



Transport and Liveability

The Path to a Sustainable Victoria



The Coalition for People's Transport



Acknowledgements

The Coalition for People's Transport includes representatives of community and social justice organisations, environment groups, local government, disability advocates and transport users. All have contributed valuable input and advice to inform this document and ensure that its recommendations are a broadly held perspective on Melbourne transport needs. The views outlined in this paper are the combined view of the Coalition for People's Transport and may differ from specific policies of Coalition members.

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The Path to a Sustainable Victoria

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Foreword: A Tale of Two Cities – a chance to choose Melbourne’s future

Location: Melbourne

Date: A POSSIBLE FUTURE

Melbourne’s population and urban fringe have swelled massively due to a rural drought-fuelled exodus and climate change refugees seeking a new home after rising sea levels swallowed their lands. Many of the city’s residents live beyond the reach of the overcrowded train network in outer-suburbs facing high unemployment.

Rising petrol prices are eating up more and more of the family budget, causing a drop in spending and a slump in retail and other economic activity. Attempts to fill the oil shortfall with other fossil fuels have fed rampant climate change and poured a noxious cocktail of pollution into the air. Respiratory disease has climbed inexorably, alongside cancers and tuberculosis.

With limited transport alternatives, and the price of running a car out of reach, many people are isolated from jobs, education and recreation - resulting in a loss of community and increased crime rates.

Nearby a roadside billboard proudly declares – “Visit Vancouver: the world’s most liveable city”.

Location: Melbourne

Date: AN ALTERNATIVE FUTURE

A tree-lined street is filled with the sounds of native birds and children playing. Nearby the main street is lined with offices, shops and cafés. Despite rising oil prices, households have kept a lid on their transport expenses thanks to quality public transport and safe cycling facilities. Instead their disposable income is spent on goods and services at local shops.

You’ve just missed a tram, but chat happily to a neighbour at the tram stop, comfortable in the knowledge that another tram will be along shortly. Once aboard the trip to the local train station is quick and unimpeded by traffic.

After buying a newspaper and waiting a couple of minutes on the platform, you see the Flinders Street train arriving on time with adequate seats to ensure a comfortable journey into town. Out of the window you see cyclists using the many bike paths that run next to the railway.

You emerge from Flinders Street Station into a vibrant city teeming with pedestrians. There are few obese people in the crowd as active lifestyles are the norm - resulting in a drop in other illnesses including depression. Joining the local crowd are foreign tourists and our country cousins taking a trip to the city from one of the many regional train lines spreading to the far reaches of the state.

A headline in your newspaper grabs your eye - “Melbourne dubbed world’s most liveable city yet again”.

Introduction

Melbourne sits at a crossroad. The evidence of climate change is mounting and extreme weather is making headlines – droughts, storms and record temperatures. The world is also facing skyrocketing oil prices and a finite supply. Governments are faced with policy choices on energy, transport and a host of other areas that will affect our futures and those of our children.

Which of the two potential futures listed above will they choose? For residents of Melbourne's outer suburbs, the nightmare may become a reality if urgent action isn't taken.

Transport and Liveability: The Path to a Sustainable Victoria outlines some of the key areas that will determine the liveability of Melbourne in the future:

Environment:

Rapidly expanding motor vehicle use is generating large amounts of pollution and greenhouse emissions and covering more and more land in asphalt.

Health:

Our car-reliant city encourages sedentary lifestyles with a host of serious health implications. The accompanying air pollution is responsible for more deaths each year than road crashes.

Housing:

Motorised transport is often the largest single consumer of energy for a household, and the resulting financial drain is harming home affordability.

Safety:

Despite relatively safe roads by international standards, over-reliance on car use, along with inadequate attention to the safety of other road users, is costing the lives of many Victorians each year. Similarly, pedestrian-hostile public spaces are failing to prevent crime.

Participation:

Inadequate public transport is trapping many elderly and disadvantaged Victorians in their homes, preventing them from participating in the economic and social life of the state.

Mobility:

Excessive focus on roads in transport planning is failing to address congestion and the cost of transport in an age of rising oil prices.

Employment and income:

Inadequate public transport is making commuting more stressful and more expensive than it needs to be, and siphoning wealth away from local communities.

Education:

Inadequate public transport is a barrier to education for many young people, and is also exacerbating obesity levels among children.

Melbourne's claim to being one of the world's most liveable cities is at risk, with the loss of the title to Vancouver and many of our main competitors showing a strong commitment to shifting the focus of transport policy away from cars and towards people.

This report concludes with a range of key actions that Government must take to keep Melbourne near the top of the world's liveability league ladder.

1. What is liveability?



Melbourne's ranking as the world's most liveable city - recently lost to Vancouver¹ - has generated widespread awareness of liveability in Victoria. Public understanding of the concept, however, has generally been vague. The term liveability is often used interchangeably with quality of life and well-being, although these are imperfect substitutes. The very root of the word liveable - life - is a fundamental quality of nature and implies sustainability. Whilst the most obvious form of sustainability is environmental sustainability, consideration of liveability must also recognise social sustainability and hence fairness, as well as economic sustainability.

Most attempts to measure liveability group indicators under broad categories such as:

- Environment
- Health
- Housing
- Safety
- Participation
- Mobility
- Employment and income
- Education

Further reading:

Sun, Y. (2005) *Development of Neighbourhood Quality of Life Indicators*.²

City of Melbourne - *City Ranking and Liveability*.³

George, J. (2005) *Liveability Sustainability or Liveability Schmiveability*.

2. Environment

The quality of an area's environment is inextricably linked to its liveability. Air quality is a particularly important factor, with urban Australians consistently rating air pollution as their highest environmental concern⁴.

Air pollution

Each year on average 2,400 Australian deaths are linked to air quality, with motor vehicles the primary cause of air pollution. That's substantially higher than the national road toll and an average of one death every four hours.⁵ In addition, studies have shown that children living near roads with heavy traffic are 50 per cent more likely to suffer from respiratory disease.⁶ The current reductions in certain pollutants from vehicles, due to the introduction of cleaner engines, are likely to be offset in the future by rising car numbers and the increasing average age of Australian cars⁷.

Motor vehicles produce an array of toxic chemicals and are the main source of ozone, nitrogen dioxide, fine particles and carbon monoxide in Melbourne. Recent EPA research found all these pollutants to be associated with Melbourne hospital admissions for respiratory disease and asthma. Fine particles, nitrogen dioxide and carbon monoxide were also associated with admissions for cardiovascular disease in the elderly⁸.

Several components of diesel and petrol engine exhausts are known to cause cancer in animals and there is evidence of an association between exposure to diesel and cancer in humans. In addition, some evidence suggests an increased risk of childhood leukaemia from exposure to vehicle exhaust, which may be caused by benzene emissions⁹.

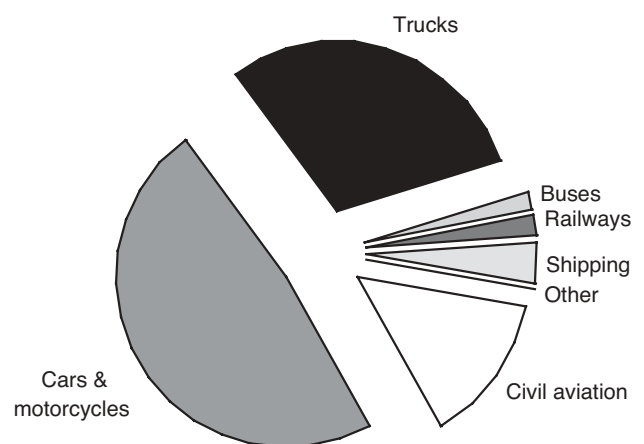
Greenhouse gas pollution

Climate change caused by greenhouse gas emissions has the potential to severely undermine our quality of life. The anticipated effects of climate change on our wellbeing include direct effects such as deaths related to heat waves, floods and droughts. Other effects will result from disturbances to complex physical and ecological processes, such as changes in the amount and quality of water and in the patterns of infectious diseases. Some of these effects will become evident within a decade while others will take longer to appear¹⁰.



