Safety Committee Inquiry into Improving Safety at Level Crossings* in 2008. The outcomes of these inquiries have been incorporated into the Victorian Government's *Towards Zero* Strategy for improving safety at rail level-crossings, which sets out priorities and actions to improve safety. The Victoria Railway Crossing Safety Steering Committee (VRCSSC) provides advice and makes recommendations to the Minister for Public Transport in relation to pedestrian crossing upgrade programs. Mainly, the choice of projects is informed by application of the National Risk Assessment Model (NRAM) which produces a relative rank of safety of level crossings. VicTrack has expressed an interest in finding whether there are any additional factors that might be used for prioritising DDA upgrades of rail crossings. At present, however, the program does not include factors that relate to the level of accessibility of the surrounding pedestrian infrastructure or the planned future investments in DDA compliant infrastructure, as this information is not centrally recorded anywhere, and in some cases does not exist at all.

In relation to pedestrian crossings over roads, users often identify that kerbs may lack ramps allowing wheeled devices to navigate the crossing, particularly on unmarked crossings on local roads. At major crossings, there is sometimes a lack of co-ordination between the installation of audible pedestrian signals and TGSIs, confusing pedestrians who rely on these cues. Users also report that some pedestrian crossings have a very fast crossing cycle, leaving insufficient time for people with ambulatory impairments to cross the road during the 'green' pedestrian cycle.

As manager of the arterial road system, VicRoads has particular responsibility for pedestrian crossings over these roads and installs and maintains features like line markings and pedestrian signalling. Technically, under the *Roads Management Act* 2002, VicRoads' responsibilities stop at the 'back-of-kerb', although they will, on occasion, install kerb ramps and TGSIs on the pavement to ensure DDA compliance. VicRoads manages two small programs to improve pedestrian crossings, including the Disabled Access Program and the Pedestrian Program. Work completed under these programs is generally prioritised by VicRoads regional offices, often in response to local feedback generated by local communities. VicRoads has reported that there remains a lack of clarity as to how DDA standards are applied to road crossings. While all new work needs to be DDA compliant, road crossings are not subject to milestone targets.

Recommendation 22

The Department of Transport, VicRoads and local government should work together to ensure that the entire pedestrian catchment of a boarding place is accessible, including for connections between boarding points at route and modal interchanges, and with car parking and passenger drop-off locations.

Design of mobility aids

It is frequently raised in consultations with users that certain mobility aids do not fit on, or cannot manoeuvre in public transport vehicles. While public transport vehicles are designed to fit a mobility aid of a certain size and manoeuvrability, a growing number of electric scooters do not fit these specifications, often without the owner knowing or realising at the time of purchase that this may impede their use on public transport. Researchers have documented this recent increase in the size of mobility aids.[21] Mobility scooters often do not take the usual criteria for public transport access into account, with their design primarily concerned with transport on pedestrian pathways. There also remain legitimate questions about the safety and appropriateness of travelling on public transport while seated in a mobility scooter, particularly over long journeys.

One reason why people invest in larger and more powerful mobility aids may be the lack of good local transport alternatives in the first place, and uncertainty about the quality of pedestrian infrastructure; a bigger and more powerful scooter may give people confidence that they can navigate in the local urban environment, carry belongings, and have sufficient battery life if they are delayed or required to detour.

Public transport operators report that, where possible, they allow mobility aids that are larger than the public transport criteria to board vehicles, although this is not possible in all cases. For instance, on VLocity trains, mobility aids require a tight turning circle to manoeuvre into allocated spaces, and many scooters cannot do this. Mobility scooters often cannot be accommodated by V/Line coaches as they exceed luggage allowances and safe lifting weights.

While there may be some capacity to allow for additional space in the design of public transport vehicles, the size of the mobility aid that can be carried on public transport will always need to be limited. At the same time, a scooter often represents a significant investment for people who may have few resources, and there is often little scope for later considering an alternative. In addition, these items may also be purchased by family members or ordered from international suppliers online, and thus may not necessarily be captured in local regulatory mechanisms.

Proposals to reduce the impact of this issue include community education and voluntary or compulsory regulatory mechanisms. Greater community education could include collaboration with mobility aid suppliers to ensure that purchasers understood the capabilities of their chosen aid, including whether it meets public transport criteria. A further proposal has been the

21 Mitchell, C. (2007) 'The size of the reference wheelchair for accessible public transport', *Paper presented at the 11th international conference on mobility and transport for elderly and disabled persons (TRANSED 2007)*, held in Montreal, Canada on 19-21 June, 2007

availability of a 'rating sticker' which could be affixed to mobility aids prior to or after sale, indicating that the aid has been approved for use on public transport. Finally, state or federal regulatory options may require mobility aids to meet the public transport criteria, or at least display whether they do.

These options are not without possible drawbacks. Introducing a sticker runs the risk that it may become a de facto requirement to board vehicles, and further disenfranchise people whose aids do not meet the criteria. Heavy regulation might prevent the sale of aids that meet personal needs that cannot be accommodated within the public transport specifications. It may also be difficult to effectively target education efforts at consumers *before* they purchase an aid.

DoT advises that a proposal to produce a sticker indicating the suitability of aids for use on public transport has been considered, and is currently under review.

Recommendation 23

The Department of Transport should progress initiatives, including through national committees, to reduce the incidence of mobility aids being unable to be used on public transport vehicles. This should include investigating the feasibility of allowing broader tolerances in public transport vehicle design, introducing a sticker indicating the suitability of mobility aids for use on public transport, community education initiatives, and regulatory restrictions on the sale of mobility aids that do not meet the criteria for use on public transport.

