# INTEGRATED TRANSPORT STRATEGY BACKGROUND REPORT

FEBRUARY 2018



### **EXECUTIVE SUMMARY**

Glen Eira is a diverse municipality and across the City residents have significantly different levels of transport accessibility.

The northern half, built before the car, is well placed with a of range transport options including train, tram and bus, with the CBD within comfortable cycling distance.

The southern half has been built with a heavy reliance on cars. Train stations are further apart, there are no trams, and cycling into the CBD is not a comfortable option.

It is important that the draft *Integrated Transport Strategy* acknowledges this dynamic and uses it to appropriately tailor improvements for each of our neighbourhoods and streets, instead of a 'one size fits all' approach.

It is clear from the analysis undertaken that the Glen Eira municipality can be divided into four clear districts based on access to public transport.

#### Train and tram precinct

The neighbourhoods located within the northern half of Glen Eira experience excellent access to public transport with access to all three tiers (train, tram and bus). The suburbs include Elsternwick, Ripponlea, Gardenvale, St Kilda East, Glen Huntly and around Caulfield Station.

#### Tram precinct

The neighbourhoods also located within the northern half of Glen Eira experience good access to public transport but are not located within walking distances to a train station. The suburbs include Caulfield North, Caulfield South and around Caulfield Park.

#### Train precinct

The neighbourhoods are located within walking distance to the train network (Frankston Line and Cranbourne Dandenong Line). This includes the suburbs of Ormond, McKinnon, Bentleigh, Carnegie and Murrumbeena.

#### Bus precinct

The neighbourhoods located within the south eastern quarter of Glen Eira experience relatively poor access to public transport with access to a limited bus network only. The suburbs include Bentleigh East, East Village and the southern parts of Carnegie and Murrumbeena.

#### **Background**

The Integrated Transport Strategy (ITS) will act as a high-level strategic document. It will provide a cohesive transport framework that integrates with the land use planning framework and the collective vision set by Council's activity centres planning program. Importantly, the *Strategy* will also be used to guide improvement decisions for the transport system within the City of Glen Eira, and meet the municipality's need to plan for growth and change.

The development of an Integrated Transport Strategy is an adopted Council action as part of the Glen Eira Council and Community Plan 2017-2021. It is also a key deliverable in the Sustainable Transport Action Plan 2015-2017 — Develop a strategic and holistic Transport Strategy to assist in planning and advocating for integrated transport outcomes related to sustainable transport, public transport, parking, land use planning and development.

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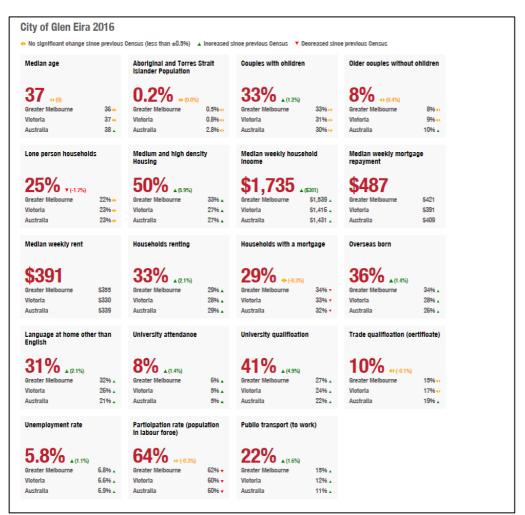
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## **GLEN EIRA OVERVIEW**

#### Key facts

- Estimated Resident Population :149,012
- Population density of 38.53 persons per hectare
- Median age: 37
- 36 183 families
- Average of 0.7 children per family
- 59 745 private dwellings
- 1.6 cars per dwelling

#### Significant changes from 2011 to 2016 ABS Census



Source: ID Consulting 2017

## ABS 2016 - METHOD OF TRAVEL TO WORK OVERVIEW

Method of travel to work (MTWP) is a direct question asked in the *Census* to enable a better understanding of the transport habits of our communities. The question requires all employed persons aged 15 and over to record their chosen methods of travel to work on the day of the *Census*.

