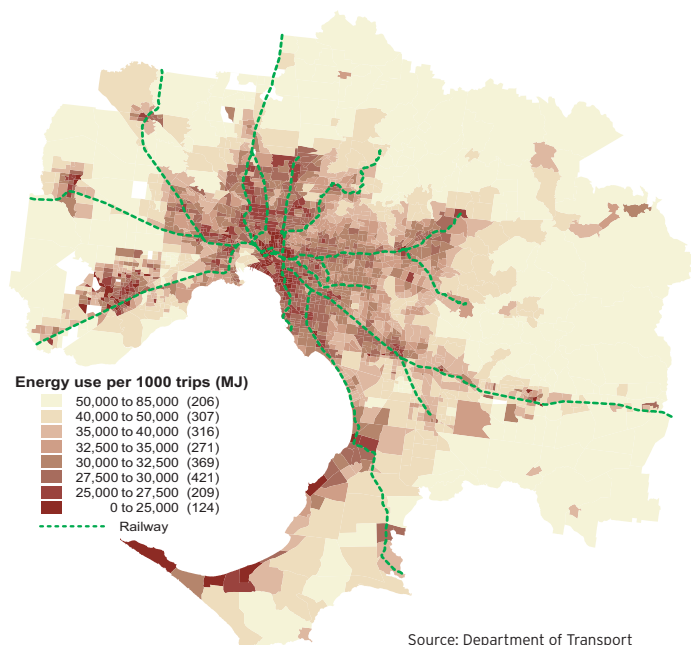


# Transport Research and Policy Analysis Bulletin

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## Transport Energy Consumption



As part of the Department's investigations into land use and urban form, and the associated transport energy and greenhouse gas emission outcomes, estimates of trip efficiency have been made for Melbourne as at 2006. Using the Department's 'Melbourne Integrated Transport Model', the total number of weekday trips, mode share and average travel speeds were calculated for private motor vehicle, bus, train and tram journeys. By applying appropriate fuel consumption and occupancy rates for each mode, the amount of energy consumed and the greenhouse gases produced were calculated for travel from each of the model's 2253 Transport Zones for Melbourne. The highest trip efficiencies are found within the Melbourne CBD, followed by areas well-served by trams. While railway corridors have higher trip efficiency compared to non-railway locations, the overall trend is for trip efficiency to decrease as distance from inner Melbourne increases. Exceptions to this general rule include sites where local demographic and socio-economic factors may have led to lower trip rates. Areas along the Mornington Peninsula, where there is a greater proportion of retirees, provide an example of this.

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Department of Transport

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Welcome to the Spring edition of the Transport Research and Policy Analysis Bulletin. While a number of small changes continue to be made in the new Department of Transport, the focus of the Bulletin remains the same: to provide an overview of selected research and policy work being conducted within the Department, and links to more detailed information where appropriate.

In this edition, research and projects across a range of transport environments are considered. The 'Focus on' section looks at growth area statistics, with a detailed comparison of Casey and Cardinia. Support for regional and rural travel is highlighted by Transport Connections, while separate articles on transport energy consumption, property buyers migration patterns and activity centre employment provide an urban balance. The growing interest in different fuel options is also reflected in the content.

As always, your feedback, suggestions and requests for further information can be sent directly to the editors at the addresses below.

### Contact the editors via email

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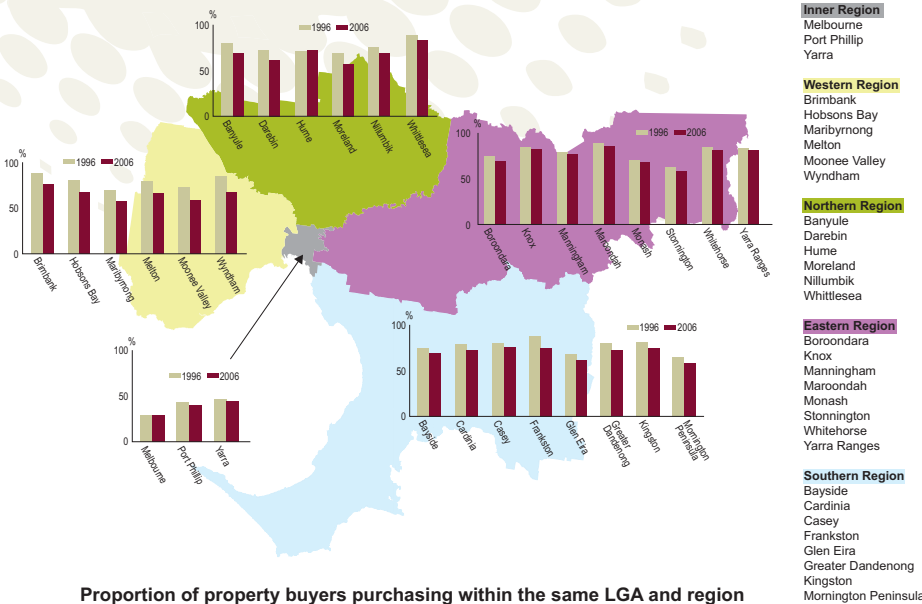
[Stephen.Roddis@transport.vic.gov.au](mailto:Stephen.Roddis@transport.vic.gov.au)