After electricity generation, transport is the second largest contributor of greenhouse gas emissions in Victoria, equivalent to 19.3 million tonnes of CO₂ (16.5 per cent of the State's total greenhouse gas emissions). Cars emit significantly more greenhouse gases per passenger kilometre than buses, trams and trains. Figure 2.1 shows the total greenhouse gas contribution of different transport modes nationally. It is estimated that, if current trends continue, greenhouse gas pollution due to transport in Victoria will rise by a further 16.4 per cent from 2005 levels by 2020¹¹.

Figure 2.1: Transport-related greenhouse emissions



Source: National Greenhouse Gas Inventory 2003 - Part B

Water pollution

Healthy water bodies have important aesthetic and amenity value and enhance our quality of life. Contaminants in the stormwater system from street run-off are a major contributor to water pollution. Road run-off is a major source of heavy metal pollution in stream systems, especially lead, zinc, copper, chromium and cadmium. Studies have shown the mortality of fish and other aquatic organisms to be correlated with both high traffic volume and high metal concentrations. Roads also accelerate water flows and sediment transport, which raise flood levels and degrade aquatic ecosystems¹².

Noise pollution

Noise is frequently overlooked as a form of pollution because it is ubiquitous and there are no attributable deaths. However, excessive noise can have a huge negative impact on the liveability of an area¹³.

Cars and trucks are the major cause of noise in urban areas. It has been estimated that more than 70 per cent of environmental noise is due to road traffic. As the level of traffic increases, so does the number of breaches of transport noise level guidelines¹⁴. An estimated 19 per cent of the population in Australian urban areas with populations of greater than 100,000 is exposed to noise levels that exceed current guidelines¹⁵. Traffic noise 'black spots', usually located close to major road routes, are the main sources of the problem¹⁶.

Environmental noise most severely impacts health and well-being when it penetrates buildings. Excessive noise can result in physiological symptoms such as headaches, and can have cumulative effects on health¹⁷. The reported effects of traffic noise on people's health are wide ranging and may include:

- psychological effects - annoyance and behaviour reactions;
- physiological effects – sleep disturbance, cardiovascular disorders such as high blood pressure and heart disease, hearing loss and general fatigue through sleep loss; and
- social effects – restrictions on people's social activities, anti-social behaviour and effects on work efficiency¹⁸.

Contrary to popular belief, studies show that people do not become accustomed to excessive noise - although they do become less likely to be startled by expected noise events. This is perhaps why people are more tolerant to noise from trains, which run regular services, than to noise from trucks¹⁹.

In all Australian cities, the total amount of environmental noise is increasing and larger proportions of the population are suffering from exposure to noise. This is due to both an increase in city activity levels and changes in urban form²⁰.

The barrier effect

High capacity roads tend to carry higher volumes of traffic and create a more significant barrier between each side of the road. These barriers deter people from cycling and walking and detract from the amenity of the local area.

Land use

Providing for cars takes up around one third of our urban areas and is a grossly inefficient use of public space.²¹ For example, to carry 50,000 people per hour in each direction by car, a road would need to be 20 times wider than a railway with the same capacity.²² An over-reliance on cars as a means of transport contributes to urban sprawl and the loss of green spaces. Both of these factors impact on the liveability of an area.

Reducing the extent to which land is made available to motorists, in the form of high-capacity roads and parking, and increasing provision for public transport could encourage more rational land use. In conjunction with balanced urban consolidation practices, this could reduce the amount of energy consumed by transport.

3. Health

Good health is of vital importance and has direct impacts on people's quality of life and productivity.²³ Transport can be a major determinant of health both directly and indirectly.²⁴ The major causes of death in Australia are cardiovascular diseases, cancers, respiratory diseases and injuries (particularly motor vehicle crashes and suicide). Risk factors for these causes of death include:

- Lifestyle and environmental factors such as physical inactivity and exposure to pollutants (see Environment section);
- Employment and income which affects access to timely and quality health care, medications and therapies;
- The quality of local environments and amenity; and
- Access to health care services.²⁵

The nature of transport provision, be it good or bad, can have a huge impact on all of these risk factors.

Physical activity

Walking and cycling to work or public transport is a good way to obtain regular exercise, the benefits of which include

- a 50 per cent reduction in:
 - the risk of developing coronary heart disease;
 - the risk of developing adult diabetes;
 - the risk of becoming obese;
- a 30 per cent reduction in the risk of developing hypertension;
- a 10/8-mmHg decline in blood pressure in people with hypertension;
- reduced osteoporosis;
- relief of symptoms of depression and anxiety; and
- prevention of falls in the elderly.²⁶

There are also health risks associated with cycling and walking, the most serious of which are crashes involving cars. As in the UK, the Victorian state Government's performance on safety for pedestrians and cyclists falls well short of international



best practice and there is significant scope for improvement (see Safety section). However, preliminary analysis in the United Kingdom shows that the benefits to life expectancy of choosing to cycle are 20 times the injury risks incurred by that choice.²⁷

Obesity

In the past 20 years the proportion of Australian adults who are overweight, obese or inactive has increased in parallel with our greater reliance on cars.²⁸ Recent research in New South Wales found that people who drove to work were 13 per cent more likely to be overweight or obese than those who walked, cycled or used public transport, regardless of their income level. Additionally, the further people had to drive each day, the greater their weight increase.²⁹

Mental Health

Wellbeing is an integral part of the World Health Organisation's definition of health, which makes clear that good health is more than the absence of physical health burdens and includes such things as being free of threats of violence, not being anxious or fearful, being in a good temper and feeling empowered.³⁰

Regular exposure to traffic congestion has been shown to impair health, psychological adjustment,

work performance and overall satisfaction with life. Congestion constrains movement, which increases blood pressure. This phenomenon not only reduces the wellbeing of those experiencing it, but can also lead to aggression and increase the likelihood of involvement in a crash.³¹

The number of motor vehicle crashes and the physical injuries and deaths resulting from them are closely monitored in most countries (see Safety section). This is not true of the long-term psychological effects commonly experienced by survivors of motor vehicle crashes or the families of those that are killed or injured. This hidden toll is rarely quantified when the economic costs of road crashes are evaluated. Studies have found that 14 per cent of road crash survivors have diagnosable post-traumatic stress disorder and 25 per cent have psychiatric problems one year after a crash. One third of survivors have clinically significant symptoms at follow-up 18 months after a crash.³²

Environments that encourage active transport such as walking and cycling can have a positive impact on mental health. Research shows that people who are physically active have better moods, higher self-esteem, better cognitive functioning and are less prone to anxiety and depression than those who are less active.³³

4. Housing and planning

Housing, and the way housing is planned in our communities, greatly impacts on liveability. In Melbourne, more than a decade of housing price rises, the ongoing failure to develop public transport networks in line with urban growth, and a number of bad planning decisions promoting 'urban sprawl', have driven increasing inequality between inner and outer areas of the city. House prices, and concentration of higher-income earners, have increased most in the inner- and middle-ring suburbs where public transport, employment and education opportunities are relatively plentiful. Lower income households have been pushed to the job-poor suburbs on the urban fringe³⁴.

The Government is to be congratulated for recognising the social, environmental and economic costs of urban sprawl and for curtailing it by establishing a growth boundary in Melbourne 2030: Planning for Sustainable Growth. The Plan's intent to encourage more sustainable transport choices and foster vibrant local communities is worthwhile, although its goals are not consistently supported by implementation.³⁵

A base assumption of the Melbourne 2030 Plan is people's access to frequent public transport. In addition to enabling people to get to the services and employment available in activity centres, Melbourne 2030 also identifies how public transport should shape the urban form, with higher-density housing located around transport nodes, such as train stations. These denser and better-designed suburbs are intended to reduce car use, thereby increasing the vibrancy, health and connectivity of the local community.

Inconsistent application of urban planning controls to ensure activity centres are focused around good quality public transport, tardy commitments to public transport improvements, and continuing expansion of car-based developments have also constrained progress toward the worthwhile ambitions of the Plan.