## METHOD TRAVEL TO WORK COMPARISON 2016

2016	
Main method of travel	%
Car - as driver	55.2
Train	12.8
Worked at home	5.3
Car - as passanger	2.9
Walked only	2.4
People who travelled to work by	22.0
public transport	
People who travelled to work by car	61.1
	1.5

#### Glen Eira residents key facts

On the day, 22% of employed people used public transport (train, bus, ferry, tram/light rail) as at least one of their methods of travel to work and 61.1% used car (either as driver or as passenger).

## METHOD TRAVEL TO WORK COMPARISON 2011-2016

By comparing the results of the 2011 and 2016 ABS Census data we are able to determine trends and understand how our communities transport habits are changing.

2011	
Main method of travel	%
Car - as driver	55.5
Train	12.0
Car - as passanger	3.2
Walked only	2.4
Train, tram	1.8
People who travelled to work by public transport	20.3
People who travelled to work by car	58.8

#### Observations

- The percentage of residents travelling to work by car has risen by 2.3%
- The percentage of residents travelling to work by public transort has decreased by 1.7%

### **PUBLIC TRANSPORT ACCESS PRECINCTS**

Access to public transport for Glen Eira residents varies greatly across the municipality. Most residents have access to some form of public transport, however, the quality of this access is highly dependent where you live.

Further examining the quality of access demonstrates an identifiable gap throughout the Glen Eira municipality, the municipality can be then divided into four clear districts based on the quality of access to public transport.

#### Train and tram precinct

The neighbourhoods located within the northern half of Glen Eira experience excellent access to public transport with access to all three tiers (train, tram and bus). The suburbs include Elsternwick, Ripponlea, Gardenvale, St Kilda East, Glen Huntly and around Caulfield Station.

#### **Tram Precinct**

The neighbourhoods also located within the northern half of Glen Eira experience good access to public transport but are not located within walking distances to a train station. The suburbs include Caulfield North, Caulfield South and around Caulfield Park.

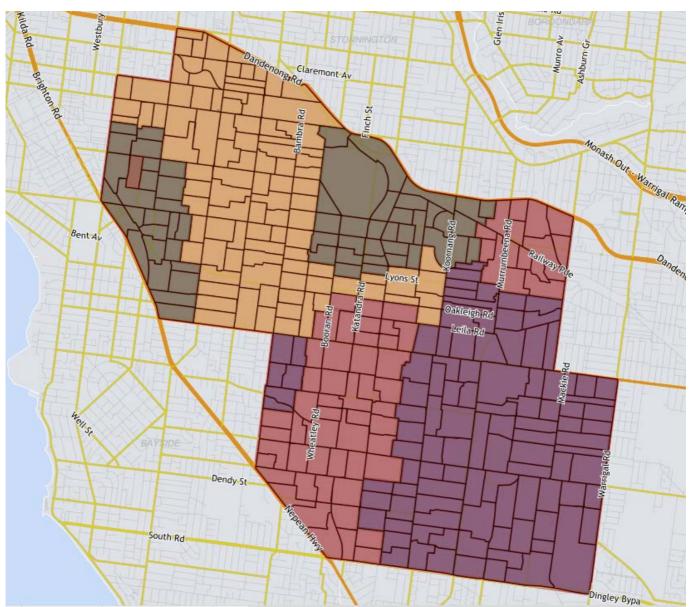
#### **Train precinct**

The neighbourhoods are located within walking distance to the train network (Frankston Line and Cranbourne Dandenong Line). This includes the suburbs of Ormond, McKinnon, Bentleigh, Carnegie and Murrumbeena.

#### **Bus precinct**

The neighbourhoods located within the south eastern quarter of Glen Eira experience relatively poor access to public transport with access to a limited bus network only. The suburbs include Bentleigh East, East Village and the southern parts of Carnegie and Murrumbeena.

The below map illustrates the complete Glen Eira City Council network as a result of the assessment of SA1 level ABS data and access to public transport.



