

# Department of Transport

**Presentation to the Parliamentary Inquiry into  
Environmental Design and Public Health  
6<sup>th</sup> September 2011**



**Michael Hopkins and Robert Pearce**

Department of Transport



# Presentation structure

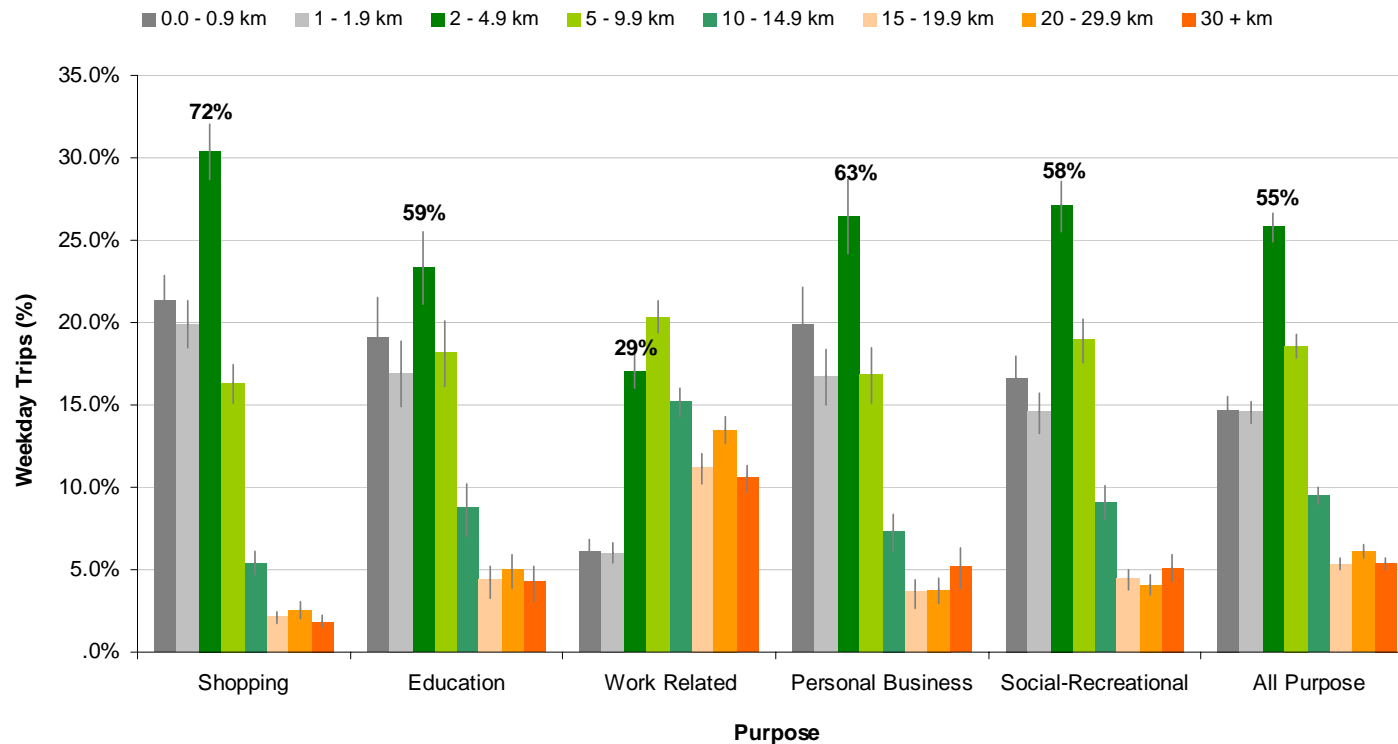
- **Transport, travel patterns and public health – Michael Hopkins**
  - Overview of travel patterns
  - Public transport
  - Car use
  - Potential to increase active transport
  - Health and motivation to use active transport
  - Health and safety outcomes
  - Trends in active transport and well being
  - Supportive environments – Principal Bicycle Network / Principal Pedestrian Networks
- **Transport, legislative framework and governance –Robert Pearce**
  - Governance for walking – who is responsible?
  - Governance for cycling – who is responsible?
  - Interface bodies under the TIA
  - The Transport Integration Act 2010
  - Transport in planning decisions

Transport, travel patterns and public health

# Overview of Travel Patterns

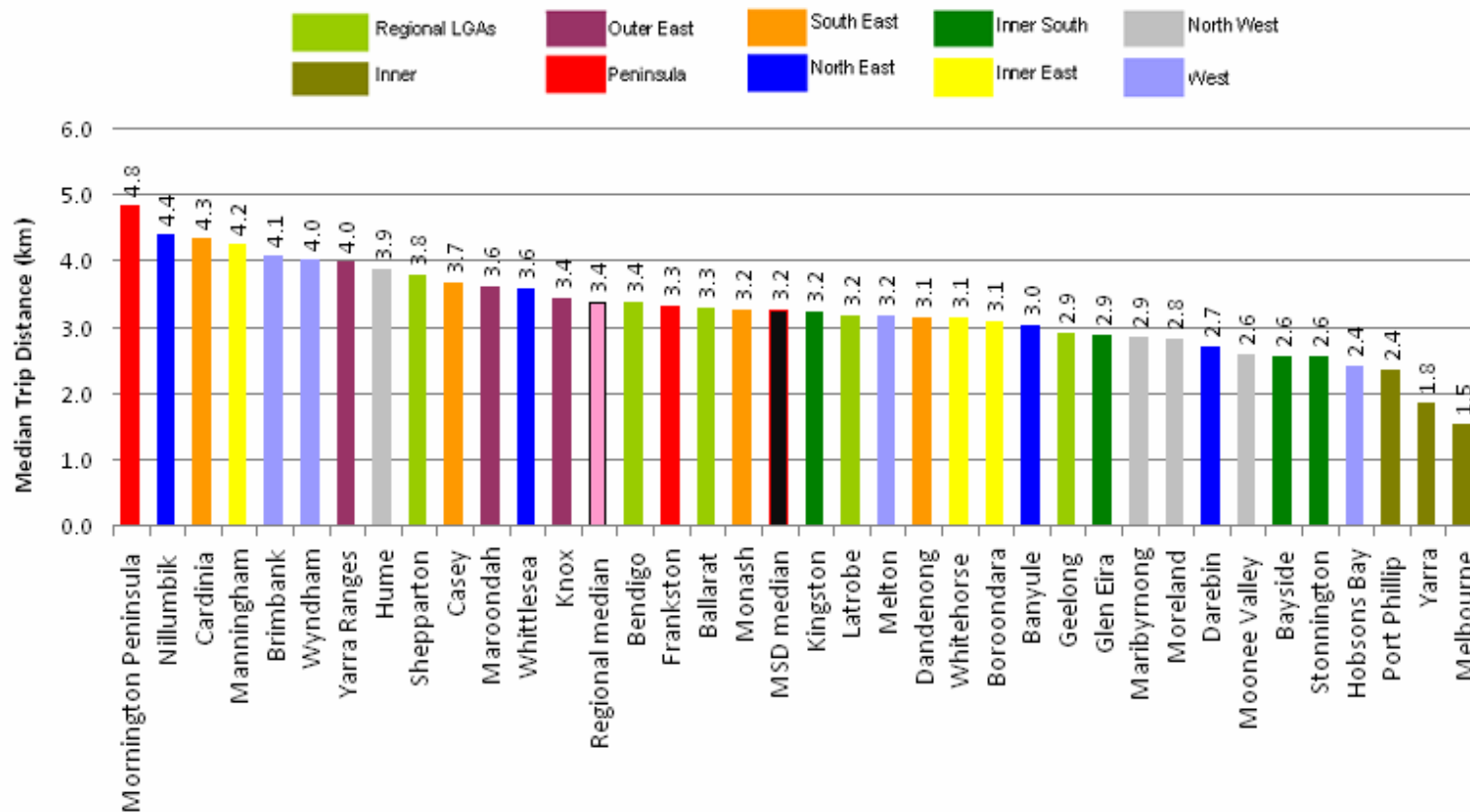
# A large number of short transport trips are made in Victoria.