Despite these disappointments the Government is to be congratulated on developing some key examples of the Melbourne 2030 goal, including the revitalisation of transit cities, such as Dandenong. The Government is also to be congratulated for the introduction of the 5 Star energy standard for Victorian homes. On top of environmental benefits,



this measure is expected to have worthwhile economic benefits for Victoria³⁶, cut energy costs to consumers and make homes more pleasant to live in.

Improved energy efficiency can help to improve whole-of-life housing affordability by lowering recurrent expenditure on heating and cooling. However, energy consumption for heating and cooling is less significant than the energy consumed for household motorised travel – which on average accounts for 18 per cent of average household energy consumption³⁷ and is likewise dependent on housing. Transport energy consumption by households in fringe urban areas can be three times higher than energy consumption within the house itself. High transportation costs diminish the amount of disposable income available for expenditure on other goods and services and housing. In areas where inadequate public transport forces households to run additional motor vehicles, this effectively doubles the period required to pay off an average

suburban home, or reduces borrowing capacity by around \$80,000³⁸.

Some jurisdictions are moving to explicitly recognise the importance of transport-related energy consumption on overall household energy efficiency. For example in New South Wales, the BASIX environmental performance tool is being upgraded to include transport.

In terms of housing and planning, the Government must ensure that the trend towards increasing spatial inequality is halted. A strong planning framework - supporting growth of district centres and vibrant local communities with access to jobs, services and transport - needs to be married with delivery of public transport, and urban upgrades to enhance the walkability of suburbs. Direct investment - as well as use of planning tools, such as inclusionary zoning - is also needed to increase the availability of decent affordable housing located near jobs and frequent public transport.

5. Safety

Like housing and health, safety is another basic need. Everyone wants to live in a crime-free and safe neighbourhood.³⁹

Road safety

In Victoria, nearly 400 people are killed on the roads each year, around 6,000 are hospitalised and about 17,000 other people are injured.⁴⁰ Trauma related to transport (31 per cent) accounts for almost as much trauma in Victoria as all other non-intentional causes put together (33 per cent).⁴¹ Internationally-recognised efforts to reduce injury and fatality rates for road users have resulted in Victoria having one of the world's lowest fatality rates for motorists per kilometre of travel. At 0.6 deaths per 100 million passenger kilometres it is lower than all other OECD nations and Australian states.⁴²

A more meaningful measure of one's chances of dying in a road crash, however, is road deaths per 100,000 population. Despite the low fatality rate based on distance travelled, citizens of Victoria are still more likely to die on the road than residents of several OECD countries with higher distance-based fatality rates. This anomaly arises from greater car use by Victorians compared to their European counterparts, thus exposing them more often to the risk of death on the road. Simple arithmetic shows



that for a given fatality rate (e.g. 0.6 deaths per 100 million km), more car use will result in more road deaths.

Exposure to the risk of death on the road could be reduced by shifting passenger journeys from cars onto public transport. Figure 5.1 demonstrates that cities where public transport plays a larger role in the passenger transport task experience fewer overall traffic deaths. Victorians are at least 5 times more likely to die while travelling in a car as they are while a passenger on public transport (see Figure 5.2 below).

Figure 5.1

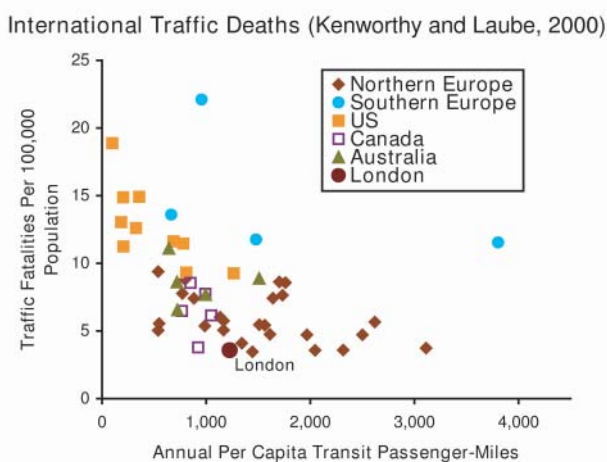
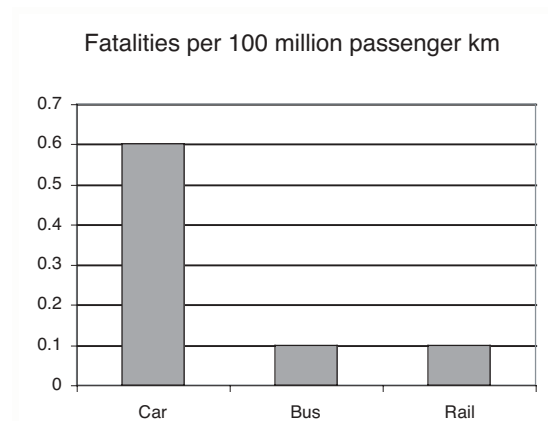


Figure 5.2



Note: As the role of public transport increases, shown by increasing transit passenger miles along the bottom of Figure 5.1, traffic fatalities decrease. This should not be surprising given the much lower rate of fatalities shown for public transport in Figure 5.2.⁴³

Public transport also provides alternatives for high-risk drivers (eg. older people with diminished fitness to drive) and people who may be fatigued or under the influence of alcohol. About a quarter of drivers killed in road crashes have blood alcohol levels in excess of the legal limit⁴⁴ and 20 per cent of fatal road crashes involve fatigue.

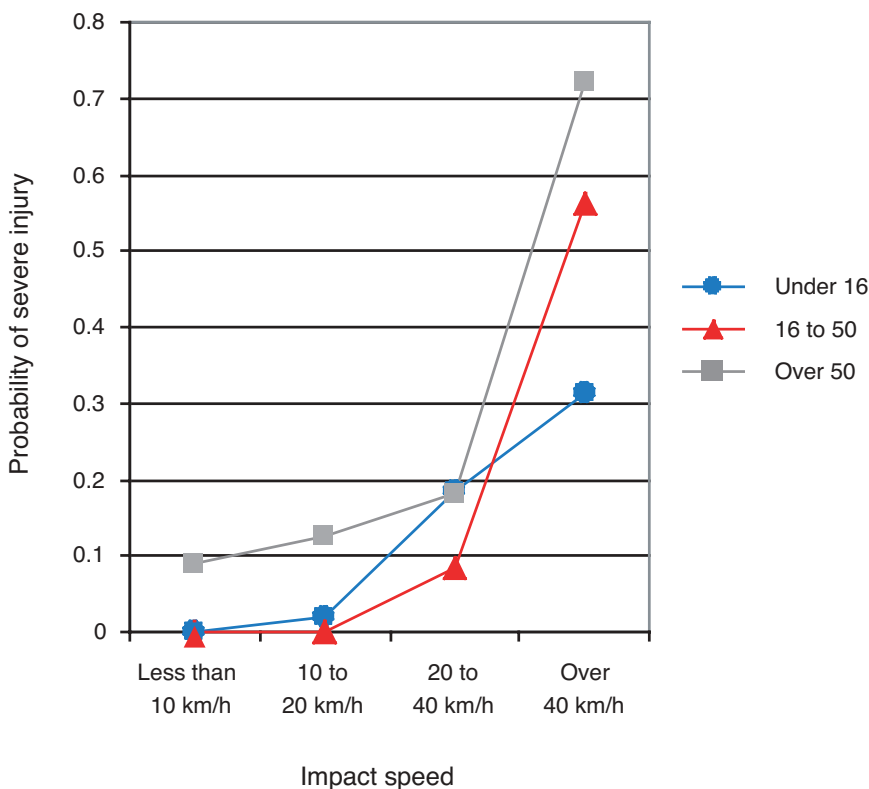
The Government is to be congratulated on the introduction of 50km/h speed limits in urban areas. Pedestrian and cyclist fatalities have both fallen markedly since 2001 to take Victoria’s pedestrian fatality rate from above the OECD average to below that of most OECD countries outside Western Europe. Unfortunately however, Australia still falls short of international best practice for pedestrian and cyclist safety. For every 1 million Victorians, about 13 pedestrians⁴⁵ can expect to be killed by cars each year (down from 18 deaths⁴⁶ per annum immediately prior to the introduction of 50km/h speed limits), compared to 7 pedestrian deaths for every 1 million people in the Netherlands⁴⁷. The gap between pedestrian safety in Victoria and the Netherlands is costing the lives of around 25 Victorian pedestrians each year.