SOURCE INTRA MAPS

Precinct	Train and	l Tram	Tram		Train		Bus	
Main method of travel	Number	%	Number	%	Number	%	Number	%
Train	4398	25.3	3021	14.6	3292	21.1	2488	12.7
Bus	216	1.2	145	0.70	175	1.1	214	1.1
Tram	209	1.2	768	3.70	28	0.2	27	0.1
Car	8887	51.0	12222	58.8	8831	56.6	12856	65.5
Bicycle	234	1.3	352	1.7	206	1.3	199	1.0
Walked only	602	3.4	454	2.2	394	2.5	332	1.7
Worked at home	806	4.6	1316	6.3	724	4.6	1004	5.I
Did not go to work	1433	8.2	1666	8.0	1363	8.7	1687	8.6
Other	663	3.8	788	4.0	593	3.9	743	4.2

## **METHOD TRAVEL TO WORK 2016 - BY PRECINCT**

#### Observations

The method of travel to work data more or less falls in line with above detailed precinct approach.

- Train and tram(25.3%) and train precincts and (21.1%) have the highest train mode share.
- Commuting to work on the tram is highest in tram precinct at 3.7% of all journeys.
- Bus precinct with its limited access to public transport as expected has the highest driving car mode share at 65.48%.
- Train and tram precinct also have the highest percentage of people who walk to work.

#### Car usage

- Larger urban residential areas with very low public transport access and high driving mode share can be found around the outer east and south-east of the city, particularly those remote from the rail network. Bus Precinct has the highest driving car mode share at 65.48%. This is 7% points higher than the Glen Eira average and marginally higher than the Victorian average.
- Suburbs with the higher driving mode share are all found within Bus Precinct Bentleigh East (67.3%)

Public transport usage

- The higher mode shares of train usage among Precincts I and 3 pretty clearly follow the train lines this is not surprising given that Precinct 2 and 4 are not within walking distance of a train station.
- Suburbs with the highest public transport mode share are all found within Train and Tram Precinct -Glen Huntly (36.6%) and Train Precinct - Carnegie (34.4%) and Murrumbeena (25.9%).
- As the tram precinct does not have walking access to a train station is not unexpected that this is where we find our largest % of tram journey (3.7% of all journeys).

#### Cycling

- Whilst cycling share is relatively low across the municipality it peaks with Tram Precinct at 1.69% (352 bike riders) this number is marginally higher than the Victorian average.
- As expected Bus Precinct has the lowest mode share for cycling, this precinct has the highest % of car mode share and is greatest distance from the CBD ( the major Melbourne trip generator for cycle commuters)

### METHOD TRAVEL TO WORK COMPARISON (2011-2016) - BY PRECINCT

	2016 2011			Change (%)	
Main method of travel	Number	%	Number	%	2011 to 2016
Train	4398	25.3	3713	23.4	1.9
Bus	216	1.2	160	I	0.2
Tram	209	1.2	221	1.4	-0.2
Car	8887	50.9	8372	52.7	-1.8
Bicycle	234	1.3	215	1.4	0.1
Walked only	602	3.4	433	2.7	0.7
Worked at home	806	4.6	626	3.9	0.7
Did not go to work	1433	8.2	1404	8.8	-0.6
Other	669	3.9	711	4.7	-0.8

Comparing method of travel to work trends across the sub precincts.

### TRAIN AND TRAM PRECINCT

#### Observations

• Train travel has increased at approximately the same rate as a decrease in car travel, this is in line with expectations as the tram and train precinct has the highest quality access to public transport.

#### **TRAM PRECINCT**

	2016		2011		Change (%)
Main method of travel	Number	%	Number	%	2011 to 2016
Train	3021	14.5	2500	12.6	1.9
Bus	145	0.7	114	0.6	0.1
Tram	768	3.7	578	2.9	1.6
Car	12222	58.9	11849	59.7	-0.8
Bicycle	352	1.7	294	1.5	0.2
Walked only	454	2.2	408	2.1	0.1
Worked at home	1316	6.3	1113	5.6	0.7
Did not go to work	1666	8	1843	9.3	-1.3
Other	798	4	1065	5.7	-1.7

#### Observations

• Tram travel has increased in line with overall public transport travel mode change.