Average Weekday Trips by Purpose and Distance



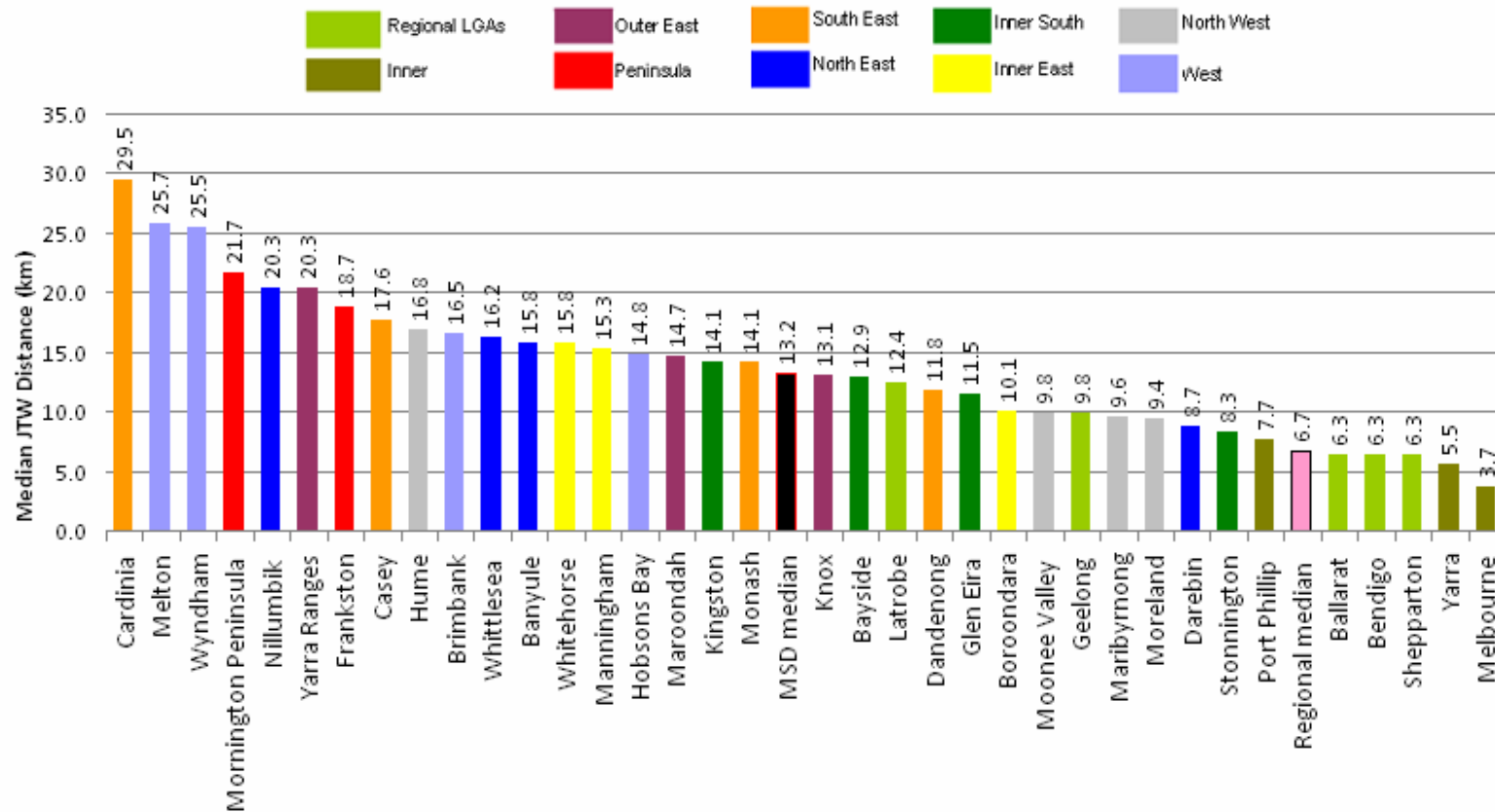
Average Weekday Trips by Purpose and Distance (Source: VISTA 2009) Note: figures above dark green columns reflect percentage of trips < 5 kilometres.

# Trip lengths tend to be longer in outer areas than in denser inner areas of Melbourne



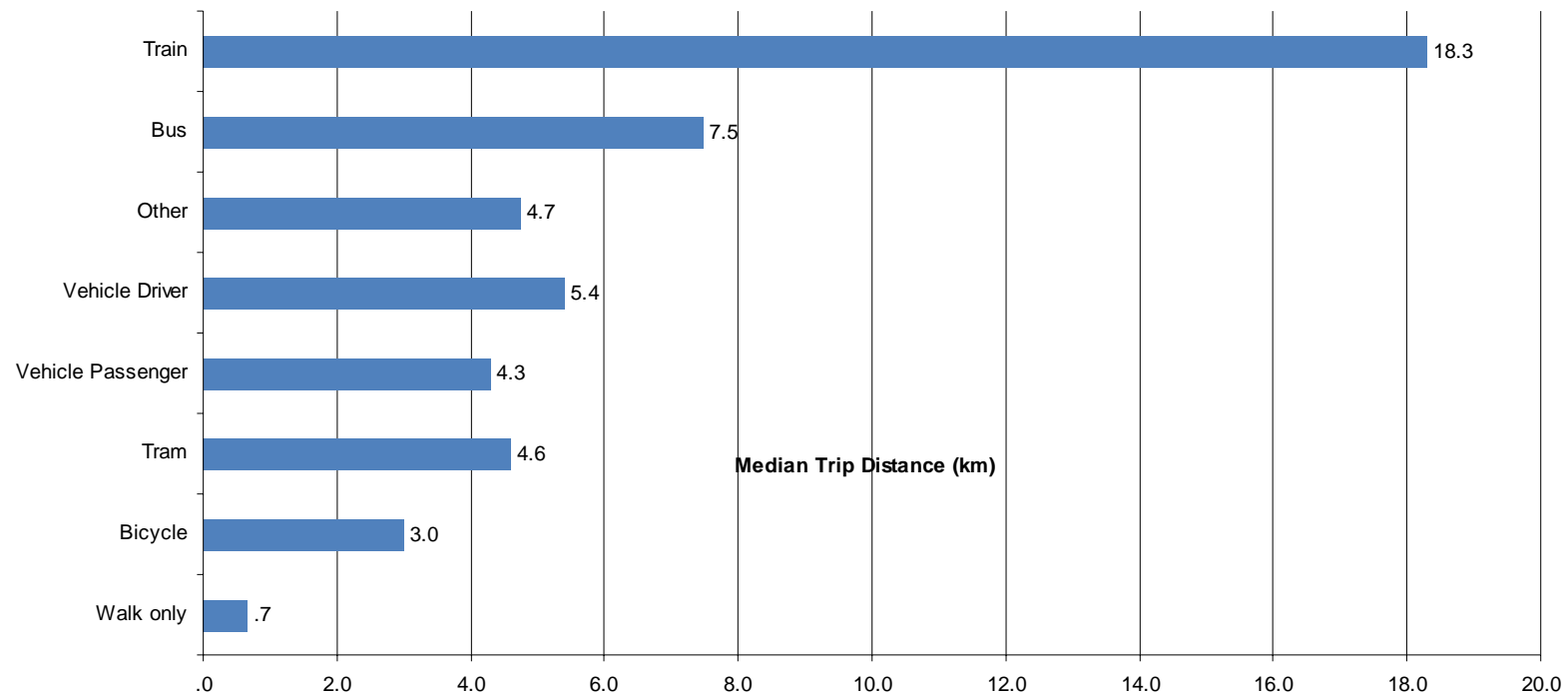
Journey to activities other than Work – Median Distance – Melbourne Metropolitan Area  
(Source: VISTA 2009)

# People travel further, generally, to get to work than for other purposes



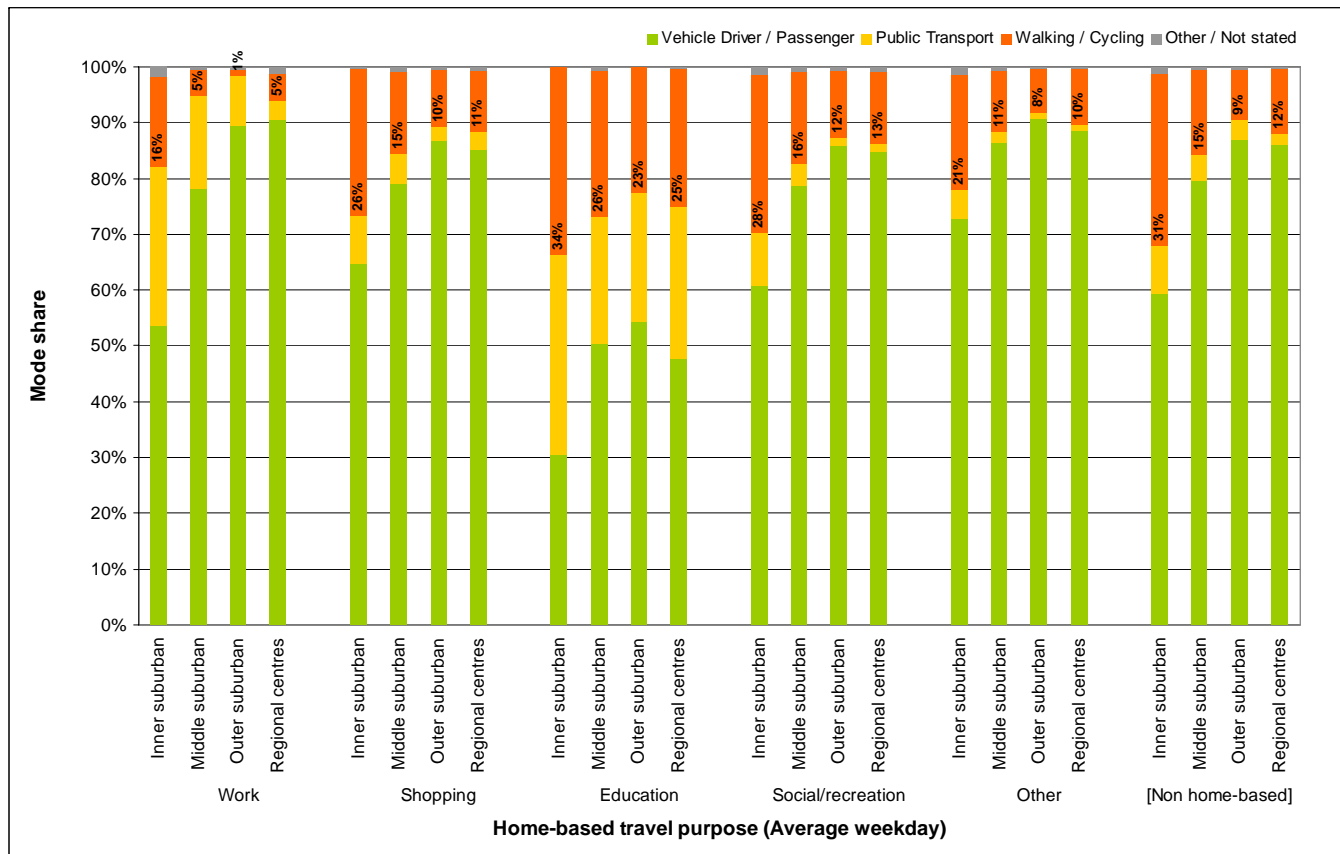
Journey to Work – Median Distance, (Source: VISTA 2009)

## Median distance for private vehicle trips is around 5km



Median Trip Length by Mode – Metropolitan Melbourne (Source: VISTA 2009)