The discrepancy between how Victoria compares internationally on motorist and pedestrian safety indicates that road safety programs need to shift their attention towards bringing Victoria’s safety performance for active transport up to world’s best practice. This can be achieved by improving facilities for cyclists and pedestrians to make active transport safer and more attractive. Consistent with the Netherlands experience, there is strong evidence that injury rates for cyclists decline with increasing levels of cycling in the community⁴⁸.

As shown in Figure 5.3, the probability of a pedestrian or cyclist suffering a severe injury in an impact with a motor vehicle drops dramatically below 40km/h⁴⁹. Major gains in safety have been demonstrated in cities that have adopted 40km/h speed limits in residential and built-up areas.

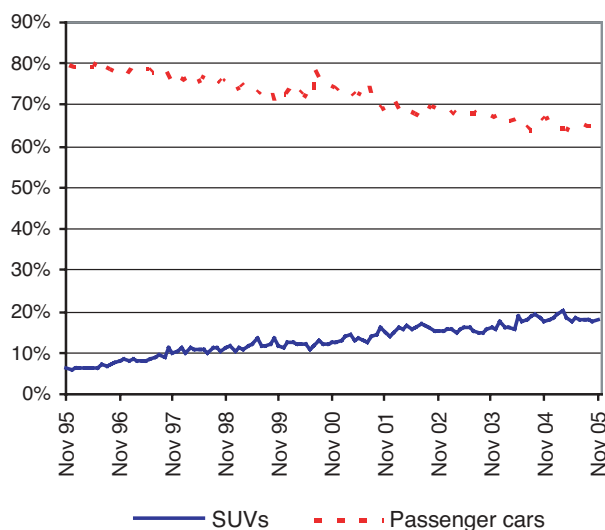
While pedestrian and cyclist safety appears to have benefited from lower urban speed limits, a separate trend is putting these gains at risk. Over the last 10 years, sales of Sports Utility Vehicles (SUVs) in Victoria have grown from around 5 per cent of the market to a peak of around 20 per cent of new vehicle sales (see Figure 5.4).

Figure 5.3: Probability of severe injury by age group



Source: Tharp (1976) cited in McLean et al. (1994)⁵⁰

Figure 5.4: Proportion of new vehicle sales in Victoria



Source: Australian Bureau of Statistics

Research has shown vehicles such as these to be more likely to be involved in a crash and to inflict greater damage on other road users than conventional passenger cars⁵¹. Their increased prevalence on urban roads therefore has serious implications for road safety. Furthermore, these large vehicles have higher fuel consumption than conventional cars, thus contributing disproportionately to greenhouse emissions and air pollution. Far from discouraging their use in urban areas, current Federal Government policy provides these vehicles with a price advantage due to lower import tariffs than those imposed upon smaller passenger cars.

Personal safety

While public transport users are less likely to be involved in a crash than car passengers, many people do not currently perceive the system to be safe. The level of perceived safety will be an important determinant of success in achieving the Government's goal of shifting 20 per cent of motorised journeys onto public transport by 2020.

Isolated railway stations have been ranked on surveys as one of the three most feared locations for Melbourne travellers. The removal of staff from the public transport system can be expected to deter would-be passengers because of such concerns. On the other hand, improvements in staff presence

will almost certainly increase patronage and revenue, and decrease fare evasion.

Another key solution to improving perceived and actual safety on public transport is increased patronage levels. Public transport should attract choice users, particularly off-peak and at night, to ensure that a broad cross section of the community is travelling together and providing passive reassurance to each other.

Service connections and frequencies should be improved so that waiting times are reduced. This would remove a major source of perceived vulnerability and also increase patronage by choice users through the provision of a more attractive service that is competitive with motor vehicle journey times.

The development of activity areas, such as convenience stores, video stores and restaurants, around public transport facilities will also help to make these facilities less isolated during off-peak periods.

Property crime

A large proportion of crimes against property occur when premises are unoccupied or unsupervised. When a neighbourhood is home to social interaction and activity, the opportunities for property crime are reduced. High levels of pedestrian activity provide passive surveillance and thus deter criminal acts. Established relationships with neighbours also help to distinguish suspicious activities from legitimate activities.

These factors – community connection, community life, pedestrian activity – are all harmed by high traffic volumes, as illustrated in the Participation section. Community safety can be enhanced by making our streets pleasant, inviting places to walk, talk and engage with our neighbours. Allowing cars to dominate our public spaces has the effect of turning people in-doors – away from their neighbours – and impoverishes local communities.

Further reading:

City of Gosnells (2001) *SafeCity Urban Design Strategy*.⁵²

6. Participation



Social inclusion

Participating in the community is good for people's health and for the health of the community⁵³. Yet lack of transport prevents many people from getting involved. In Melbourne around one third of the population cannot drive:

- 10 per cent of the population have no motor vehicle⁵⁴;
- 24 per cent of the population are under 18⁵⁵;
- 3 per cent are over 80, and may have stopped driving for safety reasons; and
- one in five have a disability that restricts their mobility.

The ability of this one-third of Melbourne to participate fully in economic and social life is directly related to the quality of public transport. However,

in many parts of Melbourne public transport is not available at the right time, or in the right locations for people to get around. Only 18 per cent of Melbourne's buses operate on Sundays and the average stopping time for buses is 7pm on weekdays and 5.15pm on Saturdays. For people unable to walk very far, the long distance from many residential areas to the nearest public transport stop prevents their travel.

Poor public transport also exacerbates social isolation among the elderly. Not being able to safely and easily access public transport prevents many frail elderly people and people with disabilities from using the system. Difficulty boarding and locating a seat contribute to at least five serious falls a week on the tram network. Lack of accessible features, such as ground surface indicators, have resulted in serious injury and death at train stations. Upgrades of public transport stops to meet Disability Discrimination Act 1992 Standards would reduce these accidents and increase access and ease of using public transport for everyone.

Research in the UK identified that:

- 31 per cent of people without a car have difficulties travelling to their local hospital;
- 16 per cent of people without cars find access to supermarkets difficult;
- 18 per cent of people without a car find seeing friends and family difficult because of transport problems.⁵⁶

These statistics are likely to be similar in Melbourne and will be most serious in the outer suburbs where the nearest shops and services can be many kilometres from people's homes⁵⁷.

Melbourne's bus services lag behind the frequencies and operating hours provided in other capital cities. As a result, the use of public transport in Melbourne's outer suburbs, which are predominately bus-dependent areas, is restricted.