#### **TRAIN PRECINCT**

	2016		2011	Change (%)	
Main method of travel	Number	%	Number	%	2011 to 2016
Train	3292	21.1	3147	21.5	-0.4
Bus	175	1.1	126	0.8	0.3
Tram	28	0.2	25	0.2	0
Car	8831	56.6	8178	56	0.6
Bicycle	206	1.3	198	1.4	-0.1
Walked only	394	2.5	362	2.5	0
Worked at home	724	4.6	553	3.8	0.8
Did not go to work	1363	8.7	1368	9.4	-0.7
Other	585	3.9	614	4.4	-0.5

#### Observations

 Interestingly the share of train travel has slightly decreased by 0.4% and car travel has increased by 0.6% — this is unexpected due the high quality train access within this area.

#### **BUS PRECINCT**

	2016		2011	Change (%)	
Main method of travel	Number	%	Number	%	2011 to 2016
Train	2488	12.7	1988	10.8	1.9
Bus	214	1.1	207	1.1	0
Tram	27	0.1	18	0.1	0
Car	12856	65.5	12169	65.9	-0.4
Bicycle	199	1	158	0.9	0.1
Walked only	332	1.7	304	1.6	-0.1
Worked at home	1004	5.1	775	4.2	0.9
Did not go to work	1687	8.6	1816	9.8	1.2
Other	840	4.2	1092	5.6	-1.4

#### Observations

• Interestingly the train travel in this area increased significantly by almost 2%.

## METHOD TRAVEL TO WORK DWELLING TYPE COMPARISON (2016) – BY PRECINCT

A key area of interest is the changing travel habits of residents that live in houses vs. apartments. (Note these statistics differ to that of the above method of travel to work numbers as these numbers are based on the dwelling data set and not the employed person's data set).

Main method of travel	House						
Precinct	Train and tram	Tram	Train	Bus	Total		
Train	18.5	9.8	17.6	8.15	12.4		
Bus	0.8	0.3	0.5	0.8	0.6		
Tram	0.6	2.7	0.05	0.1	0.9		
Car	60.1	67.8	64.5	73.3	67.6		
Bicycle	1.5	1.3	1.3	1.2	1.3		
Walked only	3.4	1.5	2.2	1.5	2.0		
Worked at home	5.8	8	5.2	5.9	6.4		
Did not go to work	9.2	8.5	8.5	9	8.8		
Other	0.1	0.1	0.15	0.05	0.1		

Main method of travel	Apartment					
Precinct	Train and tram	Tram	Train	Bus	Total	
Train	29.4	16.1	31.1	9.73	22.9	
Bus	1.5	0.5	0.9	1.51	1.1	
Tram	2.3	6.9	0.7	0	3.0	
Car	51.3	62.5	54.7	73.76	58.8	
Bicycle	0.9	0.8	0.15	0	0.6	
Walked only	4.3	3	2.8	0.9	3.1	

Worked at home	2.6	2.9	2.2	4.3	2.8
Did not go to work	7.4	6.8	7.1	9.2	7.4
Other	0.3	0.5	0.35	0.6	0.3

#### Observations

#### Public transport usage

- It is clear that higher percentages of public transport travel are associated with residents that
  reside in apartments opposed to houses. The public transport usage of apartment dwellers is
  almost double the usage by house dwellers (~27% vs. 14%).
- The largest differences on a district level exist in the train and tram precinct (29.4% vs. 18.5%) and train precinct (31.1% vs. 17.6%).

#### Car usage

- The overall car use is almost 10% higher in house dwellers (67.6% vs. 58.8%).
- As expected, car usage is very similar for residents within the bus precinct, irrespective of the type of dwelling.
- The largest differences on a district level exist in the train and tram precinct (60.1% vs. 51.3%) and train precinct (67.8% vs. 62.6%).

#### Cycling

• Cycling is very low in apartment dwellers at 0.6% vs. 1.3% in house dwellers.

#### Number of cars per dwelling type

Please note: these statistics differ to that of the above method of travel to work numbers as these numbers are based on the dwelling data set and not the total person's data set.