# Housing location decisions of Melbourne buyers

Understanding household location decisions is an important factor in considering housing affordability and transport costs. To assist in this process, an analysis of recent Valuer General Sales data has been conducted.

The Valuer General sales database is a complete census of all property sales within the state. Factual data obtained includes dwelling sale price information and the home location of the purchaser. Information on property use (e.g. owner-occupied or investment) is not captured, although ABS census data indicates that about 25% of dwellings were 'Rented' in 2006.

As such, the Valuer General sales database provides a broad indication of the general migration patterns of property buyers.



The figure above comprises sales data relating to all dwellings (houses and flats/units) purchased in 1996 and 2006 by buyers from the same local government area (LGA) or region. Apart from the LGAs of inner Melbourne, the majority of properties purchased in each LGA were from buyers who lived within the same region. However there have been decreases in the proportion of dwellings purchased by buyers within the same region over a ten-year period. This is particularly evident in the West of Melbourne with all municipalities experiencing declines of over 10 per cent. The municipalities of Darebin, Moreland and Banyule (Northern region) and Frankston (Southern region) show a similar trend. The Eastern region has remained relatively stable with decreases not exceeding 5 per cent.

In general, a higher proportion of houses are purchased by buyers from the same LGA and region in comparison to purchasers of flats/units & apartments.

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# Activity Centre Employment

Where people work, and the type of work they do, influences the demand for transport. To better understand this relationship, an analysis of employment location data from the 2001 and 2006 censuses was conducted. Using the principal, major and specialised activity centres definitions from Melbourne 2030, the analysis showed that there has been a slight reduction in the distances of jobs from their closest activity centre within the Melbourne region. In 2001, 50 per cent of jobs were located within 1.20 kilometres of an activity centre. By 2006 this had reduced to 1.18 kilometres. The figure to the right also shows a 3 per cent increase in the number of people working within 250m of an activity centre. This analysis also allows investigation of specific industry sector trends, with retail trade clustered in and around activity centres. The specific land use needs of other sectors, such as manufacturing, resulted in locations that were further away from such activity nodes.

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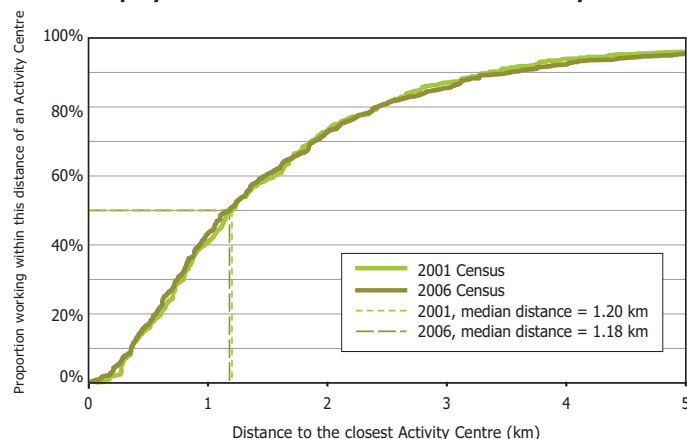
# Did you know?

On average, nearly 31% of metropolitan Melbourne residents live and work in their own Local Government Area. The specific proportion for each LGA is provided below:

	% of people working in their home LGA
Banyule	27
Bayside	27
Boroondara	28
Brimbank	29
Cardinia	39
Casey	29
Darebin	24
Frankston	38
Glen Eira	22
Greater Dandenong	36
Hobsons Bay	29
Hume	42
Kingston	36
Knox	34
Manningham	23
Maribyrnong	21
Maroondah	31
Melbourne	61
Melton	21
Monash	32
Moonee Valley	22
Moreland	20
Mornington Peninsula	60
Nilumbik	24
Port Phillip	26
Stonnington	24
Whitehorse	29
Whittlesea	29
Wyndham	38
Yarra	23
Yarra Ranges	40

Source: DOT (2008), Transport Demand Information Atlas for Victoria 2008: Volume 1 : Melbourne

# Employment location relative to nearest Activity Centre



Source: ABS, 2001 & 2006 Census data

## Alternative Fuels and Vehicle Technologies

Concerns over the price of transport fuels and climate change issues have led to a renewed focus on improving vehicle fuel efficiency in the transport sector. The Department of Transport, in conjunction with the Department of Primary Industries, has recently undertaken work to better understand the opportunities associated with different transport fuels and vehicle technologies.