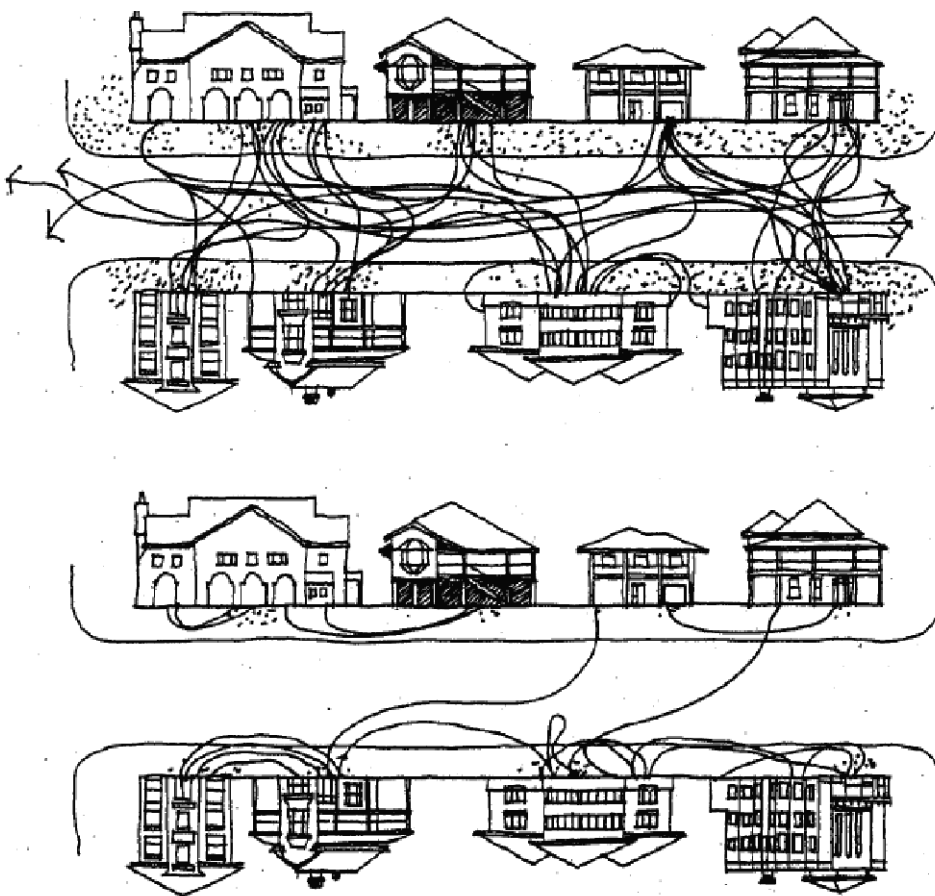
Neighbourhood connection

Social relationships have a range of economic and health benefits at both the individual and community level. Social capital is increasingly being recognised as a valuable asset for fostering prosperous and resilient communities. A great deal of social interaction can be incidental and occur in public spaces. Where public spaces are hostile to

pedestrians, social interaction can be inhibited, as demonstrated by Figure 6.1.

Residential amenity and neighbourhood connection both benefit from keeping traffic volumes and speeds relatively low and maintaining kerbside parking as a buffer so that the street remains an inviting place to interact with neighbours.

Figure 6.1: Effect of traffic on local social connection



Top: 2,000 vehicles per day: at relatively low traffic levels, residents engage freely with their neighbours, having on average 3 friends and 6.3 acquaintances in the street.

Bottom: 16,000 vehicles per day: with high traffic levels, social engagement is limited and residents have only 0.9 friends in the street and 3.1 acquaintances.

Source: Apleyard (1981) as reproduced in Engwicht (1992).⁵⁸

7. Mobility

The ability to cheaply access employment, services and recreation with ease is an important factor in assessing the liveability of an area. Well-designed communities and an effective public transport system are essential to the provision of sustainable and equitable mobility for all.

In any day, around 12 million trips are made around Melbourne with about 1 million of these made using public transport. Despite public transport's relatively small share of journeys compared to cities in Western Europe, congestion, pollution and road crashes would increase substantially if those journeys were made by car. For example, an 18 per cent increase in traffic volume on the Westgate Bridge over the past 10 years (exacerbated by poor public transport in the western suburbs) has slowed average traffic speeds by 240 per cent, demonstrating the major effect on traffic flow of relatively minor increases in traffic volume.

In terms of physical space occupied, people travelling during the peak on public transport take up a fraction of the space of drivers. A typical suburban railway, requiring a 10 metre wide reservation, could carry 40,000 people per hour, while a freeway requiring a 50 metre reservation could only carry around 12,000 people per hour. Public transport is also markedly cheaper than the full cost of car ownership and use. Overall, public transport is more efficient, more cost effective and creates fewer environmental externalities than car use.

Joined-up Government

Demand for transport (be it patronage of public transport or utilisation of road infrastructure) is a derived demand. The vast majority of travel is undertaken, not as a result of any inherent pleasure gained from motion, but to get from a point of origin to the location of employment or social activities. Therefore, land-use planning and policy is a key driver of transport practices. Where land-use and transport policy complement each other, higher levels of effective mobility can be achieved with smaller quantities of travel. International research has confirmed the importance of integrating land-use planning and transport policy to ensure mobility whilst minimising traffic volumes.⁵⁹



Congestion

Australian and international research proves that increasing road capacity encourages additional motor vehicle traffic. This generated traffic includes additional journeys of relatively low marginal value and existing journeys shifted from other modes including active and public transport. In time, generated traffic fills the additional road capacity and raises congestion back to the levels that existed previously. Therefore, attempting to reduce congestion by increasing road capacity is both self-defeating and contrary to the Government's goal of doubling public transport's share of motorised journeys. The only reliable means of minimising congestion, whilst maximising mobility, is to offer people an attractive alternative to driving. In practical terms, this means a public transport network that is extensive in coverage, well-integrated, frequent, reliable and well-publicised⁶⁰.

Oil intensity

While the oil intensity (i.e. oil consumption per unit of GDP) of the Australian economy has decreased to some extent over the past 30 years, it remains significantly above the OECD average. There have also been only negligible improvements in passenger vehicle fuel consumption. As the balance between global supply and demand for oil tightens and projections for future oil prices remain well above historical averages, the development of less oil-dependent transport patterns has become crucial to Victoria's economic and social sustainability. Table 7.1 below synthesises a range of opinions on possible future oil prices from industry analysts.

Table 7.1: Projected oil prices

Year	Oil price (US\$/barrel)
2005	\$55
2006	\$61
2007	\$70
2008	\$80
2009	\$90
2010	\$101

Source: VTPI - *Appropriate Response to Rising Fuel Prices*⁶¹

Experts predict that global oil production is likely to peak sometime in the next 10 years resulting in even sharper oil price rises than those indicated above.⁶² It is therefore imperative that Government policies encourage less car-dependent land-use patterns and energy efficiency.

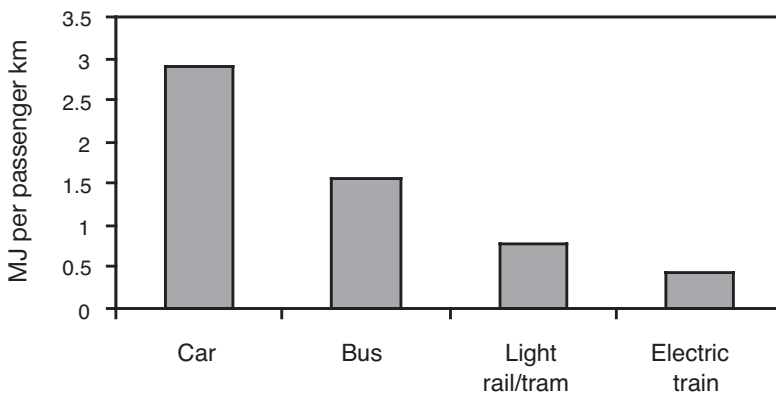
Public transport is more energy efficient than the use of private vehicles (see Figure 7.1). It is also more flexible in the source of primary energy, especially in the case of grid-connected rail, thus maximising mobility while also minimising the oil intensity of the transport sector.

The importance of rail

While buses clearly have a vital role to play in public transport provision, an extensive rail network is a key component in any efficient public transport system. Some of the advantages with rail-based transport solutions include:

- cities with large rail systems tend to suffer from lower congestion costs than similar-sized cities with smaller rail networks;
- rail systems tend to attract a higher proportion of choice passengers and have higher rates of cost recovery;
- heavy rail systems have higher capacity and smaller environmental footprints than road-based measures;
- rail systems are able to access the electricity grid and can therefore use a wide variety of primary energy sources including renewables; and
- train stations are able to catalyse higher density, mixed-use development that reduces the need to travel and fosters the cafes, restaurants and other activities that enhance cultural life.

Figure 7.1: Land transport energy consumption



Source: Newman, P. (2000) *Sustainable Transportation and Global Cities*⁶³

Balanced transport policy

Opponents of increasing the role of public transport often make appeals to the concept of ‘balanced’ or ‘integrated’ transport policy⁶⁴. While the idea of a balanced approach seems superficially reasonable, Figure 7.2 demonstrates that these proponents of a ‘balanced’ transport policy have a rather unconventional understanding of the term ‘balance’.

A Government that is serious about doubling public transport’s share of motorised journeys and making up for decades of almost exclusive emphasis on road infrastructure would be expected to have a somewhat different view on the appropriate ‘balance’ than that shown below. Meanwhile, two thirds of Melbourne lies beyond the reach of the current rail network.