Precinct	# Dwellings	# Cars	Cars per
			dwelling
Train and	10478	348	1.3
tram			
Tram	11513	17011	1.5
Train	15361	24010	1.6
Bus	13962	24402	1.7

#### Number of cars per dwelling type

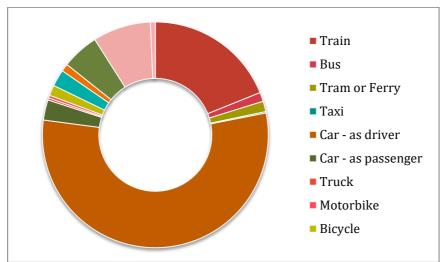
Precinct	House	Apartment	Cars per dwelling
Train and tram	1.6	0.9	1.3
Tram	1.8	1.2	1.5
Train	1.7	1.2	1.6
Bus	1.9	1.6	1.7

#### Observations

- It is clear that higher rates of car ownership correlate with residents that live in houses compared to apartments.
- Across the four precincts car ownership levels are lower in apartments, this is highest train and tram precinct (0.9 vs. 1.6).

## ANALYSIS AND CONCLUSION

It is clear that Glen Eira residents are dependent on the car as their primary mode choice for travel. On a whole Glen Eira 55% of all residents travel to work in a car this is higher than the majority of our inner south neighbouring councils.

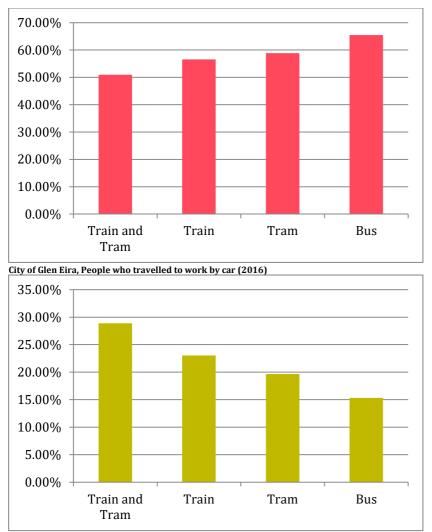


City of Glen Eira, Method of travel to work, 2016

On a suburb level the areas of Bentleigh East (67.3%), Caulfield South (64.2%), Bentleigh (61.9%) and Caulfield (61.9%) are highly reliant on the car as mode of transport.

This can be explained by the lack of walking access to high quality public transport. In a Glen Eira context this is lack of direct access to a train station. Further when analysing the data on a precinct level based on access to public transport (as outlined within this report) this trend of car dependency continues.

The below charts demonstrate the percentage mode share of car travel and public transport.



City of Glen Eira, People who travelled to work by public transport (2016)

Detailed analysis of each precincts method of travel to work preferences is discussed previously in this report. Key features of the data include that support the development of precinct specific policy are:

- As expected the train and tram and train precincts (25.22%) and (21.09%) have the highest train mode share primarily due to the proximity to train stations.
- Larger urban residential areas with very low public transport access and high driving mode share can be found around the outer east and south-east of the City, particularly those remote from the rail network. The bus precinct has the highest driving car mode share at 65.48%. This is 7% points higher than the Glen Eira average and marginally higher than the Victorian average.

Dwelling type is an interesting additional data set that can be layered with method of travel to work data. This data allows us to interrogate the different mode choices made by residents in alternate

dwelling types. Detailed analysis of each precinct are discussed previously in this report. Key features of the data include:

- On an overall scale it is clear that higher percentages of public transport travel are associated with residents that reside in apartments. The public transport usage of apartment dwellers is almost double the usage by house dwellers (27% vs. 14%)
- On a precinct level the data demonstrates that apartments within the areas with high quality access to public transport far out perform houses within the same precinct.

The precinct level analysis demonstrates the need to develop a precinct based approach to transport planning within Glen Eira. A one size fits all policy does not suit, as there are four clear precincts within the municipality that each have their own independent travel behaviours.