4. Navigability

Nobody likes failure. There is nothing that deflates a person's confidence more than attempting something that is supposed to be easy, and finding that they don't succeed. Negative experiences of the public transport system – if people get lost, become stranded, are treated badly, become frightened or can't find their way home – can be debilitating for a very long time. For a transport system to facilitate access, it needs to avoid these failures by finding ways to ensure that everyone can be successful in their journey, and locate their path easily and with as little effort as possible.

Public transport systems are often managed from a very abstract perspective, using maps, diagrams and symbols to represent the very large distances and complex patterns of movement that they entail. However, this overarching view of the network can obscure the everyday usage of the system by different people, and can miss the detail of the environment and interactions between people at a human scale. It can be difficult for those with a deep understanding of the mechanics and complexities of public transport systems to be able to step back and appreciate how the system looks from the outside – from the perspective of the spectrum of different people who depend on the system every day to ensure they can get to the places they need to be.

It is not enough that people can *theoretically* use the system – to *actually* use it, they require not only a continuous path of access along their journey, but also to either know where that path is, or to trust that they will be able to easily find it. If the purpose of transport is access, then that requires people to know how to navigate to their destination.

Understanding and improving navigability means understanding how different users move through the system and how they interact with infrastructure, technology, staff and each other. Different people will require different types of knowledge and information in order to reach the end of their journey, including when and where to get on and off, how to plan journeys, and feeling safe and confident that they can rely on the public transport system. The ideal goal of a navigable transport system is that people do not need to think or plan at all – they can simply 'turn up and go', confident that the system will guide them safely to their destination. In any case, providing good information before and during journeys, and building the confidence of users to trust the system and its staff members will improve the navigability of public transport and increase the access it provides.

A culture of access

While the availability of timetables, ticketing machines, maps and access guides is important, nothing can substitute for human interaction in improving knowledge, behaviour and confidence in the public transport system. People not only move through the world in space and time, they move among other people in a society which has cultural norms, a level of trust and altruism, and the opportunity to build understanding by observation and communication with other people. This implicitly relates to *social capital*, the ability of people to support, trust and help one another to help ensure everyone gets a chance to live a good life. In the context of a transport system, the presence of

transport staff, their knowledge of the public transport system and local destinations, and their attitude to different passengers are an essential element in creating an accessible and navigable service. While technology might be able to improve efficiency, data collection, and the distribution of information, you cannot ask a ticketing machine for help.

A repeated theme in consultations and academic research[22,23] is that the attitudes, care and demeanour of transport staff are a critical factor in influencing people's experience of public transport, and that poor experience of staff behaviour can undo the benefit of many of the access features provided in the physical design of the system. For instance, while a compliant vehicle may provide a boarding ramp, this access is compromised if drivers fail to deploy it, or if they grimace and complain about their inconvenience. If a person with poor English or speaking skills is patronised, treated as incompetent or ignored by host staff, their confidence and trust in public transport is undermined. If transport staff do not appear to know how the public transport network operates, or cannot provide directions for catching a connecting service to a desired destination (including by using a different operator or mode), then trust in the competence of transport operators is compromised. Transport staff should also be able to guide people who have particular access requirements, such as knowing where access paths, automated announcement facilities or level boarding opportunities are located.

A common complaint is that vehicle operators do not appreciate the different time, needs and capacities for users to board a vehicle, find an appropriate seat and be safely seated before the vehicle departs. Similarly, the impact of sudden acceleration or taking turns at speed can cause discomfort, fear or falls on the vehicle. There also remains a lack of clarity about the appropriate level of assistance and information that can be expected from service staff and drivers. Being unable or unwelcome to talk to the driver and to ask to be alerted of the appropriate disembarking point is a concern. Passengers also report big differences in the way individual staff offer support; for instance with boarding and securing luggage. Some drivers will offer to secure luggage or help steer mobility aids to a safe location, will ask other passengers to make room for a wheeled device or walking aid, or check that passengers are safely seated before departing the boarding point; others will not. Passengers do not know what level of support they can expect, leading to frustration and distress when it is unavailable.

The response of transport operators to these concerns is mixed, although there are some positive initiatives.

Yarra Trams is currently producing a Code of Conduct for staff, addressing vehicle stability, gentle acceleration and braking, and ensuring passengers have sufficient time to sit. Yarra Trams conducts recurrent disability awareness training for all drivers, recurring every 2-3 years and intends to acquire a simulator for training purposes to allow drivers to experience a range of virtual conditions. While similar arrangements are not in place for Customer Service Employees (CSEs) and Authorised Officers (AOs), they will have part of a training module dedicated to disability awareness and knowledge. Yarra Trams disability training content emphasises two elements — knowledge and awareness — and is linked to specific circumstances of the tram network.

Metro Trains also advises that staff members are provided with disability awareness training. The most extensive training is provided to host staff, although drivers complete a small component in their initial training. V/Line trains similarly have arrangements for disability awareness training, particularly for host staff and conductors.

On buses and coaches, the situation is more mixed. There are many different operators, and this project has not interviewed individual operators. V/Line notes that it does not directly employ V/Line coach operators, who are contracted directly by DoT. The Bus Association of Victoria (BusVic) advises that current training is provided at the discretion of the operator and that it supports a proposal that DoT provides additional driver training opportunities, although currently few resources are available for this initiative. There is currently no standard Code of Conduct for bus staff.