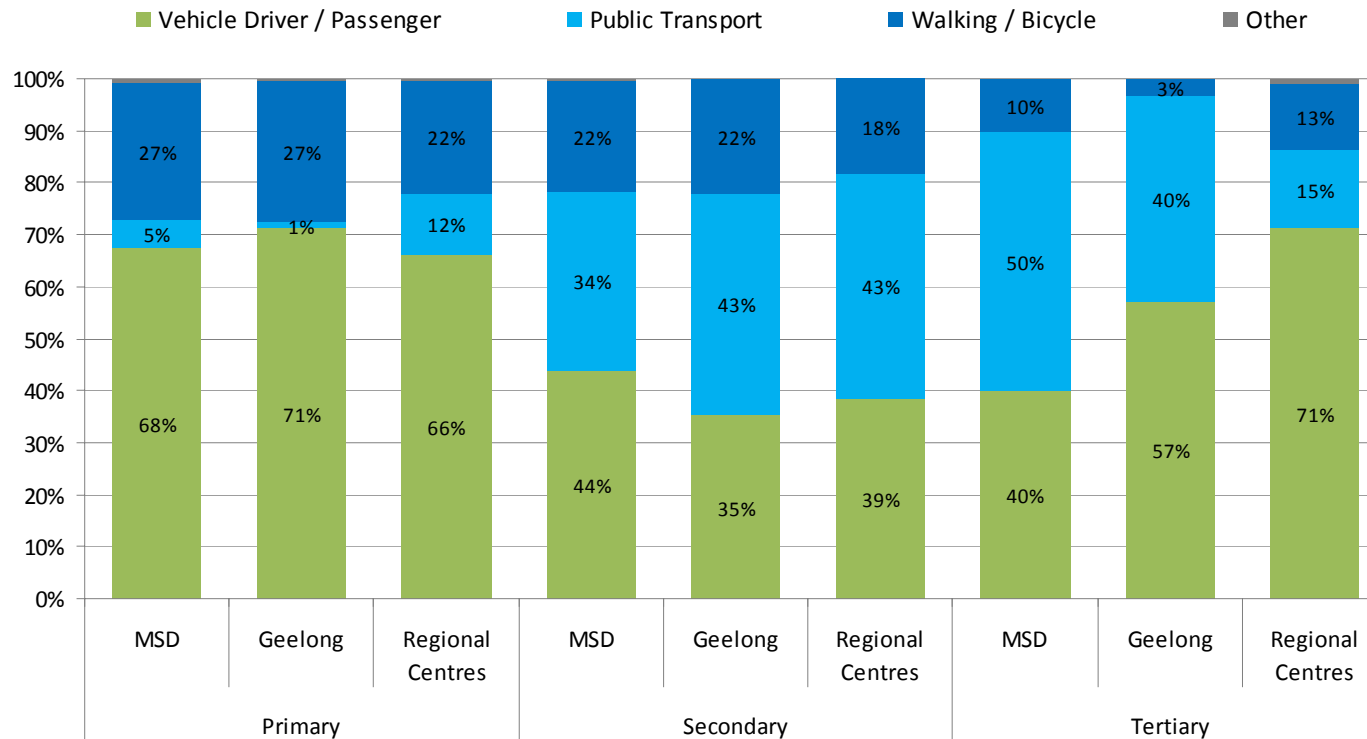
# People walk or cycle more often to get to...





## More than two-thirds of primary students are driven to school

Journeys to primary school have the highest mode share of walking at around 25%, as most primary school children attend a local school (64% of children enrolled at a school less than 2 kilometres from home). Despite this, around 68% of primary school children are driven to school



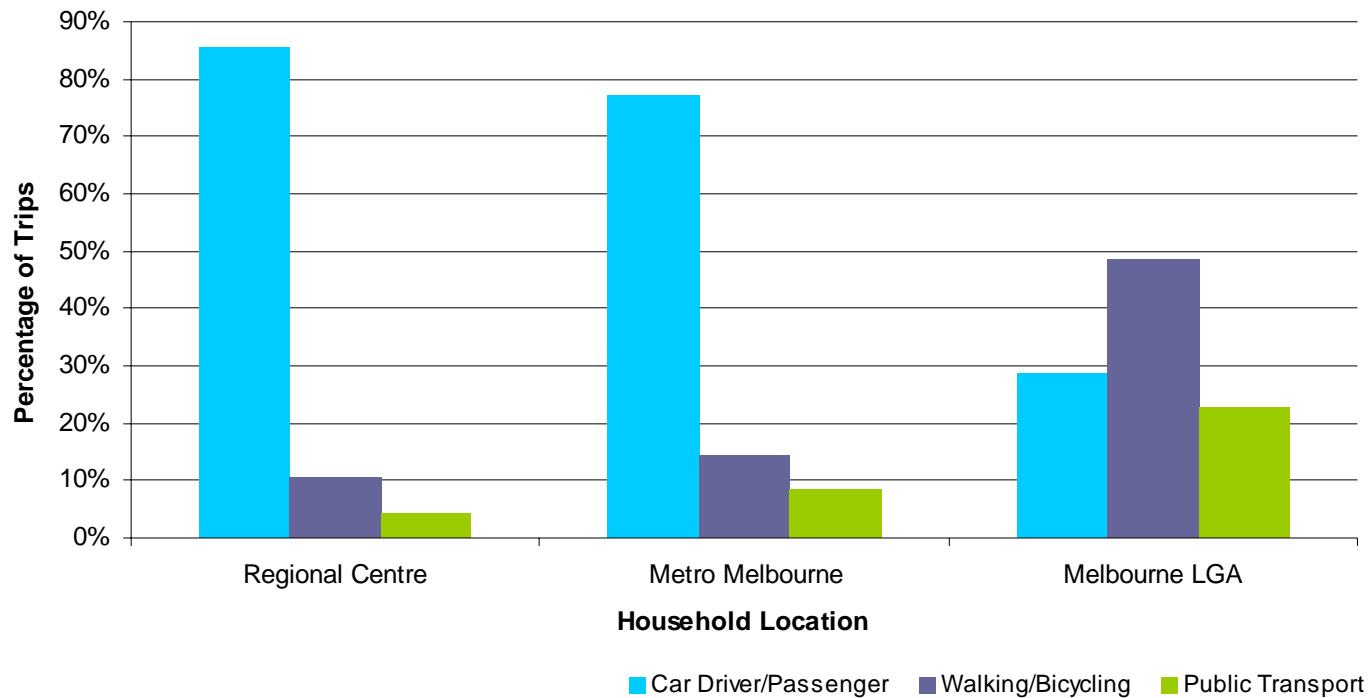
Journey to Education – Main Method of Travel (Source: VISTA 2009)

## Walking to school has decreased over the years

- Victorian children's walking and cycling levels have dropped in recent decades. In Melbourne in 1970, 55.3 percent of young people walked to school or higher education compared with only 22.2 per cent in 1994. Across Victoria during the same period, walking to education fell from 35.4 per cent to 15.9 per cent – while car travel increased from 16.5 per cent to 43.9 per cent. This downward trend in walking to school is reflected across Australia.
- Travel distance is the strongest and most consistent predictor of active travel to school; with population density (within 800 metres of the school) and smaller schools also associated with higher active travel rates (Davison et al 2008). However, *perceptions* of feasible walking and cycling distances vary, and may be influenced by active travel behaviour (Ziviani et al 2006).
- In countries with high rates of active travel to school, many students walk and cycle greater distances than considered feasible in countries such as Australia and the US (van Dyck et al 2009). These differences indicate that perceptions of feasible walking and cycling distances to school are shaped by cultural, environmental and policy factors (eg social norms of travel behaviour, walking and cycling infrastructure, urban speed limits).

Dr J Garrard. *Active Transport: Children and young people, an overview of recent evidence.*  
For VicHealth, December 2009

People are most likely to walk or cycle and use public transport in inner Melbourne and least likely to walk or cycle in regional Victoria



Mode Share of Travel Based on Number of Trips (Source: VISTA 2009)