Further reading:

PTUA (2005) *Submission to VCEC Congestion Inquiry*.⁶⁵

Environment Victoria (2005) *Submission to VCEC Congestion Inquiry*.⁶⁶

PTUA (2005) *Five Years Closer to 2020*.⁶⁷

Figure 7.2: Balance between road and rail expansion in Melbourne

Major road expansion projects			Rail expansion projects		
<i>Current</i>	<i>\$million</i>		<i>Current</i>	<i>\$million</i>	
Eastlink	2,600		Craigieburn electrification	100	
Deer Park bypass	331				
Pakenham bypass	242				
Greensborough bypass	17				
Tullamarine/Calder	150				
Total Current	\$3,340		Total current	\$100	
<i>Past 10 years</i>			<i>Past 10 years</i>		
Western Ring	1997	631	Sydenham	2002	44
Northern Ring	1999	770	Docklands tram loop	2003	2
Citylink	2000	2,000	Box Hill tram	2003	28
Hallam bypass	2003	165	Docklands Dr tram	2005	8
Craigieburn bypass	2005	306	Vermont South tram	2005	43
Total past 10 years	\$3,872		Total past 10 years	\$125	
Total past & current	\$7,212		Total past & current	\$225	

8. Employment and income

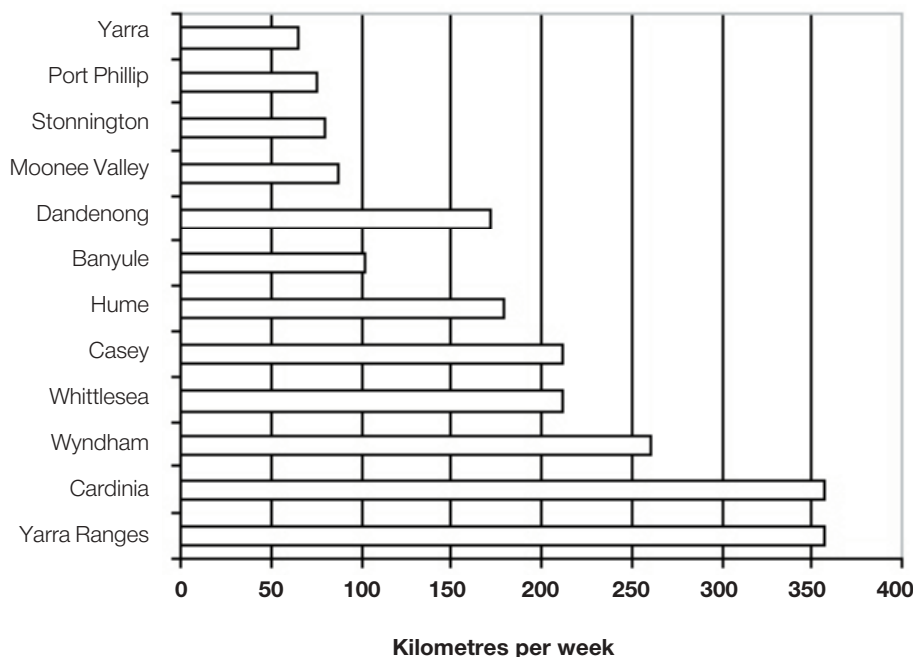
From an economic perspective, employment is the most important quality of life component because it provides the economic base for people's lives. A low disposable income can lead to a deprived quality of life because it is a barrier to acquiring adequate housing, better health and education, and participating in entertainment and other social activities. Employment is also a means for people to develop social networks and be involved in society.⁶⁸

Melbourne has long enjoyed a robust and diverse economy with unemployment lower than the national average. However, employment opportunities in the city are not evenly distributed with 80 per cent of jobs growth in the core area. Households on the urban fringe must travel further than their inner suburban counterparts to access employment. Poor public transport means many of these trips are taken using the car, creating a significant cost burden for outer suburban residents. Figures 8.1 and 8.2 below illustrate the average distance travelled in a week, and the associated costs of getting to employment for residents of key inner and outer areas of Melbourne.



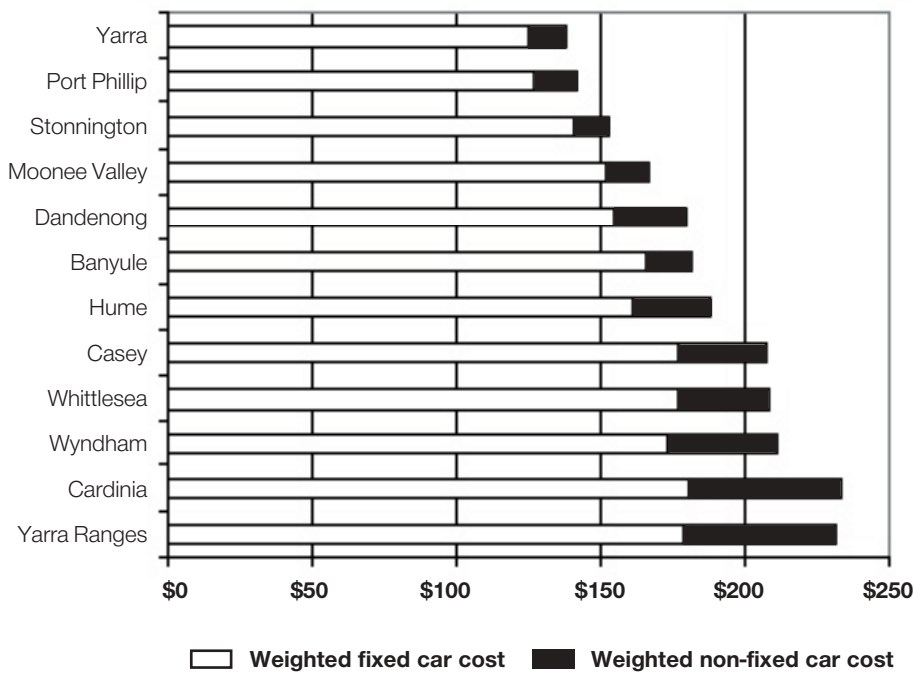
Due to the poor availability of public transport in outer suburbs, households in these areas have, on average, one additional car compared to inner-

Figure 8.1: Average work travel distance per person for various Melbourne municipalities



Sources: DSE, RACV and Australian Greenhouse Office

Figure 8.2: Average work travel costs per person for various Melbourne municipalities



Sources: DSE, RACV and Australian Greenhouse Office

city households. As well as running costs, the requirement to run an additional car adds around \$50 per week in fixed costs of ownership (e.g. depreciation, registration, insurance, etc) for a second-hand car.

Poor public transport is a major factor that reduces the opportunities of young people on the outskirts of Melbourne. Compared to the Melbourne average, these young people are 7 per cent more likely to be unemployed.⁶⁹

Productivity

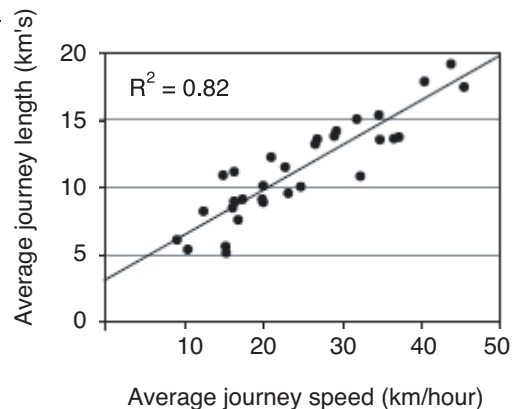
Most members of the workforce must travel to and from work each day. Consistent with travel patterns around the world and over many years, most people spend about an hour a day commuting.⁷⁰ Far from saving time, modern high-speed road networks have simply increased travel distances, and hence generated additional traffic, pollution, greenhouse emissions and sprawl (see Figure 8.3).

Australian research is now showing that many fathers spend more time commuting than with their family⁷².

In addition to travel time, the ownership and operation of motor vehicles consumes a significant portion of earnings. When the time required to earn

this income is added to work travel times, workers spend a large portion of their lives commuting and earning money to pay for work travel. For example, the cost of running a medium-sized car can consume around one quarter of the income earned by a worker on average weekly earnings, thus adding about 10 hours to the effective commuting time each week.