It is not only the interaction between staff and passengers that can improve access for passengers; it is also the behaviour and interaction between passengers themselves. While transport agencies are not legally responsible for the behaviour of passengers, they can help reinforce pro-social behaviour on public transport so that accessibility is improved. Specific behaviours of concern include not making space for people with restricted movement to board the vehicle, refusing to clear allocated spaces for wheeled devices, not giving up priority seats for passengers who require them, or ignoring the requirement that cyclists should not board at the first door of the first carriage on metropolitan trains, in order that there is sufficient space for mobility aids.

22 Wretstrand, A. et al (2008) 'Wheelchair users and public transit: Eliciting ascriptions of comfort and safety', *Technology and Disability,* vol.20, no.1, p.46

23 Broome, K. (2010) 'Priorities for an age-friendly bus system', *Canadian Journal on Aging/ La Revue canadienne du vieillissement*, vol. 29, no. 3, p.442

Public transport agencies have numerous ways to communicate information to their passengers, including on-board announcements, station and stop announcements, visual displays, signage and advertising. Using a diversity of media and messages, including both visual and audible, allows transport agencies to reach a wider audience. Metlink has recently redesigned its priority seating signs to emphasise the pro-social motivation to give up one's seat for others, rather than simply threatening a penalty for those who do not comply. Yarra Trams has recently developed a tram safety campaign that compares a tram to a 'rhino on a skateboard', using humour and striking imagery to deliver a safety message, rather than traditional warning signs. Imaginative and humorous messages that appeal to people's better instincts can often be more effective than a list of rules, the threat of penalty or a symbol with a red line through it. In addition, a greater variety of media can be used to communicate pro-social behaviours: just as there are omnipresent reminders about fares and ticketing, and to 'touch on and touch off', these media can be used to support the adoption of other pro-social behaviours as well.

The concept of public transport is inherently social – unlike individualised transport modes, public transport is designed for people to travel *together*. Understanding and facilitating cultural practices that make travelling together easy and accessible requires leadership from transport agencies and planners, as these cultural practices will not manifest at the level of frontline staff, or among the public, if they are not valued and reinforced by transport agencies' leaders and managers. Codes of conduct, training requirements and public information are all helpful methods of improving the human interactions on public transport systems. The goal of these initiatives should ultimately be to develop and sustain a culture of access in using public transport.

Recommendation 24

All public transport operators should implement a code of conduct for staff that provides clear guidance to staff and passengers about the level of assistance that is expected.

Recommendation 25

All public transport operators should ensure all customer service staff members, including host staff, drivers and authorised officers receive substantial accessibility training, both in initial training and at regular intervals.

Recommendation 26

Public transport agencies and operators should maximise opportunities to encourage pro-social behaviours by passengers on public transport, rather than relying solely on threats of fines for enforcement.

Way-finding

Knowing the location of the vehicle

If you don't know where you are, you're lost. For a public transport system to be navigable, it needs not only to be physically capable of transporting a person to their destination, but to ensure that no-one gets lost or stranded on the way – by ensuring that people know which vehicle to board, when to make a connection, and when they arrive at the place to disembark.

Most people use external visual cues to determine their location on public transport: they note local landmarks, read passing signs for station names or stop numbers, read street name signs or follow their journey on a map, noting turns and obstacles. However people can become lost or uncertain if external visual cues are compromised: because it is night or windows have been obscured by weather or advertising, or because a person is unfamiliar with a journey and doesn't recognise landmarks, cannot read, has a temporary or permanent vision impairment, or simply forgot to pay attention. By providing audible and visual cues inside the vehicle, public transport agencies can avoid people getting lost, and reduce the fear of getting lost on the journey.

One important mechanism to address this concern is the installation of automated audible announcement and visual display units into public transport vehicles. These systems rely on GPS-type navigation systems that allow an on-board computer to detect the location of a vehicle and make the correct announcement and display at each stop. Currently, there is incomplete coverage of these technologies on Victorian public transport.

On metropolitan trains, vehicles generally have these capabilities, although there are occasions when the technology malfunctions and makes incorrect announcements, or fails to make them at all. Metro Trains is required to ensure that existing systems are well-maintained and, if they are unavailable, that drivers make manual audible announcements at junction stations. However, users frequently complain that this does not occur, and would prefer manual announcements at all stations if systems malfunction. Problems may include that train drivers are not aware that the system has failed (noting there are instances where the failure is confined to some carriages only), or have incorrectly entered the 'train describer number' that allows the computer to choose the correct information for each service. A further complexity is that making manual announcements may distract the attention of the driver, and is therefore a safety concern. V/Line trains are not uniformly fitted with these technologies, although they are present on newer models. If automated announcements are unavailable, V/Line conductors make manual announcements at every station.

On the tram system, most vehicles are not currently capable of making automated announcements or displaying stop locations, with only some newer models installed with the technology, such as the certain Combino trams – although it has been reported that the programming in some systems is not up-to-date. Some other models have the display unit attached, but do not have a GPS locator installed, meaning that they cannot determine the tram's position in order to make automated announcements and simply repeat the route number and destination that is displayed on the tram exterior. For the vast majority of the tram fleet, drivers make manual announcements at locations within the Melbourne CBD. Users express dissatisfaction with these arrangements, noting that the manual announcements are often unclear, and are required outside of the CBD. Yarra Trams are currently trialling the option of requiring drivers to make manual announcements at all stops.

SmartBus services are uniformly fitted with automated announcements and visual displays, although we are advised that these fail on more than 1 per cent of Smartbus trips. Suburban buses, regional bus services and V/Line coaches do not have these facilities. There is no consistent practice of making manual announcements on buses, although some V/Line coach drivers make manual announcements at major destinations, although this may vary from operator to operator (or even from driver to driver).