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# Public Transport

## People using public transport are more likely to meet the recommended levels of daily physical activity

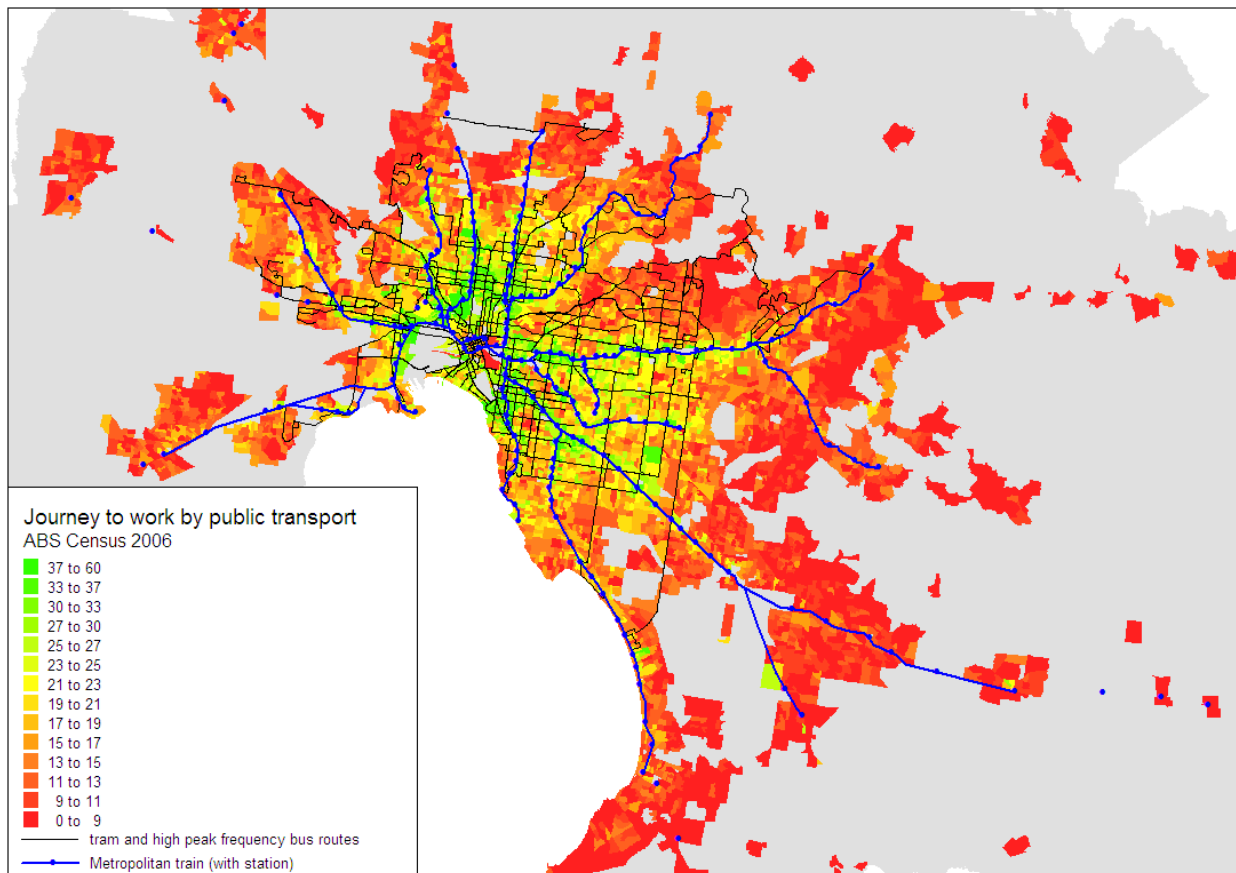
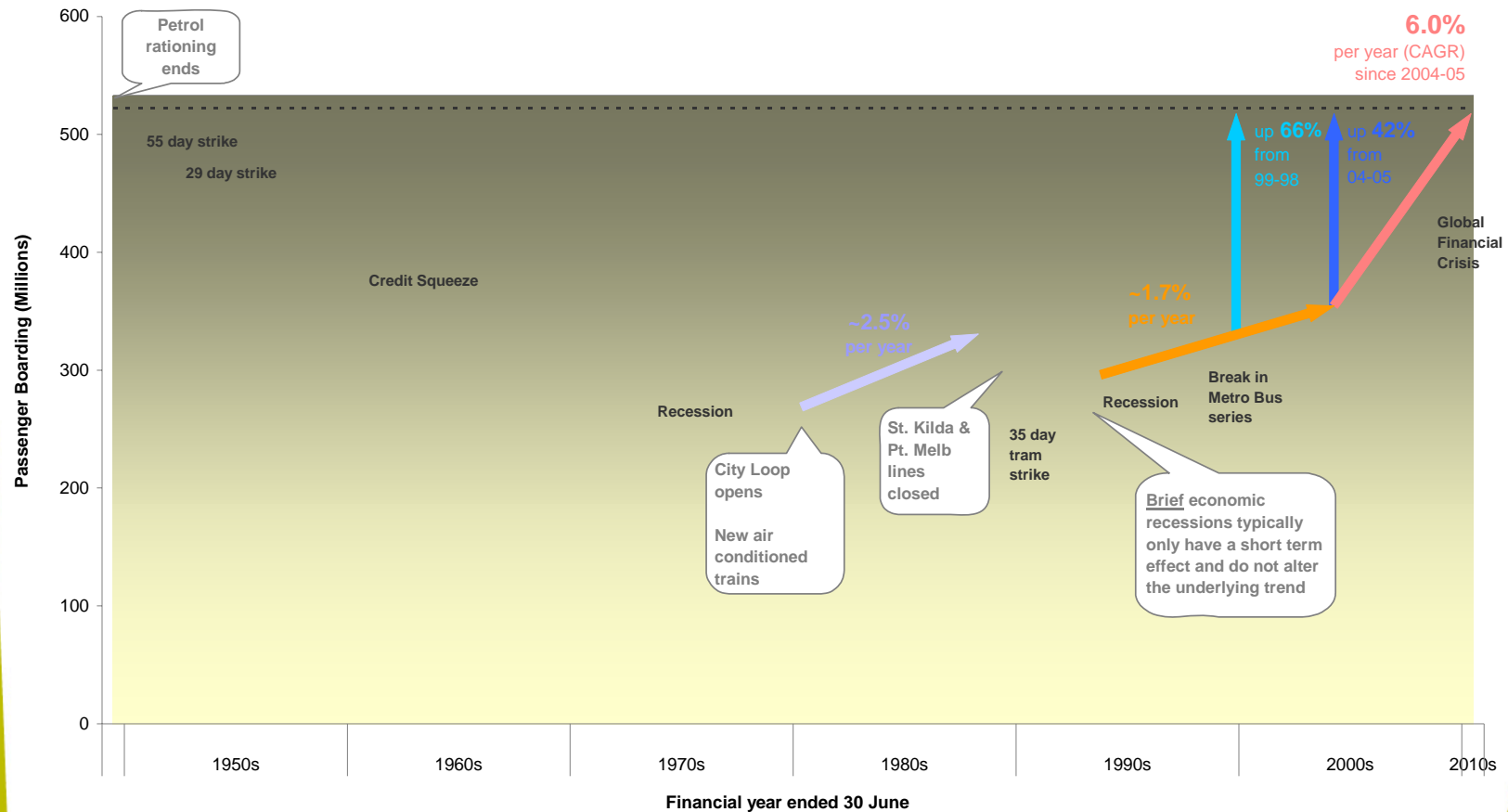


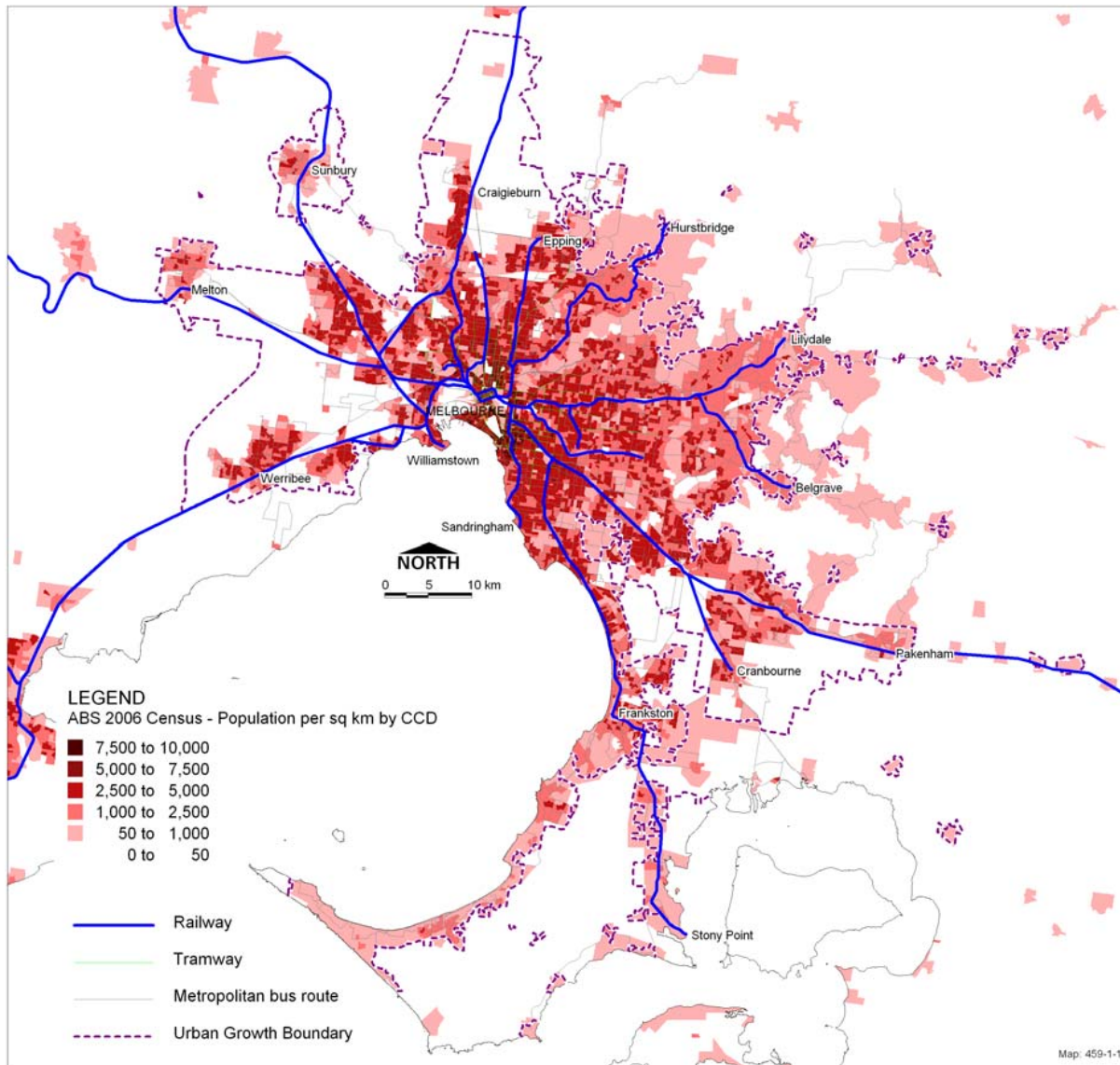
Figure 24: Public transport mode share for journey to work by origin (Source: ABS Census 2006, via [chartingtransport.wordpress.com](http://chartingtransport.wordpress.com))

# Public transport use has grown strongly from around 2004-05

Total Metropolitan Patronage since 1949-50



\* 2010-11 forecast outturn based on quarterly trends prior to the GFC adjusted for calendar effects