Figure 8.3: Average journey length vs. average journey speed for the journey-to-work in 31 international cities (1990)



Source: Zeibots (2003)⁷¹

Notably it is the ownership or standing costs – e.g. depreciation, finance, registration, insurance – that form the bulk of this cost, with fuel prices having a relatively minor impact on total travel costs in comparison (see Table 8.1).

Table 8.1: Weekly car costs (average medium car)

Petrol price per litre	99.5c	\$1.30	\$1.60
Standing costs	\$140	\$140	\$140
Operating costs	\$46	\$55	\$63
Total costs (\$/week)	\$186	\$195	\$203
Per cent of average weekly earnings (Vic)	23%	24%	25%

Sources: RACV, Australian Bureau of Statistics

Commuters in Melbourne are more likely to drive to work than their European counterparts, hence many workers must spend more time away from their families to support their car dependency. The most common reason for Australians not using public transport is the poor quality or absence of public transport alternatives.⁷³ In an age when many people are seeking a more family-friendly work-life balance, inadequate public transport is another barrier to achieving this goal.

In addition to the time cost, research has demonstrated that employees who travel to work by public transport rather than battling peak hour

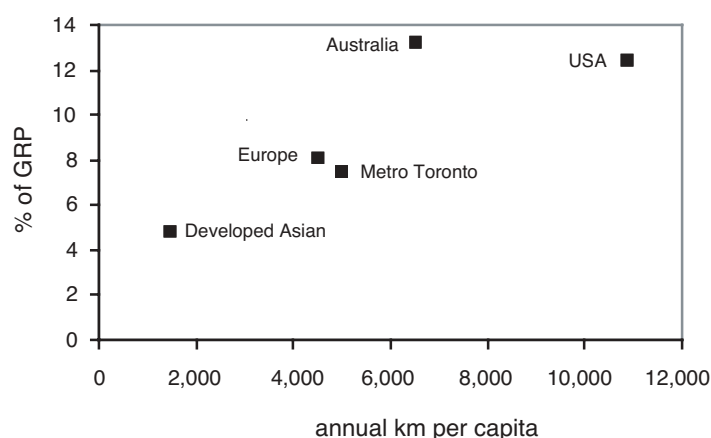
traffic are more productive and suffer from fewer absences.⁷⁴ When the health benefits of active transport are also considered, car dependency begins to look like a liability for employers.

Economic impacts

Calls to expand the road network frequently make reference to supposed economic benefits from road spending. A significant body of research shows that the expected benefits are frequently overstated or do not emerge at all⁷⁵. For example, any hoped-for reductions in congestion are quickly cancelled by generated traffic that is attracted by the new road capacity (see *Mobility* section).

Any claims of economic benefits for local communities are also dubious.⁷⁶ On top of the economic impacts of externalities discussed in the *Health* and *Environment* sections, a transport system focussed on car-use is very expensive. When Government expenditure on catering for cars is added to consumer expenditure on maintaining and operating cars, the aggregate spending can consume a large proportion of a region's income. Despite significantly lower fuel taxation, Australian and U.S. cities tend to spend a larger proportion of their income on transport compared to European cities where public transport is a more highly developed alternative. At over 13 per cent of Gross Regional Product (GRP), transport expenditure in Australian cities exceeds that of other developed cities, including those in Europe.

Figure 8.4: Car travel & transport expenditure



Source: Newman, P. (2000) *Sustainable Transportation and Global Cities*.

In addition to the high level of transport expenditure in car-dependent cities, a large proportion of this expenditure is funnelled out of the local area, with an increasing share going off-shore, as Australia's self-sufficiency in oil production continues to dwindle⁷⁷.

This drain on local income reduces the amount that can be spent on local goods and services with higher local employment content and economic multipliers (see Table 8.2).

Table 8.2: Estimated jobs creation from \$1 million expenditure

Expenditure category	Jobs
Petroleum	4.5
General automotive	7.5
General consumer goods	10-15
Public transit	21.4

Source: VTPI - *Appropriate Response to Rising Fuel Prices*⁷⁶

As discussed in the Mobility section, cities with large rail systems suffer less from congestion than comparable cities without such systems and rail tends to have a higher rate of cost recovery than other forms of transport. There is strong evidence that the "creative class" and highly mobile workers of the global information economy value the provision of subway and rail transportation as a key component of any city that aspires to be world-class⁷⁹. Many of the highest income cities in the world have high rates of public transport use and relatively low provision of roadway compared to Melbourne.

Further reading:

Scheurer, J. et al. (2005) *Most Liveable and Best Connected*, MTF.⁸⁰

VTPI (2005) *Economic Development Impacts*, *TDM Encyclopedia*.⁸¹

9. Education

Good quality education is one of the key drivers of employee productivity and fundamental to gaining entry to and progressing within the workforce. Practical support for education is necessary to give substance to the Government's National Reform Initiative that aims to boost productivity and participation.

Poor public transport is a major factor that reduces the opportunities of young people on the outskirts of Melbourne. Compared to the Melbourne average, these young people are 23 per cent more likely to drop out of high school and 31 per cent less likely to attend university.⁸²

Many young people describe significant barriers to participation in the education system due to inadequate transport⁸³. This problem can be exacerbated by infrequent, absent or poorly integrated after-hours services between home, the educational institution and places of part-time employment that are helping to finance further education. Many TAFE colleges in particular are poorly serviced by public transport.

Students in the earlier years of their education are increasingly being driven to school rather than walking or riding⁸⁴. While this is often an understandable response to heightened fears of child abuse and escalating traffic volumes on the route to school, a vicious circle has been initiated that has seen more parents enclosing their children within the family car and adding to the volume of traffic performing the daily school run. The level of



traffic congestion on school mornings compared to that during school holidays is a testament to this phenomenon. Simultaneous with this increased use of "mum's taxi", we are seeing climbing rates of obesity among our children with serious consequences for self-esteem and educational performance.

The trend away from active and public transport for journeys to school is intensified by the trend towards larger, more centralised schools and away from a presumption of attendance at the nearest Government school. The public transport system, with its current lack of integration across modes or provision for non-radial journeys, has failed to serve these more disparate travel needs and active transport has not filled the void for the reasons given above.

10. International Comparisons



How does Melbourne rate?

While the loss of the top position on the Economist Intelligence Unit (EIU) liveability survey is quite recent, Melbourne has always tended to fare less well in the Mercer Quality of Living Survey⁸⁵. The most recent Mercer survey reaffirmed Melbourne's place somewhat outside the top 10 most liveable cities (see Table 10.1).

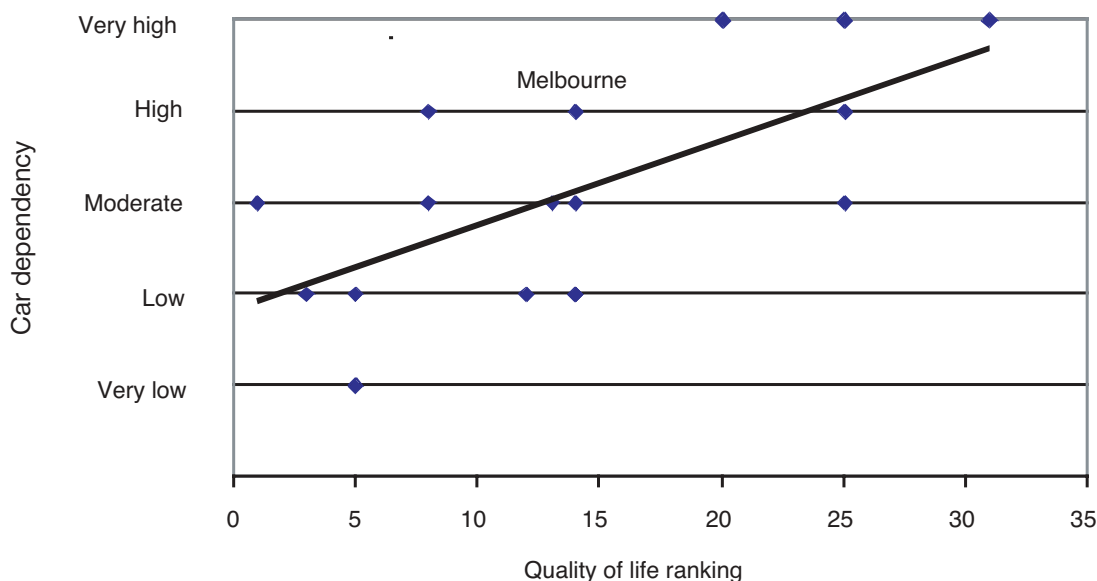
As shown in Figure 10.1, there is a relationship between city ranking and the level of car dependence at the top of the Mercer survey. Virtually all of the cities ranked more highly by Mercer have lower levels of car dependency than Melbourne, and none of the more highly ranked cities are more car-dependent.