An Automated Vehicle Monitoring (AVM) system is required for a vehicle to be able to make automated announcements and visual displays. DoT is currently planning to install these units into every metropolitan bus and tram, although the timeline for this process remains uncertain. This technology allows the position of buses to be known across the network, and for DoT to measure performance, identify bottlenecks and make subsequent adjustments to timetables to allow better operation of the network. However, this project does not include the purchase and installation of the display and speaker units that would enable vehicles to make automated announcements and display visual stop information, although a subsequent purchase of these units could be easily 'plugged in' to the AVM system if funding became available. There is no current proposal to extend this system to regional and rural bus and coach routes.

A different information method for passengers on the public transport system is the use of mobile devices (such as GPS-enabled mobile phones) to produce information about a user's location. Currently Yarra Trams has available its 'TramTracker' application for mobile devices, which allows users to know the location of trams on the network. Yarra Trams is currently exploring methods of enabling the TramTracker to incorporate an audible alarm that could alert vision impaired passengers when their desired stop was approaching, ensuring they could alight at the correct stop. Other agencies, including Metro Trains and Metlink, are considering similar applications for mobile devices, which would extend this capability to other transport modes, such as buses and trains.

While TramTracker and its potential cousins are useful additions to the information tools available to assist with access to public transport, they should not be viewed as substitutes for more comprehensive systems such as automated announcements. This is because they are not universally available; indeed, the people who most require the information are often the least likely to have the technology and skills to use them. GPS-capable mobile phones and their associated bandwidth are still expensive. In addition, people such as tourists, those new to the public transport system, or occasional users, are unlikely to have installed the application and may not even know about it. People with vision impairments also may be less likely to purchase a

more expensive phone whose main additional feature is its visual display capabilities. These technologies are welcome, but can at best be considered a supplementary tool, as they will be unavailable for many of the people who most require access.

Yarra Trams is also considering the possibility of issuing special post-it notes that can be handed to a tram driver or affixed to his compartment, requesting an alert to a designated stop. This idea is problematic in a number of regards, because it requires users to pre-arrange their possible destinations, make additional arrangements compared with other passengers, be aware of this system in order to use it, and publicly display their impairment. While it could benefit a few people in the interim, it is not a good solution, and is certainly not a long-term one.

Recommendation 27

The Victorian Government should immediately fund the installation of automated audible announcement and visual display units on all vehicles that are fitted with a new automated vehicle monitoring system. In addition, the roll-out of these access features should be extended to all public transport vehicles, including in rural and regional Victoria.

Selecting the correct vehicle

Every public transport vehicle displays identification about which route it services. However, this often be can only be seen clearly as the vehicle arrives. Identifying the vehicle is particularly important at boarding places that service multiple routes, as boarding the wrong vehicle will usually mean you will make the wrong journey. Ensuring passengers can correctly identify the right service is essential for the public transport system to provide access.

Metropolitan trains have developed good mechanisms to ensure passengers board the correct vehicle. Not only can passengers consult a timetable, they can also press a button to activate an automated audible announcement. In addition, the next service is displayed on a visual display unit on many stations, and an automated audible announcement specifying which service is approaching is supposed to be made shortly before a train arrives. The train itself also generally displays its destination. These systems help ensure that people know which service they are boarding regardless of differences in their vision and hearing. Country train stations often have similar facilities, although announcements may be manual. There are some unstaffed country stations that may not have these services, although some of these only provide boarding for a single train service.

However, these features do not uniformly exist on tram, bus and coach systems. Some major tram and bus stops have passenger display units (PDUs) which tell passengers about the timing of the next service. Some are also equipped with a button that prompts an audible announcement; although that may rely on scheduled timetables and may not correctly predict the sequence of services. Of additional concern is that trams and buses often stop in a queue at major stops, and allow multiple vehicles to board and disembark simultaneously. Passengers who cannot determine which service to board, for instance, because of impaired vision, may be unable to complete their journeys.

Yarra Trams have considered addressing this issue with posters that passengers could hold up to alert the driver which vehicle they wish to board. Like the post-it idea outlined previously, this requires an additional effort from the user, including pre-arranging possible tram routes, and again publicly displaying their impairment. This option is a poor solution, and is unlikely to be utilised by many users. Nonetheless, it is welcome that Yarra Trams acknowledges the concern and is more engaged than some other operators in attempting to resolve the issues. The issue is a difficult one, as requiring every tram and bus to pick up from exactly the same place, even when several vehicles arrive at once, may increase congestion on the network, result in worse timeliness and impact on other vehicles in the road space. However, there will be many instances where it is perfectly practicable for drivers to wait for the first vehicle to leave and then move up to the first position, if only for a few seconds, to allow passengers who may not have been aware of its presence to board.

An additional possibility is to fit buses and trams with external speakers that produce an audible announcement of the route the vehicle is serving and are activated, for instance, by opening the vehicle doors. This already occurs with Smartbus vehicles, although users have questioned whether they are universally fitted or used. While this does not completely

solve the queuing problem, it would allow users an additional confirmation that a service had arrived, and might also alert people to the availability of an additional vehicle in a queue. Driver education may also have a role, as increased awareness of the diversity of passenger need may encourage them to be more vigilant in allowing passengers with vision impairments to board their vehicles.

Signage

In order to navigate the transport system, people require signage and audible directions, including how to get to the correct platform at train stations, the correct bus bay at bus stations, and to facilities like ticket offices, toilets, lifts, ramp access, level access boarding points, taxi ranks and disability drop-off points, as well as specific assistance services such as those provided by Travellers Aid Australia.