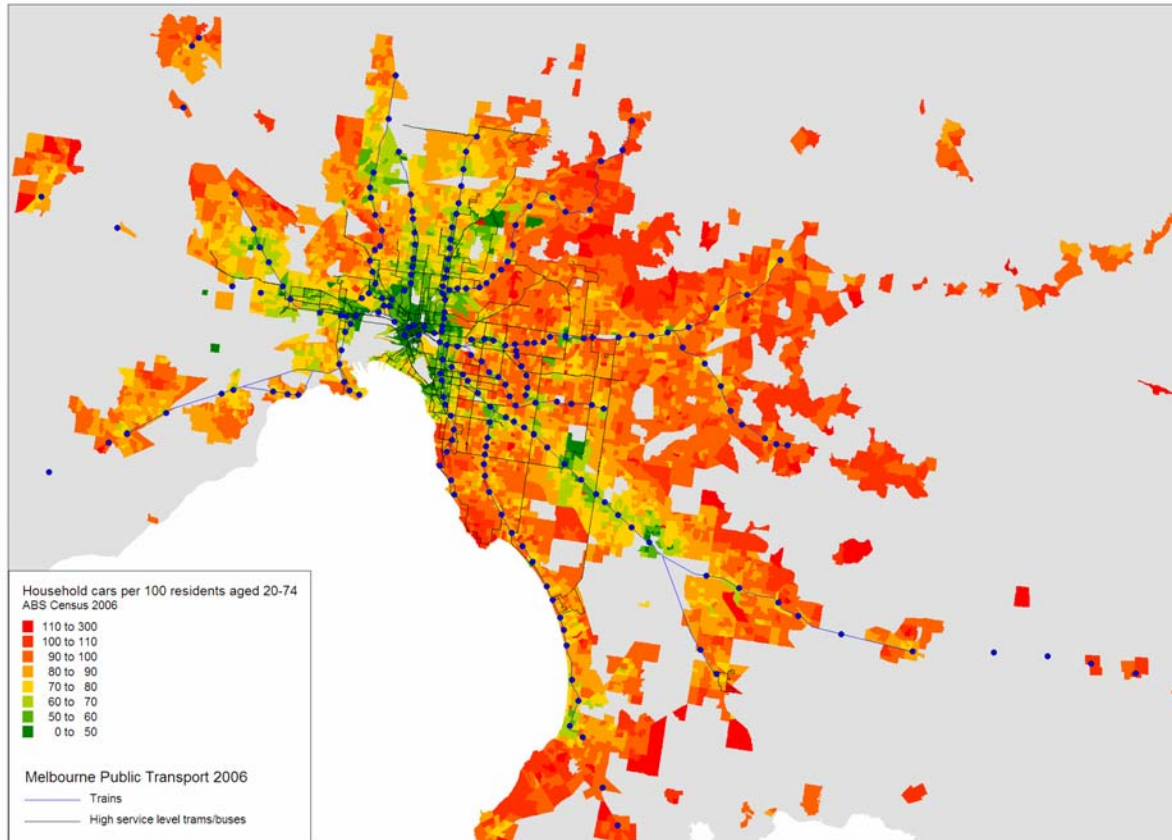
**Lower densities in outer areas limits the types of public transport that are viable in these areas**

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# Car use

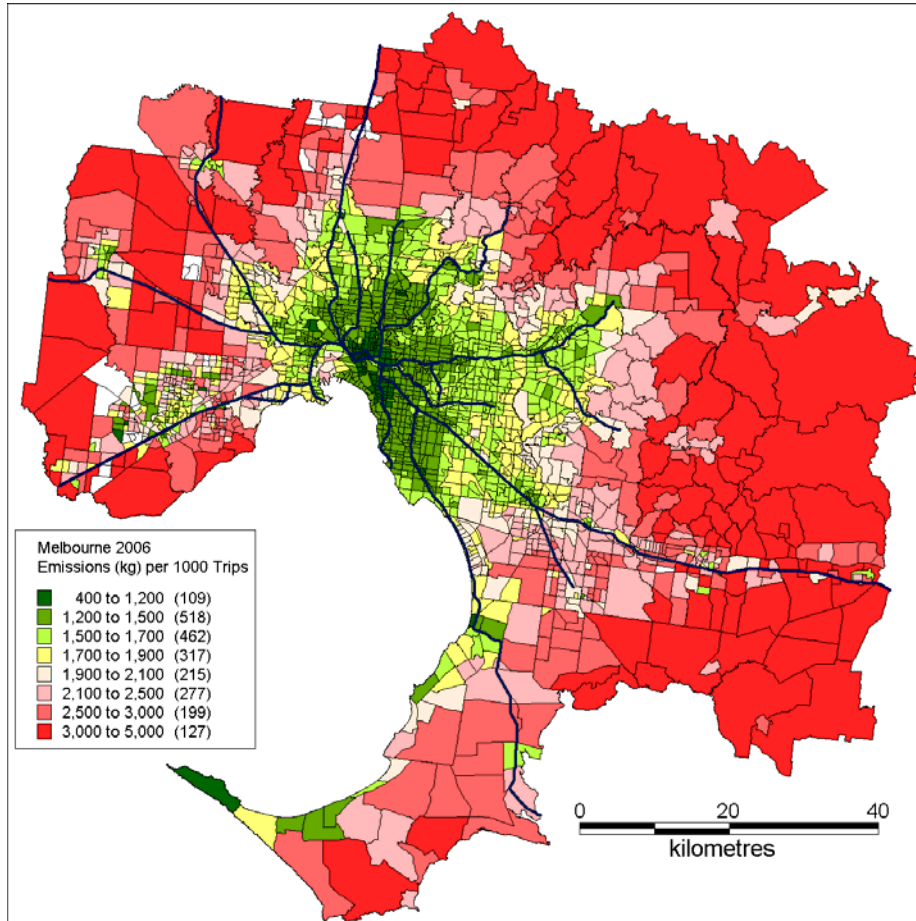


## People in outer areas of Melbourne and locations with limited public transport are more likely to have one or more cars per adult



Household cars per 100 residents aged 20-74 (Source: ABS Census 2006, via [chartingtransport.wordpress.com](http://chartingtransport.wordpress.com))