International consensus suggests that there is capacity to improve the efficiency of petrol engines by up to 30 per cent. Diesel engines already use around 30 per cent less fuel than petrol and produce less greenhouse gas emissions per km than an equivalent vehicle. However, they generally produce higher air pollutant emissions, in particular fine particles of carbon or soot. While diesel engine technology is more mature than petrol engines, further diesel efficiency improvements of 20 per cent have been suggested. Additional efficiencies across the vehicle fleet can be achieved through better vehicle aerodynamics, improved rolling resistance of tyres and reduced use of auxiliary equipment (including in-car entertainment devices, GPS systems, etc). Significantly, a 10 per cent reduction in vehicle weight can lead to 7 per cent fuel economy improvements. Through packaging a range of vehicle and road network measures with optimal driving behavior, fuel efficiency increases of up to 25 per cent may be realised.

A range of alternative fuels are available, such as LPG, natural gas, electricity and biofuels, but none are widely used at present. While there is potential to increase their usage, this would require changes to the vehicle fleet and potentially fuel distribution infrastructure. Electricity, currently used in trams and trains, is likely to be more widely used in private vehicles. This is expected to become more viable with further improvements to battery technologies and shifts to cleaner electricity production. In the meantime, hybrid electric/petroleum vehicles are likely to provide improved efficiency and reduced emissions over vehicles solely powered by internal combustion engines. Take up of more efficient vehicles will depend on relative prices of fuels and technology. However, there may be a range of non-market factors that prevent their take up which will need to be addressed.

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## Transport Connections

The 'Transport Connections' program was established in 2003 to assist communities develop local solutions for local transport issues. Following an \$18.3 million Victorian Government investment, Transport Connections has recently been expanded from 9 to 32 project partnerships - covering all Victorian rural, regional and interface municipalities.

Unlike other programs, which only provide support for specific travel or client groups, Transport Connections partnerships can help community members access a range of activities, including health services, employment, education and training, and social events. A focus of the program is on the improved use of existing transport assets and local resources such as taxis, school buses, community buses and volunteer drivers. Project work is also supported by a 'Transport Connections Flexible Fund', which can assist in the delivery of small-scale localised initiatives and the implementation of new trial services.

Transport Connections is a joint initiative of the Departments of Planning and Community Development, Transport, Human Services, and Education and Early Childhood Development.

The Department of Transport's involvement extends to:

- administration of the Flexible Fund
- co-funding a dedicated officer to progress policy development on rural and regional transport issues
- project support on the technical aspects of transport service planning and delivery.

**The Transport Connections Program is funded until mid-2010. Information on the program can be obtained at [www.dpcc.vic.gov.au/transport](http://www.dpcc.vic.gov.au/transport)**



## A clarification.....

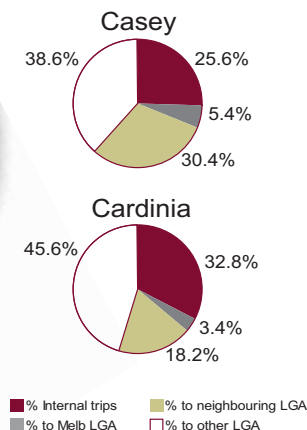
The Age newspaper recently ran an article misinterpreting data from the Winter 2008 edition of the Bulletin. It was reported that "Just 6% [of survey respondents] said cameras deterred them from speeding, and only 2% said traffic fines were an effective deterrent" (The Age, 11/6/08).

The figures published by The Age represent the percentage of respondents that thought cameras or fines were the 'single most effective' way to improve road safety. In reality, over half of respondents (54%) suggested that speed cameras were effective in improving road safety, while 64% thought traffic fines were effective, reiterating the need for different measures. A follow-up survey is planned for late 2008 to determine whether perceptions on these and other road safety issues are changing over time.