Metlink is responsible for producing a master sign guide which informs the design of signage across the transport system, helping ensure a consistent approach. Signage also includes symbols and warning stickers, such as indicators ('decals') for priority seating or allocated spaces. Metropolitan train and tram operators are responsible for producing their own signage using this guide, while some signage is directly provided by Metlink, including SmartBus signage, passenger display units and audible stop announcements at bus stops. Metlink has recently introduced changes to major signs to include information indicating the location of access ramps, such as on a platform stop with only one entry point.

Users raise particular concerns about signage at bus and tram stops, especially the size of timetables. Metlink advises that it increases the print size of timetables when it can. The amount of information required to be displayed varies from stop to stop – for instance, at a high-use stop there may be multiple bus routes serving the location which all must be accommodated in the signage. Where space is at a premium, Metlink focuses on enlarging particular elements: particularly route numbers and the stop ID number, so that people who cannot read the signage have the option of calling for assistance. While using a larger timetable case would allow more room for larger print, this can also present as an obstacle to pedestrians and people using wheeled devices, and would entail significant cost. However, it can seem puzzling to users that critical travel information needs to be squeezed into a tiny space when immediately next to it stands a large advertising billboard as part of the shelter. While there are complexities in the management of these spaces, as previously discussed, there are opportunities to place greater priority on the informational needs of public transport users.

Recommendation 28

The Department of Transport should explore additional ways to ensure everybody can determine the correct vehicle to board, including audible real-time stop timetables and external announcements on vehicles and changes to vehicle queuing procedures.

Planning journeys

If you cannot be certain that the transport system will guide you to your destination if you 'turn up and go', or you do not wish to spend an indeterminate amount of time waiting for the next service, the next available option is to seek out information about where and when services will be available before you travel. Being able to know how and where services go, what time they leave, when and where to make a connection, and whether they will meet the access needs of a traveller are all essential components of being able to get to a destination. Passengers also need to know whether they need to book ahead, and what the cost of the journey will be, including whether they are eligible for concession or free travel. Finding this information should be easy and reliable so that it can be trusted.

There are multiple ways to get information about transport services, but different methods do not always give consistent information, or provide all the information that is required.

A number of concerns have been raised about the availability and quality of information about the transport system. In order to make a continuously accessible journey, a great deal of information needs to be gathered from hard-to-find places on the Metlink website, by making an often long and detailed call to the call centre, or by finding a staff member that can answer them.

Maps and timetables

Current maps of public transport lack much information, and may be misleading or difficult to read. Often maps only show the coverage of services, but do not indicate where they go, or where you can get on and off or make connections, or give any detail about access features.

For instance, the metropolitan train map is a map of the rail network, not the actual train services. You cannot tell from the map which stations can be accessed from different train services or where to connect; in some cases, the map is directly misleading, such as by appearing to indicate that the Upfield line continues to Footscray. While regular users are able to 'fill in the gaps' with a working knowledge of the system, the map can be baffling to new users. Metropolitan rail maps in other Australian cities indicate the access features available at train stations – for instance, the CityRail map in Sydney indicates four different levels of accessibility with different symbols: level access at staffed stations, level access at unstaffed stations, stations that may provide level access with some assistance, and stations without level access opportunities.

Similarly, the tram network map can be equally confusing. A recent update introducing clearer service routes using coloured lines has been introduced, which has been a vast improvement on the previous version. However, it remains imperfect, as the map does not indicate stops or destinations and, in many cases, needs to be used in conjunction with a street map to work out which routes to take and which stops to use to get to a destination. Even individual route maps do not indicate all stops. New individual route maps include the presence of level-access tram stops, although they do not indicate whether there are low-floor trams available.

The bus maps are even harder to discern, for a number of reasons. Firstly, they are not nearly as available as train and tram maps as they are often not displayed at stops or on vehicles – and where present, they are small and hard to discern. Secondly, bus maps available from Metlink are printed regionally, with different maps available for different local government areas, making it difficult to see how to make longer journeys on them. Thirdly, bus maps tend to mimic the geography of each route, meaning local area maps appear as a 'bowl of spaghetti': a confusing tangle of lines which makes it difficult to select the correct route – which is also a reflection of the current approach to route planning. Fourthly, the maps do not show stops, so passengers may not know when they have reached the correct stop, or which stop is the best to use. Lastly, they do not show access features, such as low-floor bus routes.

A further issue is that maps continue to focus on separate modes, rather than assisting passengers to select the easiest journey, regardless of the mode. While individuals need to know which mode they will be travelling upon – especially as the accessibility features and practices of different modes are highly divergent – the current mapping system means people often have to compare a range of different maps in order to compare alternative journeys. Timetables also present concerns for passengers, with many reporting that the print is too small for them to be able to read.

Metlink is currently the agency responsible for producing passenger information, including maps, timetables, managing website information and designing signage. Metlink advises that large print timetables are available by contacting the Metlink call centre, which then posts them to users. This can also be arranged by transport staff at information and ticketing offices. In addition, Metlink has begun to provide stop specific timetables on the website, so passengers can obtain the timetable information specific to their individual location. Metlink advises that its website includes a number of web-accessibility features, including the ability to resize timetables, and both Metlink and Yarra Trams have engaged the services of Vision Australia to improve their websites' useability.

The Metlink website and its associated database serve as a repository for large amounts of information about the transport system. However, it should firstly be noted that not all passengers have good access to the internet, or may have difficulty using it, so full information should still be available without needing to use the internet. Similarly, while there is a lot of information on the website, it can be difficult to locate via multiple sets of menus. While it is theoretically possible to locate a range of information on the Metlink website, such as the location of bus stops, access features at train stations or the location of level access tram stops, many people would not be able to find it.