## Transport emissions are greatest in outer areas

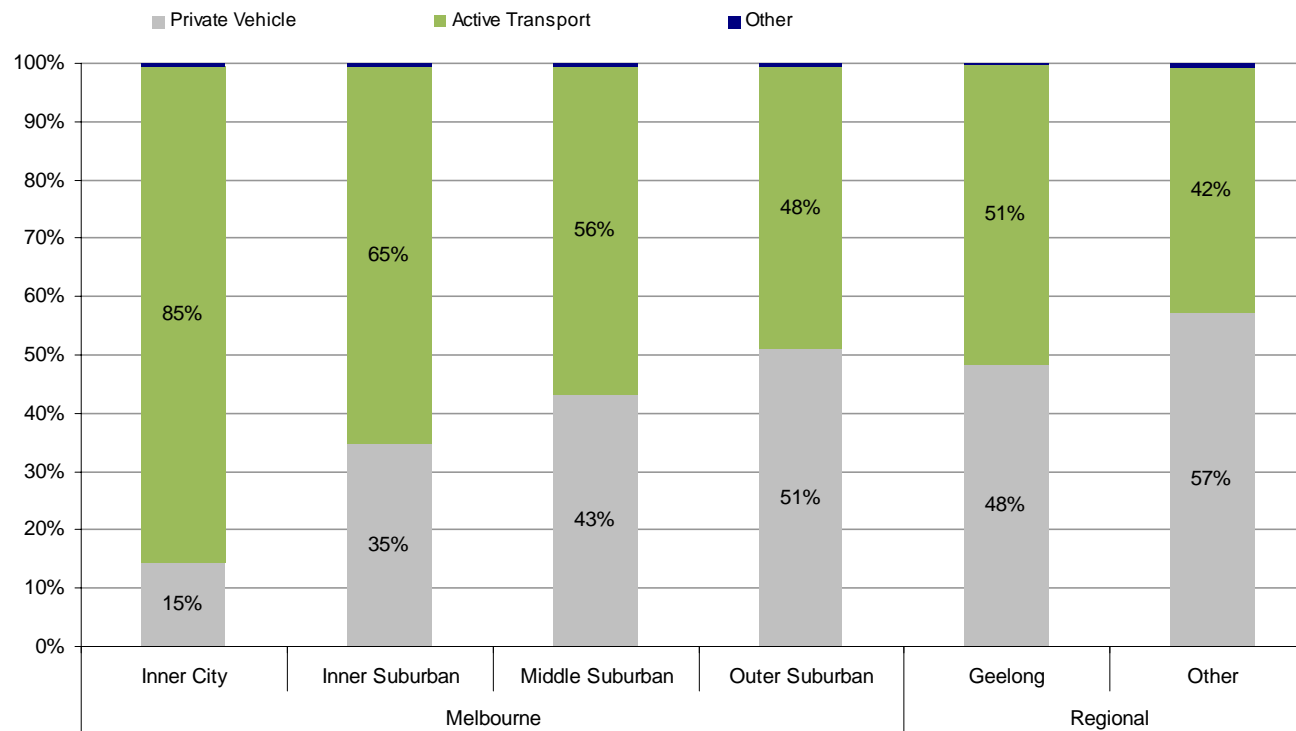


Macro Urban form analysis, Department of Transport 2006

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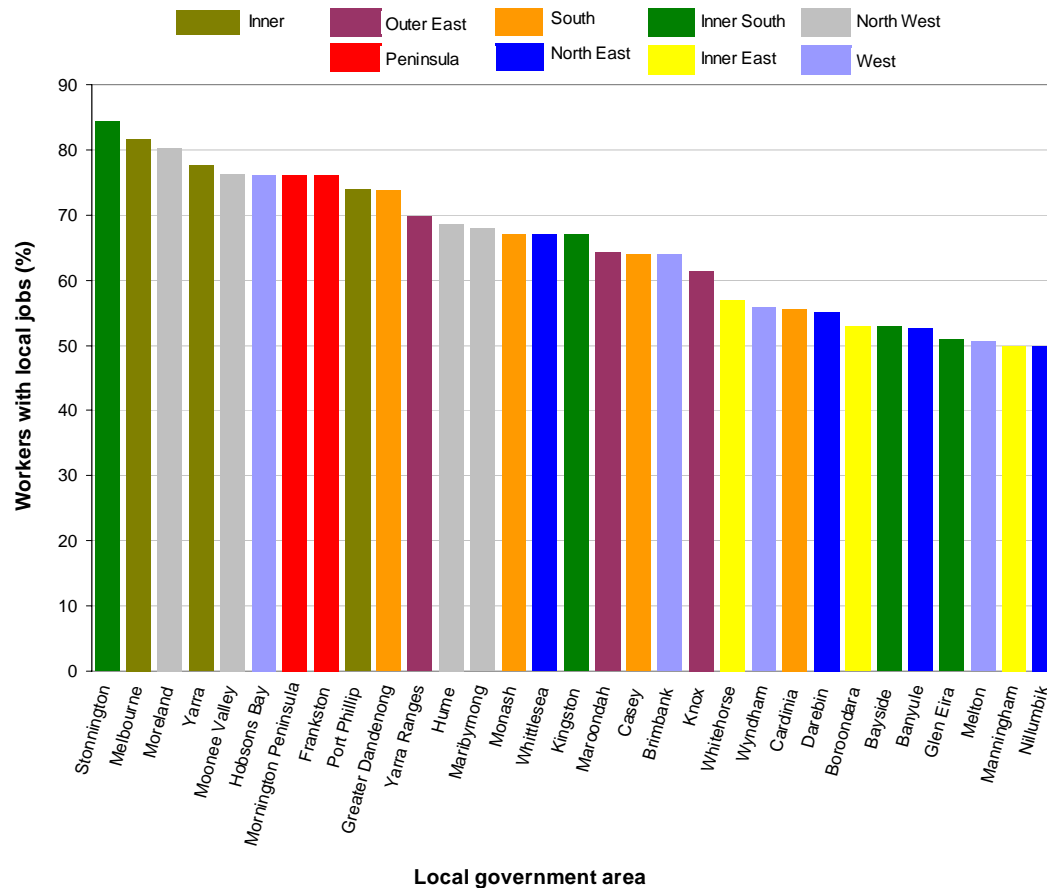
# Potential to increase active transport

For short trips (up to 1 km) people are currently less likely to walk or cycle outside of the inner Melbourne area



Main mode share of trips under 1 kilometre by location (Source: VISTA 2009)

# Large numbers of people work in the area they live.



Workers employed in their home or neighbouring LGA (Source: ABS Census of Population and Housing, 2006).  
 NB: Excludes travel external to the Metropolitan Statistical Division (MSD).

## Most people walk to catch trains, trams and buses

■ Table 3.1: Access distances from home to public transport

	Access mode share (%)	Percentile				
		10th	25th	50th	75th	90th
<b>Access to train stations</b>						
... by all modes		0.5	0.8	1.4	2.9	5.8
... by car	40%	1.3	2.2	3.4	5.5	9.1
... by walking	59%	0.4	0.6	0.8	1.3	1.8
<b>Access to tram stops</b>						
... by all modes		0.1	0.2	0.3	0.6	1.1
... by walking	95%	0.1	0.2	0.3	0.6	0.8
<b>Access to bus stops</b>						
... by all modes		0.2	0.3	0.6	1.0	1.8
... by car	7%	1.1	1.4	2.2	3.6	7.1
... by walking	92%	0.1	0.3	0.5	0.8	1.4

(units are kilometres)

Access to public transport (Source: VISTA, via “Benefits of Walking and Cycling – Discussion Paper”, SKM)

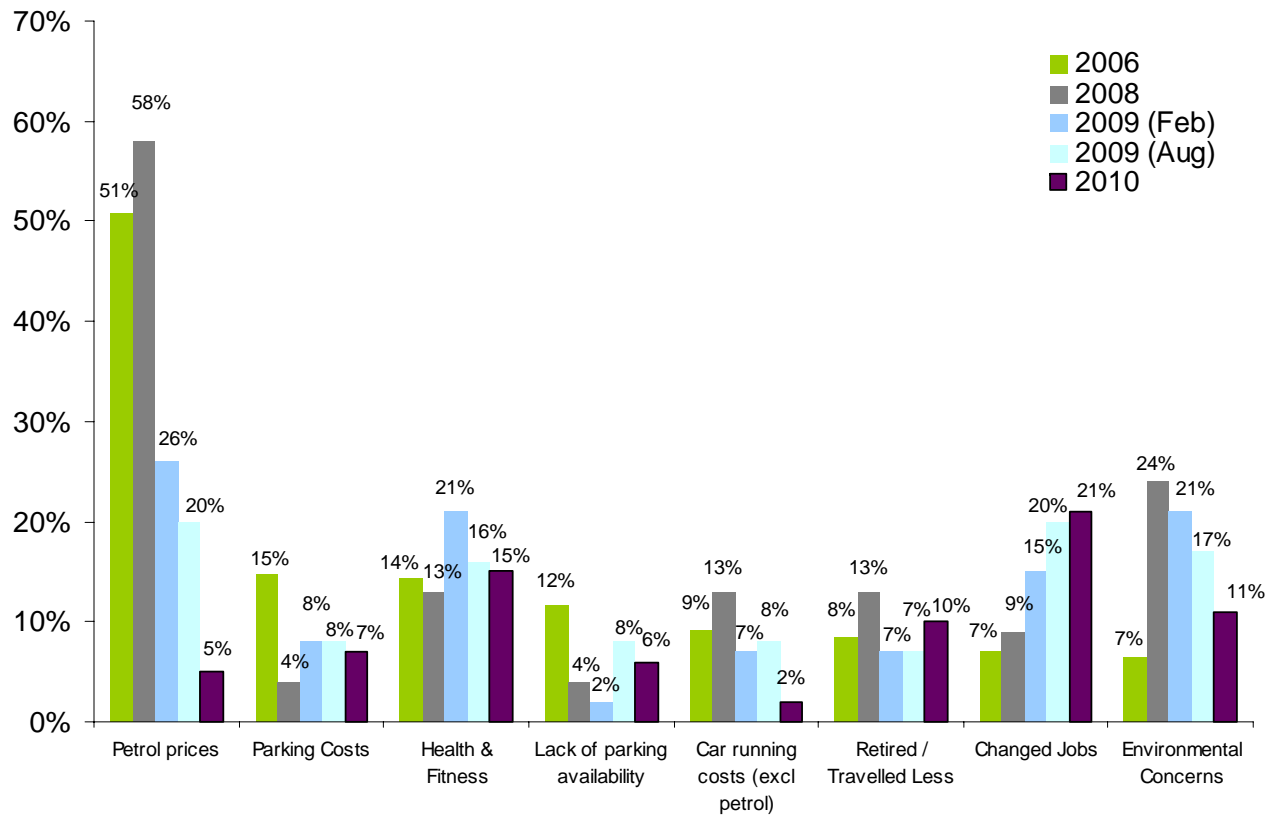
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# Health and motivation to use active transport

for active transport and wellbeing

# Top eight reasons for reduced private vehicle usage



Top eight reasons for reduced private vehicle usage (Base: Those who had reduced private vehicle use in previous twelve months) (Source: Metlink Mobility Choices research)



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# Health and safety outcomes

for active transport and wellbeing

# Accidents and injury

- **Walking**
  - Walking accident rates increased from 641 in 2005 to a peak of 823 in 2007. These rates decreased in 2009 and 2010 to 697 and 635 respectively (VicRoads Crash Stats).
  - The number of serious injury and fatal pedestrian accidents reported to police between 2005 and 2010 ranged between 39 and 59 fatal accidents and 593 and 782 serious injury accidents (VicRoads Crash Stats).
  - The lack sufficient information on walking rates and patterns means that we can not adequately measure exposure rates for traffic related walking accidents.
- **Cycling**
  - Cycling accident data do not indicate clear trends and have not increased in absolute terms between 2005 and 2010 (VicRoads Crash Stats).
  - The number of serious injury and fatal cycling accidents reported to police between 2005 and 2010 ranged between 6 and 14 fatal accidents and between 369 and 507 serious injury accidents.
  - The lack sufficient information on cycling rates and patterns means that we can not adequately measure exposure rates for traffic related cycling accidents.

# Safety and perceptions of safety

- **Walking**

- Uneven footpath surfaces that contribute to falls in elderly people can have long term health risks.
- A VicHealth survey (2010) of 1,500 people revealed 63 per cent believed parents should not let primary school aged children move around their neighbourhoods unsupervised.
- It found that 43 per cent of parents with children under the age of 18 believed there was a high risk a child would be abducted by a stranger if allowed to walk around their neighbourhood alone
- 62% per cent of parents believed there was too much traffic on the roads.