# Focus on Casey and Cardinia 2006



## Local Government Area Journey to Work Trips



Source: DOT (2008), Generated using data provided by the ABS

## Profile of buyers in Casey & Cardinia

Oliver Hume Real Estate runs a 'Purchaser Profile and Sentiment' survey across the growth areas in Melbourne. The following is a summary of responses of 666 residents from across the growth area estates of Cardinia and Casey from 2006 to mid 2008.

- 86% were owner occupiers and 11% were investors
- 46% were first-home buyers
- 51% of buyers were families, 37% couples and 11% were singles
- 22% owned 'one car' and 61% owned 'two cars'
- Across primary income earners surveyed, 85% used car travel to access employment
- 46% travelled more than 20kms to reach their work destination
- Nearly 51% of new residents described their familiarity with the municipality as 'Knowledgeable'

Residents also rated the proximity of the following lifestyle amenities as 'Very Important/Important':

- Community facilities /recreational facilities (91%)
- Shops (74%)
- Public Transport (95%)
- Education and Childcare (76%)
- Friends & Relatives (71%)
- Workplace (42%)
- Current residence (79%)

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Key characteristics <sup>a</sup>	Casey	Cardinia	Metropolitan Melbourne
Total population	214,959	57,115	3,592,592
Proportion aged 16 to 25	13.9	12.5	14.3
Proportion aged 65 and over	7.9	9.8	12.8
Median individual income (\$/weekly)	480	478	481
Median family income (\$/weekly)	1,170	1,184	1,242
Median household income (\$/weekly)	1,097	1,078	1,079
Proportion unemployed	5.4	4.2	5.3
Proportion of dwellings owned	24.3	29.0	34.7
Proportion of dwellings being purchased	54.3	49.0	36.3
Proportion of dwellings rented	18.0	17.0	25.4
Total occupied private dwellings	68,902	18,979	1,283,299
Average household size	3.0	2.9	2.6
Median housing loan repayment (\$/month)	1,300	1,300	1,300
Total number of dwellings approved <sup>b</sup>	2,381	992	26,449
% dwellings with no vehicles <sup>c</sup>	4.2	3.7	9.7
% dwellings with 2+ vehicles <sup>c</sup>	63.3	67.0	51.6

### Property Sales data <sup>d</sup>

	Casey	Cardinia	Metropolitan Melbourne
Proportion of dwellings purchased by buyers in the same LGA	47	37	N/A
25th percentile house price	\$220,000	\$217,000	\$260,000
Median house price	\$260,000	\$260,000	\$345,000
75th percentile house price	\$317,000	\$325,000	\$490,000

### Crash Stats<sup>e</sup>

	Casey	Cardinia	Metropolitan Melbourne
Total road toll	11	5	143
Serious injury	350	128	4,916

### Working Population Profile<sup>f</sup>

	Casey	Cardinia	Metropolitan Melbourne
Total employed residents	99,806	26,810	1,677,938
Total journeys for work to the area	37,303	12,158	1,381,977
Jobs in area as a proportion of the metropolitan Melbourne total	2.7	0.9	100
% of people who travelled to go to work	87.4	82.5	86.2
% of people who worked at home	3.0	6.7	3.7
% of people that did not go to work	9.7	10.8	10.1

### Method of travel to Work (% mode share)

	Casey	Cardinia	Metropolitan Melbourne
Car driver	79.8	80.2	70.9
Public transport (as sole or combined method)	6.6	4.8	13.8
Walking or cycling (not combined with public transport)	1.4	2.9	4.9
Other / Not stated	12.2	12.1	10.3

### Proportion of workers employed as....

	Casey	Cardinia	Metropolitan Melbourne
Managers and Professionals	21.7	26.9	35.0
Sales, Clerical and Administration workers	27.2	23.6	26.2
Technicians and Trades workers	17.6	18.7	13.5
Labourers	12.6	11.8	8.8

### CAVEATS

- Source: ABS (2006) Census of Population and Housing, Basic Community Profile. Metropolitan Melbourne comparison is based on all 31 metropolitan councils, except for the 'Key Characteristics' section which uses Melbourne Statistical Division figures.
- Source: ABS (2006) Cat. No 8731.0 - Building Approvals, Australia. Total Melbourne figure based on data from all 31 metropolitan councils.
- Excludes motorbikes & scooters
- Source: DSE, Valuer General (2006). Outputs generated using 2006 unit record data. Medians derived from 3 or more sales.
- Source: VicRoads - CrashStats database (2006); <http://crashstat1.roads.vic.gov.au/crashstats/crash.htm>
- Source: ABS (2006) Census of Population and Housing. Figures generated February 2008 using data provided by the ABS. Figures relate to employed resident travel to work on Census day.