Other Australian jurisdictions provide users with an accessibility guide that, for instance, provides detailed information about the accessibility features at different locations. For instance, Queensland Rail makes available a train station accessibility guide, which allows users to identify a whole range of features, including independent access, access between platforms, availability of accessible toilets, and accessible parking facilities.[24] A further suggestion made in consultations is to produce an 'accessibility map' which would show the accessibility features of the public transport network. While many agencies, including Metlink, Metro Trains, Yarra Trams, and V/Line include accessibility guides on their websites, these rarely indicate the location of access features. Yarra Trams plans to more widely inform people that its routes 109 and 96 are serviced by low-floor trams.

The Metlink journey planner tool is a useful feature of the Metlink website, as it does allow for users to examine their options for travel by entering the details of their point of origin, destination, and desired time of travel. However, users report that the journey planner is difficult to use, requiring a lot of detail to be entered and displaying a complex array of symbols and hyperlinks that can be difficult to understand. If a person requires the journey to provide level access however, the journey planner is even more difficult to use, and does not contain all of the required information. Firstly, it requires users to navigate to 'advanced options' and scroll down to very bottom of the screen in order to select level access options. Further, the journey planner database does not contain all scheduling of low-floor trams, nor is the detail of access features of bus stops included. This means that a selection for both accessible vehicles and stops will only display train journeys.

Metlink acknowledge this problem, but state they cannot improve the options if they do not have the correct information. Yarra Trams advises that it does not indicate low-floor tram services on timetables as it cannot guarantee the services, due to the nature of tram queuing and the frequent disruptions to the tram network. The availability of low-floor services is provided in its TramTracker application and on its website, and it is currently intending to display low-floor services on Passenger Display Units at major stops, although these will only be available for services that have commenced, and will be unavailable for services in the future. Metlink also advises that it does not indicate access features of bus stops as it does not have complete information about them, such as whether there will be useable access paths at the destination.

Recommendation 29

Metlink should examine ways of producing more useable maps and timetables, and improving website functionality to allow easier journey planning. In particular, producing an accessibility guide that indicates the location of access features should be a priority.

Recommendation 30

The Department of Transport should investigate means of ensuring full accessibility data is available on the Metlink website, including the availability of low-floor trams and compliant bus stop information.

Information places and call centres

Users have noted that there is not always consistent information provided by different agencies, or that agencies refer them to another information provider, only to be referred on again. An example of this is at Southern Cross Station, where multiple organisations have information desks, including myki, V/Line, Metlink, Metro Trains and Travellers Aid, but passengers may find that they will be referred back and forth between them before they can get their questions answered.

It has also been reported that when operators close their information places at different times, the service with the longest operating hours tends to become the information point for everyone else. Alternatively, different operators may have insufficient knowledge about the services offered by other operators, meaning that when a person has a query about transport, they only receive information about a subset of services, or get incorrect information about them.

24 Available at: http://www.queenslandrail.com.au/AllStations/Documents/Disability_Access_Guide_All_QR_Stations.pdf

The information available about different types of transport also varies; for instance, while bus companies generally schedule low-floor bus routes, this does not occur on the tram system. There is often no information about whether there is an access path serving a particular stop on the system.

Passengers note that using a call centre is often not their preferred method of finding information, both because it can be hard to explain the journey over the phone, and because identifying places to the call centre worker can be difficult. Passengers report that remembering 'stop identification numbers' is difficult, and are only useful if you are actually standing at the stop – not if you want to check your journey path before you leave home.

While there remain multiple numbers to access different information about operators, these are mostly all calls to the same place – the Metlink call centre which operates facilities on behalf of Metro Trains, V/Line and Yarra Trams. However, myki operates a separate call centre (managed by the myki provider Kamco), as does Ventura Buses. Using a single call centre helps improve information consistency across the system, and Metlink reports that their call centre information should be consistent with website information, as they use the same database. Metlink is currently investigating technological methods of improving information consistency between agencies, including through a web-based system that can be used by other call centres and information desks. It is also looking to move to a single number, possibly a toll-free 1800 number.

Arranging travel

If certain people need to make special arrangements in order to travel, such as booking or checking ahead of time before making a journey, then they have less access to public transport than other people. Not only do they have to make additional arrangements compared to other passengers, but they cannot make spontaneous decisions about their movements, and may be prevented from acting in urgent situations, for instance, the critical illness of a relative, or taking up offers of work at short notice. For instance, V/Line trains require passengers using a mobility aid to book up to 48 hours before travelling, and some bus operators advise passengers requiring level access boarding to phone ahead of their journey to arrange a low floor vehicle. These types of arrangements also mean that if, for some reason, passengers miss their service, they may be left stranded, unable to catch the next available service.

Recommendation 31

V/Line should examine ways to reduce or remove the requirement for passengers requiring accessible seating to pre-arrange travel in circumstances where other passengers are not required to do so.

Fares, concessions and ticketing

With a few exceptions, public transport passengers are required to pay fares. Over the past few years, there have been numerous changes to fare levels and fare-paying procedures, including changes to V/Line fares, making them considerable cheaper, and removal of the outer 'zone 3' fare zone in metropolitan Melbourne, also improving access. However, the current dual operation of multiple fare systems, including myki, Metcard and V/Line bookings, each with very different procedural requirements, makes using public transport more difficult, and can cause alarm in passengers who fear being labelled as a fare-evader, or worse still, missing their service because they have not completed the right procedures in the right order.