- **Cycling**

- Perceptions and concerns about the safety of cycling is a key barrier to increasing the number and type of people who are willing to take up cycling
- A survey undertaken by the Cycling Promotion Fund published in June 2011 found common barriers to cycling are road and safety issues. Safety factors rated above motivation, weather and lack of time as deterrents.
- Reasons for not riding a bike for transport more frequently were;
  - Unsafe Road conditions 67.1%
  - Speed/Volume of traffic 52.5%
  - Lack of bicycle lanes/trails 48.1%
- Multiple responses were allowed

## Walkable environments and wellbeing

- **Residents are more likely to know and interact with their neighbours** in neighbourhoods that have lower volumes of traffic, less cul de sac streets and more stable neighbourhoods than those residents with other street or neighbourhood conditions. (Appleyard 1981; SMARTRAQ 2002; TA 2006; Hart 2008).
- A study by Berke et.al found a significant association between **neighbourhoods with poor walkability and depressive symptoms in older men.**
- Leyden (2003) found that **residents of walkable mixed-use neighbourhoods have higher levels of social capital compared with those living in car oriented suburbs.** Walkable neighbourhood residents were more likely to know their neighbours, participate politically, trust others and be socially engaged, suggesting that policies and projects that support walking and public transport use, and increase land use mix, tend to increase community cohesion.
- Research by Hertzman (2002) and Gilbert and O'Brien (2005) suggest that **children's emotional and intellectual development accelerates** in more walkable, mixed use communities, probably due to a combination of increased opportunities for physical activity, independence and community cohesion.

## Walkable environments and wellbeing

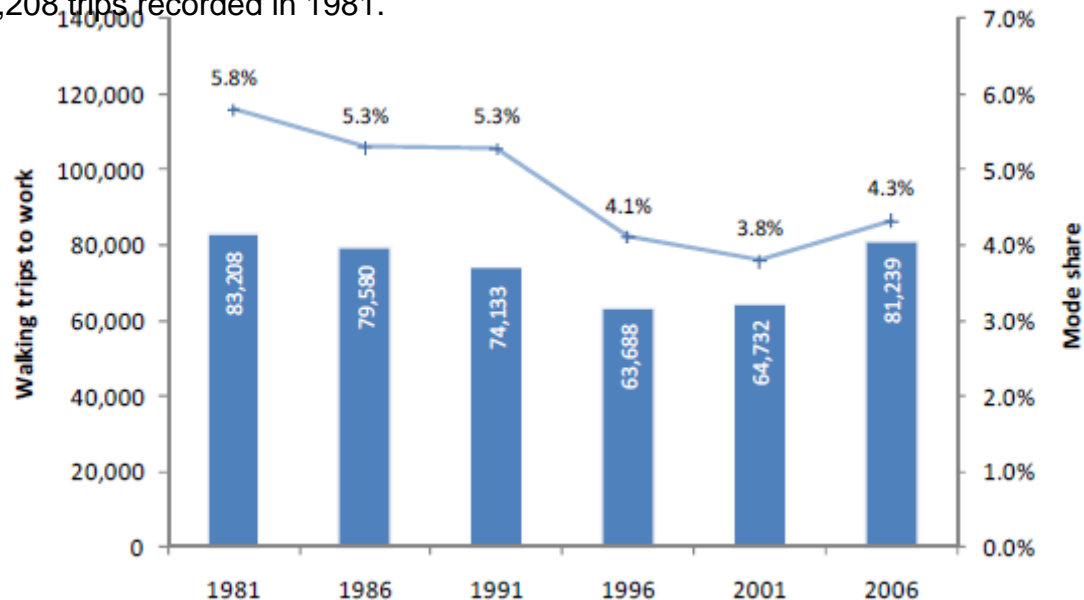
- Williamson (2002) analysed data from the Harvard University Saguaro Seminar which involved interviews with nearly thirty thousand Americans living in various communities to assess how geographic location affects community engagement, including participation in political and civic organisations, local friendships, trust in other people and overall happiness. **The results indicate that community engagement and overall satisfaction in life is negatively correlated with automobile travel**, and increases for residents in older (and therefore more pedestrian or transit oriented) neighbourhoods.
- Freeman (2001) analysed data from a cross sectional survey of adults in Atlanta Boston, and Los Angeles concerning their social interactions. The analysis indicates the rate of neighbourhood social tie formation was unrelated to land use density alone it was **significantly inversely related to the degree to which residents of a neighbourhood relied on their automobiles.**
- McDonald (2007) **found higher rates of children walking to school in more cohesive neighbourhoods**, after controlling for other factors such as income and land use.
- Through independent mobility children learn how to make responsible decisions and how to behave in different environments, and they develop a relationship with their environment and a sense of place in their neighbourhood (Tranter 1996; Engwicht 1992)

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# Trends in active transport and wellbeing

## Walking not keeping pace with population...

- There was a substantial growth in walking to work in Victoria between 2001 and 2006. 64,732 walk trips to work were recorded in 2001 which increased to 81,239 in 2006.
- This growth has occurred mostly in Inner Melbourne rather than regional or rural areas
- This growth however has not kept pace with the population growth. In 1981 walk only trips to work had a mode share of 5.8% with 83,208 trips while in 2006 walk only trips to work had a mode share of 4.3% with 81,239 trips.
- Walk only trips to work are yet to return to the highest figure recorded the last 20 years – the 83,208 trips recorded in 1981.

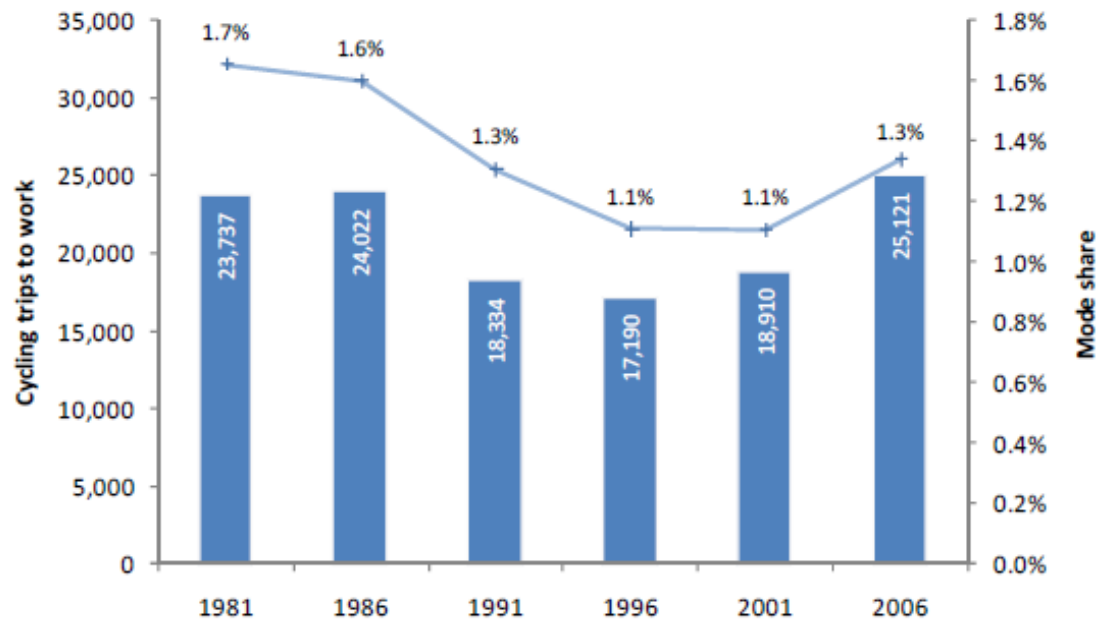


Walking Trends 1981-2006 (Source: ABS Journey to Work Data, via “Benefits of Walking and Cycling – Discussion Paper”, SKM)

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## Cycling numbers exceed 1981 figures...

- There has been substantial growth in commuter cycling in Victoria in recent years.
- This growth has mostly occurred in metropolitan Melbourne rather than regional and rural areas
- Commuter cycling grew by 47% between 2001 - 2006 in metropolitan Melbourne, compared with 2% in the remainder of Victoria.
- Cycling trips to work have surpassed the highest figure in the last 20 years - 24,022, recorded in 1986



Cycling Trends 1981-2006 (Source: ABS Journey to Work Data, via “Benefits of Walking and Cycling – Discussion Paper”, SKM)

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Cycling volumes have been growing by an average of 8% per annum over the past five years.