Table 10.1: City Liveability Rankings

City	EIU ⁸⁶	Mercer
Geneva	2	1
Zurich	5	1
Vancouver	1	3
Vienna	2	3
Dusseldorf	n/a	5
Munich	n/a	5
Frankfurt	11	5
Bern	n/a	8
Sydney	5	8
Copenhagen	11	8
Auckland	20	8
Amsterdam	n/a	12
Brussels	20	13
Melbourne	2	14
Toronto	5	14
Stockholm	11	14
Berlin	20	14
Wellington	20	14
Perth	5	20
Montreal	16	22
Adelaide	5	25
Calgary	5	25
Helsinki	11	25
Hamburg	16	25
Brisbane	11	31

Sydney and Auckland (both ranking eight on the Mercer scale) are the only cities ranked higher than Melbourne that are as car-dependent. Famous for its lifestyle attractions and favourable climate, one of Sydney's key flaws is its notorious public transport system which has negatively affected its ranking. In recognition of this failing the NSW Government has announced an \$8 billion expansion of the suburban rail network. Similarly Auckland rates well in many areas, however poor public transport and traffic congestion weaken its performance.

Figure 10.1: Quality of life and car dependency in the world's most liveable cities



Sources: Mercer (2005); Newman & Kenworthy (1989)⁸⁷

Despite being home to a major car industry, Munich (ranked fifth) has “invested heavily in efficient inter-modal public transport systems”.⁸⁸ As a result, the city is regarded as having very low auto-dependence.⁸⁹

In contrast to Melbourne’s version of ‘balanced’ transport policy (see Mobility section), Vancouver (ranked equal 3rd with Vienna) allocates over two thirds of its transport expenditure to public transport infrastructure and vehicles. Over 30 per cent of trips in Vienna are made on public transport, and the city plans to increase this to 40 per cent by embarking on a \$2.7 billion expansion of the rail network.

Geneva and Zurich perform well in both surveys, with Zurich consistently first in the Mercer study. Both cities have efficient and tightly integrated public transport systems that attract a very high share of journeys compared to Melbourne. Geneva is also embarking on a \$1.1 billion program to better integrate its rail network, while Zurich is expanding the capacity of its rail network at a cost of \$2.1 billion.

Hints on liveability

Given the impact of transport choice on the environment, health, housing, safety, participation, mobility, employment and education, it should not be surprising that the cities that perform best in international surveys of liveability are those that prioritise sustainable transport over car-based approaches. Well-integrated public transport networks, that offer a reliable and time-competitive alternative to the car, are able to minimise congestion, pollution and road trauma. They also ensure mobility for both driving and non-driving citizens. Cities with dysfunctional public transport systems suffer excessively from congestion and pollution and are correspondingly ranked lower than their international peers.

Further reading:

Scheurer, J., Newman, P. & Kenworthy, J. (2006) *Melbourne’s Future Transport Options*.⁹⁰

11. Delivering liveability



In order to ensure Melbourne's future liveability, the Bracks Government must:

Action 1: Make major investments in public transport infrastructure

Two thirds of Melbourne does not currently have easy access to the rail network. This must be rectified by making major investments in public transport infrastructure. These should include rail extensions to Rowville, Doncaster and South Morang and electrification to Baxter and Sunbury. Public transport interchanges should be constructed in growth suburbs and at major activity centres.

The government is to be congratulated on the reintroduction of passenger rail services to Ararat and Bairnsdale, and should upgrade the track to allow the reintroduction of rail services to other regional centres such as Leongatha and Mildura.

Action 2: Establish a single budget for all transport modes

A single budget should be established for all transport modes including roads and public transport. Funds should be invested as needed for the greatest social, economic and environmental benefits.

Action 3: Redesign Melbourne's public transport system

Melbourne's public transport system should be redesigned into a functioning integrated network, offering regular services across the entire metropolitan area. A lean, accountable public agency, modelled on the Zurcher Verkehrsverbund, should manage our public transport and make all strategic, policy and timetable decisions. Private operators should merely deliver the service.

Tram routes should be extended to better integrate with the train network and a 10 minute minimum service frequency should be provided on all metropolitan tram and train lines. Frequent bus services should be provided until midnight, seven days a week

Greater synergy between active and public transport should be sought by improving bicycle parking facilities at train stations and other transport interchanges, and pursuing options to facilitate greater use of bicycles in conjunction with public transport

Action 4: Give public transport vehicles priority

Road-based public transport should be freed from the growing traffic congestion which is slowing it down and making it less attractive to would-be users. Trams and buses should be provided with priority at traffic signals and with road space to ensure travel times that are competitive with private cars. This will encourage motorists to switch modes and thereby reduce congestion.

Action 5: Improve safety and accessibility of public transport

Public transport infrastructure needs to be upgraded for easier and safer use. There needs to be an accelerated introduction of low floor vehicles and upgrades of bus and tram stops, train stations and pedestrian walkways.

Staffing levels should be boosted for both customer service roles and transit police across the system and across all hours of operation. All passengers should be able to travel with the expectation of a safe journey and the strong likelihood of having their ticket checked. Recruitment practices and training should be strengthened for enforcement staff to enhance the travel experience for all passengers and minimise physical confrontations.

Action 6: Seek greater support for sustainable transport policies across all tiers of Government

Transport and land-use planning should be closely integrated to ensure coherent policy outcomes given the strong relationships between land-use and travel.

The State Government should also engage with local councils to ensure public transport priority and accessibility measures can be undertaken without inconveniencing public transport users or pedestrian amenity.

The State Government should continue to advocate for reform of Commonwealth tax policies that encourage additional traffic, such as Fringe Benefits Tax provisions, or that provide import tariff advantages to classes of vehicles that have inferior fuel efficiency or safety performance, such as four wheel drives.

The Government should also continue to advocate for the broadening of Commonwealth funding mechanisms such as AusLink to include public

transport improvements and incorporate more rigorous social and environmental considerations in funding criteria.

The State Government should implement measures to encourage greater use of active and public transport by members of parliament, their staff and across the public sector. Such measures would allow the Government to lead by example in reducing both traffic congestion and transport energy consumption.

Action 7: Restructure country bus services

The Government should better utilise available resources by fully integrating school buses and community transport with metropolitan and regional public transport systems. This would create more extensive and higher frequency intra-and-inter-regional networks of passenger services.

Action 8: Make roads safer for all users

The safety of pedestrians and cyclists should be improved by increasing the provision of facilities such as cycle lanes, paths, traffic islands and more responsive traffic lights.

The safety of motorised and non-motorised road users alike should be enhanced by embarking on a widespread program of bicycle-and-bus-friendly traffic calming works.

The understandable fears of the parents of school children should be addressed by implementing a state-wide program to expand the walking and riding school bus programs to all schools.

Action 9: Stop the roll-out of new freeways and major urban road projects

The Government's target of shifting 20 per cent of motorised journeys onto public transport by 2020 means that there will be less traffic in 2020 than there is now. Therefore the Government can safely cease the construction of major roads for the next 15 years. A similar moratorium on freeway construction in Vancouver has seen the city anointed as the single most liveable city in the world ahead of Melbourne. While some local roads in the urban fringe may need improvement, good quality public transport and provision for walking and cycling would minimise the impacts of traffic congestion in these areas.

Endnotes

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