The concept of a 'fare-path', used by public transport agencies to help ensure that each person has paid a fare as they enter or exit vehicles and stations, also complicates the construction of continuous access paths and, in some cases, the two may not be in the same place. These issues need to be considered in the design and placement of ticketing machines and ticket validators. The Transport Ticketing Agency, the agency managing the implementation of myki, advises that there were numerous consultations with a diversity of users in introducing myki, which resulted in the creation of the Access Travel Pass for people who cannot use the validation machines. One concern is there are not specific standards for smartcard systems on public transport, and interpretation of the relevant standards requires examining a range of other standards. It is noted that the procurement arrangements for the myki process meant many of the design features could not be altered: for instance, myki validators were purchased

'off-the-shelf', so only their placement or programmable features such as screen colour and font type and size could be adjusted. Myki ticketing machines are intended to replace Metcard machines on a like-for-like basis.

There is also a numerous and complex arrangement for concession fares and free passes, with 17 different free passes listed on the Metlink website,[25] as well as a range of different eligibility criteria for concession fares. The arrival of myki has introduced additional changes in the physical appearance and usage of free passes and concessions, requiring concession card holders to obtain a specific myki card in order to claim the concession. The introduction of the Access Travel Pass with the myki system for people who cannot use the myki validators, is in addition to an existing pass for people with vision impairment, and was subsequently followed by the introduction of the Scooter and Wheelchair Travel Pass

Negotiating this maze of concession and free pass arrangements can be difficult, and meeting the eligibility requirements can be complex and time-consuming, with the result that many users may not be aware of their eligibility for concessions or passes, and are paying more than they need to for the service.

Importantly, public transport users who require certain access features often point out that they have no problem with paying the same fare as everyone else, in the circumstances where they are paying for the same access. A free pass is of little value if you cannot use the service.

There are also specific arrangements in place for providing free passes for a carer or attendant for people who require assistance to use public transport, and for a 'travel trainer pass' for people giving personal instruction on how to use public transport. There remain concerns about whether the current eligibility requirements for these passes are inclusive enough; for instance, where a person requires an attendant for temporary health conditions when travelling for medical care.

Recommendation 32

The Department of Transport should review the current structure of concessions and travel passes to reduce the complexity of the system and ensure people receive the appropriate benefits to which they are entitled.

Community education

A range of users and transport agencies acknowledge gaps in the ways that public transport users, particularly those with access requirements, can better understand how public transport operates and the options that are available to them. It can be very difficult to find out about the varying services and skills they might use or acquire, such as advice on transitioning from being a driver to a non-driver, how to learn about services, eligibility for concessions, or the availability of community transport. Users may benefit from being able to test their boarding needs on vehicles.

A range of different operators provide community education and information programs, although many only provide information on their own services, or target information at a general audience. Some operators provide opportunities to trial access features for public transport; for instance, Yarra Trams can offer boarding trials onto low-floor trams, and V/Line can arrange trials of hoist systems on coach services. Even specialist access agencies, such as local government officers or disability service organisations may not be able to provide complete information on transport services. At present, only Travellers Aid Australia appears to provide community education involving a broad spectrum of knowledge about the range of access features available on public transport, yet they also report gaps in knowledge, such as the local availability of community transport services.

There may be opportunities to provide more integrated community education programs that are able to give a broader perspective on accessible transport services, including all public transport modes, taxis and community transport services.

Recommendation 33

The Department of Transport, and transport agencies and operators should investigate the provision of a broad community education program so people with specific access needs can learn about the full range of accessible services.

25 Available at: http://www.metlinkmelbourne.com.au/fares-tickets/free-travel-passes/ (Viewed 15 April, 2011)

Appendix I: List of recommendations in full

1. Public transport agencies and operators should use a broad definition of accessibility that encompasses the broad diversity of real people and purposes of travel, in contrast to presuming the capabilities and destinations of a 'representative person'.
2. Public transport agencies should prioritise improvement in accessibility outcomes, not merely the extent of compliance with access standards.
3. The Public Transport Development Authority should have sufficient power, resources and structure to ensure co-ordinated planning and co-ordination of accessibility improvement that result in improved access outcomes, including through co-ordinating efforts of other transport agencies, operators and local government.
4. Future access improvements should maximise the opportunities to create continuously accessible journey paths, including a greater emphasis on creating fully accessible service routes.
5. When improving accessibility on public transport routes, attention should be given to all aspects of the journey, including pedestrian infrastructure, road and rail crossings, boarding and waiting places, vehicles, signage and information.
6. The Victorian Government should produce an Accessible Transport Action Plan for 2013-17 that sets out a long-term framework for sequencing investments, so that adequate planning and co-ordination can take place between agencies.
7. The Victorian Government should fund a long-term program of accessibility improvements, sufficient to ensure that all DSAPT milestone targets can be met, but allowing for reasonable flexibility to ensure that accessibility outcomes can be prioritised, including for projects outside the direct coverage of the standards.
8. The Department of Transport should continue to develop its capability to measure and monitor accessibility outcomes and benefits by improving data sources and using more sophisticated measures of social benefit.
9. In addition to continuing to receive advice from the Public Transport Access Committee, the Public Transport Development Authority should encourage broader community consultation, engagement and public debate on improving the accessibility of public transport.
10. The Department of Transport should incorporate the principles of universal design into its specifications for construction of infrastructure and purchasing of vehicles.
11. The Department of Transport should engage in user consultation before determining the operational specifications to be used for costing project proposals.
12. The Department of Transport should incorporate long-term accessibility improvements into client design requirements and procurement specifications, and advocate for improvements to national standards to reflect ongoing access improvements.
13. The Department of Transport should ensure that the public transport system will be capable in the future of providing level boarding access that is independent, gapless and equal, and incorporate these requirements into current standards and specifications.
14. The Department of Transport and transport operators should continue to investigate and assess interim solutions for improving level access boarding; including the construction of fixed boarding ramps on trains and improved methods of ensuring tram boarding meets the DSAPT standard. As a priority, an alternative to hoist systems on V/Line coaches should be found as soon as possible, noting the indignity this imposes on users.
15. The Department of Transport should ensure that the procedures and specifications for new vehicle purchases incorporate universal design principles and user consultation, with particular emphasis on the location of allocated spaces, luggage facilities, priority seating and hand rails.
16. The Department of Transport and transport operators should phase out the use of inaccessible vehicles for school bus routes, rail replacement vehicles, or any other public use at the earliest opportunity, regardless of their status under the DSAPT.