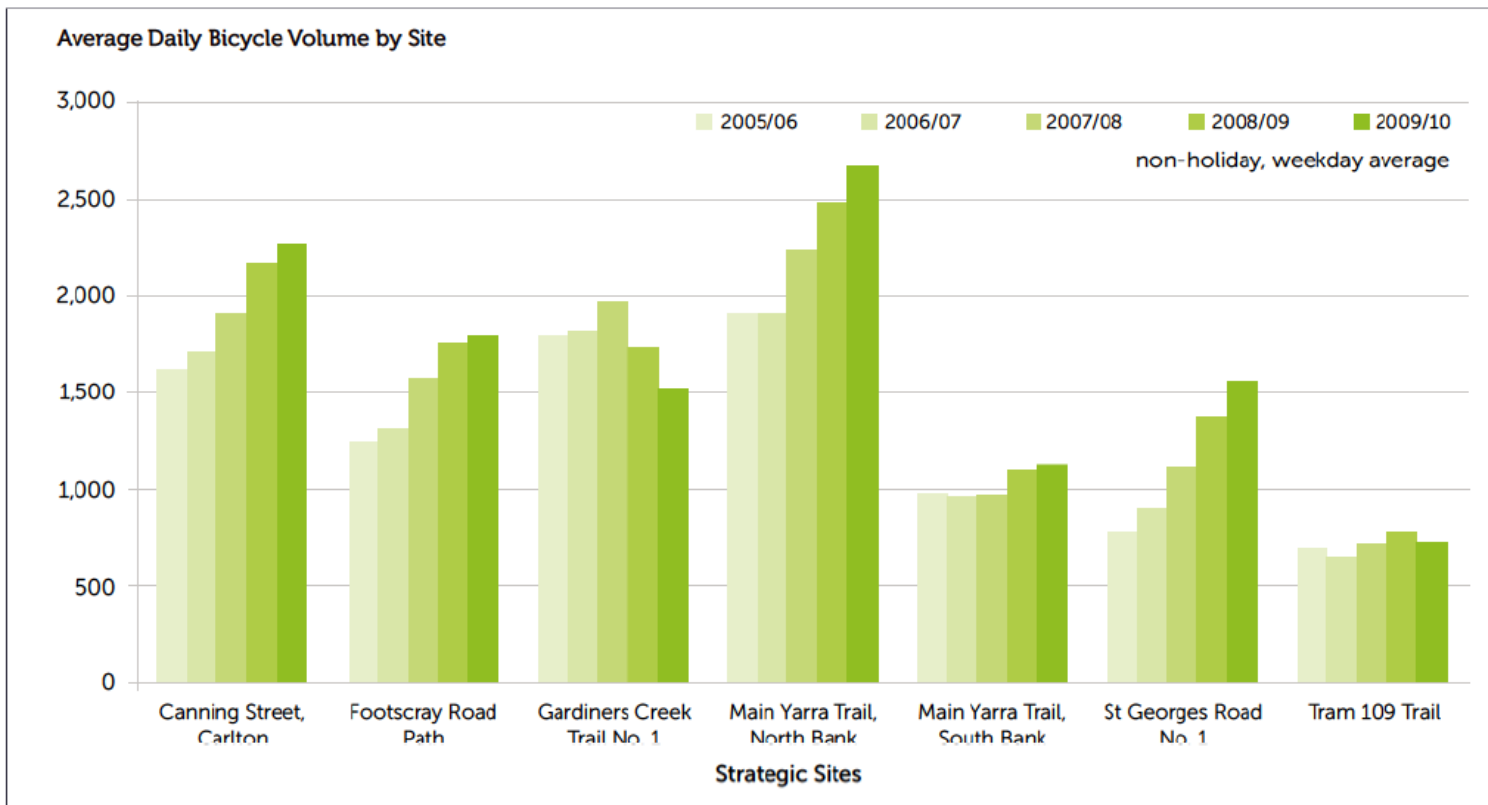


Figure 55: Average daily bicycle volumes at strategic sites (Source: VicRoads Traffic Monitor Report, May 2011)

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# Supportive Environments

for active transport and wellbeing

# Supportive environments for walking and cycling

Table 1: Schematic showing the efficacy of different categories of policy levels

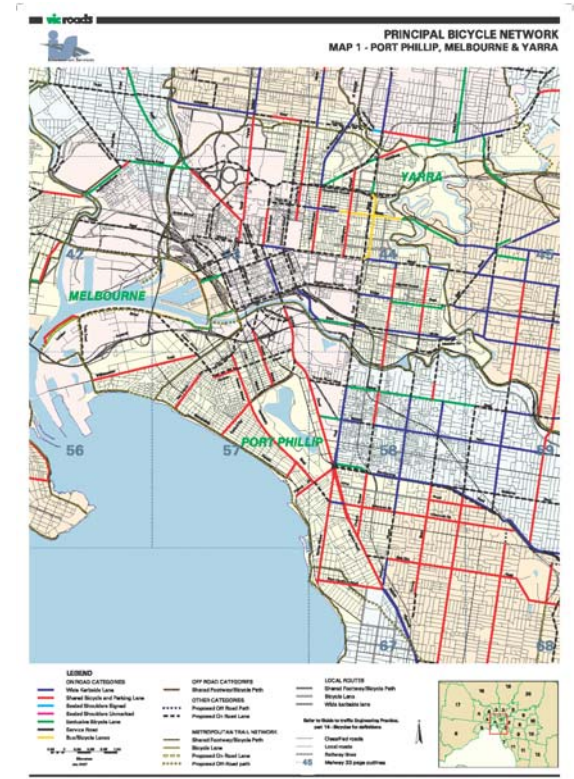
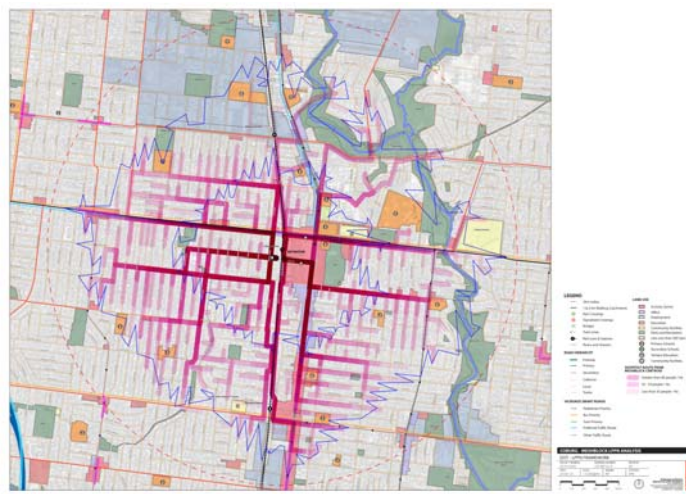
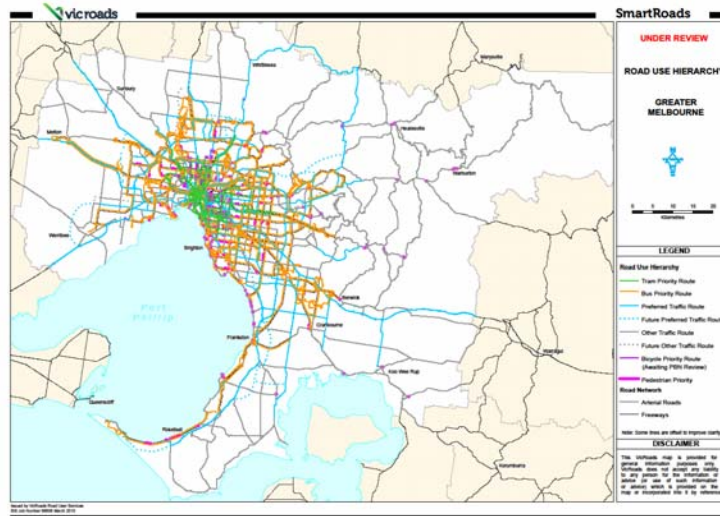
Strategy	Walking	Cycling
Community design		
Infrastructure presence	Matters more for children	
Infrastructure of high quality (e.g., wide, tree-lined sidewalks throughout)		
Programming		
Pricing and convenience		
Combined strategies		

Based on the convergence of the literature we summarise the efficacy of various strategies for the two modes differently in Table 1. Dark shading represents features that are very important, lighter grey represents those of lesser importance, and no shading represents no reliable evaluations. For walking, community design and the use of multiple strategies is paramount. For cycling, the presence of mode specific infrastructure is important, combined with the use of multiple strategies

Krizek, Forsyth, and Baum 2009 *Walking and Cycling International Literature Review*, Department of Transport, Victoria

# Strategic Networks and SmartRoads

## Principal Bicycle Network/Principal Pedestrian Networks



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Transport and legislative framework

# Governance and legislation

# Governance for walking

■ Figure A: Roles in walking (simplified)

**Legend**

Major role
Significant role
Small or no role

	Municipal Councils	VicRoads	Melbourne Water	VicTrack	DPCD	Dept of Health	Dept of Transport	Federal Government
Footpaths	Beside roads							
Shared paths	In council reserves and parks	In freeway reservations	In drainage reservations and metro parks	In rail reservations				
Crossing barriers		Across roads	Across creeks	Across rail lines				
Standards education regulation	Local standards	Road Rules			For new developments		Policy and research	DDA legislation especially access to public transport
Promotion	Recreation					Victoria Walks		
Land use and urban design	Local controls				Victorian Planning Provisions			
Lighting shelter wayfinding	Roads and parks	Arterial roads						

# Governance for cycling

■ Figure B Roles in cycling (simplified)

Legend

Major role
Significant role
Small or no role

	Municipal Councils	VicRoads	Melbourne Water	VicTrack	DPCD	Dept of Health	Dept of Transport	Austrroads Australian Bicycle Council	Bicycle Victoria
On road facilities	Local roads	Arterial roads							
Shared paths	In council reserves and parks	In freeway reservations	In drainage reservations and metro parks	In rail reservations					
End of trip facilities	Council planning regulations				Victorian Planning Provisions				
Standards education regulation		Road Rules and Cycle Notes			For new developments		Policy and research	Road standards and web resources	Web resources
Promotion	Recreation								Utilitarian and recreational cycling
User groups									Affiliated clubs

## Transport Integration Act 2010

- The **Transport Integration Act 2010** (TIA) establishes the overarching legislative policy framework for the transport system in Victoria.
- The policy framework in the TIA sets out objectives and decision-making principles that transport bodies must consider as part of their activities and decisions.
- Key aspects of the framework that relate to health and the built environment include:
  - facilitating better access to, and greater mobility within, local communities [section 11(2)(d)]
  - promoting forms of transport and the use of forms of energy which have the greatest benefit for, and least negative impact on, health and wellbeing [section 13(c)].
- The policy framework in the TIA resulted from an extensive consultation process where stakeholders emphasised the need for transport to extend beyond traditional safety and efficiency objectives.



## **The TIA provides a legislative mechanism to achieve integrated transport and land use outcomes.**

- The TIA provides that certain bodies are “interface bodies” and the legislation under which they operate “interface legislation”.
- The interface mechanism requires these bodies to have regard to the transport system objectives and decision making principles in exercising their function and powers or making decisions.
- However, not every activity or decision of these bodies is covered – the test is “likely to have a *significant impact* on the transport system”.
- Interface bodies under the TIA include bodies that can influence the design of urban environments, such as planning authorities, Municipal Councils, the Urban Renewal Authority and Parks Victoria.
- Example of Ministerial Direction 11 (Strategic Assessment of Planning Scheme Amendments).

## Referral authorities

- Both VicRoads and the Director of Public Transport are referral authorities under the Planning and Environment Act.
- This offers the opportunity for these transport bodies to influence the design of urban environments through the planning permit application process.
- VicRoads' objects under the TIA include seeking to increase the share of public transport, walking and cycling trips as a proportion of all transport trips in Victoria.



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