17. Transport agencies and operators should support more prominent identification of priority seating across all public transport modes, such as using different coloured fabric on seating. The identification of 'flip-seats' as priority seating should be discontinued.
18. The Public Transport Development Authority and other transport agencies and operators should ensure that the stations and stops include design features that create access, safety, and comfort, including lighting, shelter, seating and appropriate allocated spaces.
19. Public transport operators should ensure that facilities, including accessible toilets at train and bus stations, are provided under the same arrangements as those available to other passengers.
20. The Public Transport Development Authority should review the current responsibilities for bus stops and shelters, with a view to making the best use of the available space to provide access, and promoting clear lines of responsibility between the Department of Transport, local government and bus shelter providers.
21. Clear guidelines should be established for DDA compliance in the pedestrian environment, particularly for the use of TGSIs and better knowledge and implementation of AS1428.2, for pedestrian paths, road and rail crossings and boarding precincts.
22. The Department of Transport, VicRoads and local government should work together to ensure that the entire pedestrian catchment of a boarding place is accessible, including for connections between boarding points at route and modal interchanges, and with car parking and passenger drop-off locations.
23. The Department of Transport should progress initiatives, including through national committees, to reduce the incidence of mobility aids being unable to be used on public transport vehicles. This should include investigating the feasibility of allowing broader tolerances in public transport vehicle design, introducing a sticker indicating the suitability of mobility aids for use on public transport, community education initiatives, and regulatory restrictions on the sale of mobility aids that do not meet the criteria for use on public transport.
24. All public transport operators should implement a code of conduct for staff that provides clear guidance to staff and passengers about the level of assistance that is expected.
25. All public transport operators should ensure all customer service staff members, including host staff, drivers and authorised officers receive substantial accessibility training, both in initial training and at regular intervals.
26. Public transport agencies and operators should maximise opportunities to encourage pro-social behaviours by passengers on public transport, rather than relying solely on threats of fines for enforcement.
27. The Victorian Government should immediately fund the installation of automated audible announcement and visual display units on all vehicles that are fitted with a new automated vehicle monitoring system. In addition, the roll-out of these access features should be extended to all public transport vehicles, including in rural and regional Victoria.
28. The Department of Transport should explore additional ways to ensure everybody can determine the correct vehicle to board, including audible real-time stop timetables and external announcements on vehicles and changes to vehicle queuing procedures.
29. Metlink should examine ways of producing more useable maps and timetables, and improving website functionality to allow easier journey planning. In particular, producing an accessibility guide that indicates the location of access features should be a priority.
30. The Department of Transport should investigate means of ensuring full accessibility data is available on the Metlink website, including the availability of low-floor trams and compliant bus stop information.
31. V/Line should examine ways to reduce or remove the requirement for passengers requiring accessible seating to pre-arrange travel in circumstances where other passengers are not required to do so.
32. The Department of Transport should review the current structure of concessions and travel passes to reduce the complexity of the system and ensure people receive the appropriate benefits to which they are entitled.
33. The Department of Transport, and transport agencies and operators should investigate the provision of a broad community education program so people with specific access needs can learn about the full range of accessible services.

Appendix II: Methodology

This investigation used a number of strategies to gather information relating to the accessibility of Victoria's public transport system. This included:

- Drawing on the previous information collected by a survey of 115 people with disabilities, documented in VCOSS's previous report of the *Accessible Public Transport Watch Project*;[26]
- Hosting an Accessible Transport Forum in December 2010, attended by approximately 80 people, and undertaking consultation and discussion, documented in the *Free to Move: VCOSS Accessible Transport Forum's Summary Report*;[27]
- A brief literature review of relevant academic literature; and
- Face-to-face interviews with key staff in relevant agencies and organisations, including:
    - Bus and Regional Services (Department of Transport, Public Transport Division)
    - Bus Association of Victoria
    - Franchise Relationships (Department of Transport, Public Transport Division)
    - Municipal Association of Victoria
    - Metlink
    - Metro Trains
    - Social Transit Unit (Department of Transport, Public Transport Division)
    - Travellers Aid Australia
    - VicRoads
    - VicTrack
    - V/Line
    - Yarra Trams
    - Transport Ticketing Agency

Interviews with staff members in key agencies focussed on drawing questions from recommendations from the Accessible Public Transport Watch Project, and discussing the barriers and difficulties in addressing these concerns. Additional items from the consultation forum were also included during interviews, where feasible.

26 Victorian Council of Social Service, 2008, *Accessible Public Transport Watch Project*, available from: http://www.vcoss.org.au/documents/VCOSS%20docs/Transport/Access%20Watch%20-%20email.pdf

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Appendix III: References

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