## APPENDIX

#### Further data analysis on a suburb and municipal basis

## METHOD TRAVEL TO WORK COMPARISON – INNER SOUTH COUNCILS (2016)

By comparing the results of the 2016 ABS Census with the other inner south councils (Bayside, Boroondara and Stonnington), we are able identify transport patterns across our subregion and further understand where Glen Eira is under or over-performing.

	Glen Eira		Boroondara		Bayside	Bayside		Stonnington	
Main method of travel	Number	%	Number	%	Number	%	Number	%	
Train	13,165	18.9	11,683	14.2	7,057	15.3	12,251	21.7	
Bus	895	1.3	1,945	2.4	338	0.7	569	1.0	
Tram or ferry	1,066	1.5	3,735	4.5	102	0.2	3,047	5.4	
Taxi	128	0.2	159	0.2	82	0.2	138	0.2	
Car - as driver	38,434	55.2	42,801	52.0	26,487	57.6	24,703	43.7	
Car - as passenger	2,050	2.9	2,597	3.2	1,305	2.8	1,316	2.3	
Truck	216	0.3	125	0.2	94	0.2	55	0.1	
Motorbike	281	0.4	303	0.4	158	0.3	244	0.4	
Bicycle	1,023	1.5	1,581	1.9	707	1.5	1,538	2.7	
Walked only	1,661	2.4	2,945	3.6	1,046	2.3	4,105	7.3	
Other	784	1.1	1,089	1.3	580	1.3	771	1.4	
Worked at home	3,670	5.3	5,332	6.5	3,614	7.9	3,120	5.5	
Did not go to work	5,788	8.3	7,440	9.0	4,101	8.9	4,254	7.5	
Not stated	467	0.7	521	0.6	310	0.7	406	0.7	
Total employed persons aged 15+	69,628	100.0	82,256	100.0	45,981	100.0	56,517	100.0	

#### Observations

- Glen Eira has the highest second percentage of train users, but the highest actual number of passengers.
- Tram numbers for Glen Eira are significantly lagging behind that of Stonnington and Boroondara (Bayside does not have trams).

- Driving to work is relatively consistent across the councils with the exception of Stonnington.
- Walking in Stonnington is much higher than the rest of the inner south councils.
- Cycling as a method to work is much higher in Stonnington than its neighbouring councils.

#### **METHOD TRAVEL TO WORK COMPARISON - GLEN EIRA SUBURBS 2016**

It is important to note that transport habits are quite varied across the municipality. As such this section of the report will look at the MTWP comparison across the Glen Eira suburbs and wards.

#### GLEN EIRA: PEOPLE WHO TRAVELLED TO WORK BY CAR (2016)

In 2016, 58.1% of the City of Glen Eira's employed population travelled to work by car compared to 64.1% in Greater Melbourne. While the City of Glen Eira had a lower proportion of people who travelled to work by car, it is important to note that this varied across the City.

Area	Number	Percent %
Bentleigh	4,862	61.9
Bentleigh East	8,680	67.3
Carnegie	4,378	52.0
Caulfield	1,577	61.9
Caulfield North - Caulfield East	4,700	58.2
Caulfield South	3,748	64.2
Elsternwick - Gardenvale	3,038	52.3
Glen Huntly	1,196	46.3
McKinnon	1,732	61.1
Murrumbeena	2,904	56.0
Ormond	2,436	58. I
St Kilda East	1,020	56.6
Camden Ward	12,474	57.5
Rosstown Ward	3,484	55.3
Tucker Ward	14,313	65.0
City of Glen Eira	40,244	58.1
Greater Melbourne	1,354,411	64.3

Proportions ranged from a low of 46.3% in Glen Huntly to a high of 67.3% in Bentleigh East. The three areas with the highest percentages were:

- Bentleigh East (67.3%)
- Caulfield South (64.2%)
- Bentleigh (61.9%) and Caulfield (61.9%)

#### GLEN EIRA: PEOPLE WHO TRAVELLED TO WORK ON PUBLIC TRANSPORT (2016)

In 2016, 21.9% of the City of Glen Eira's employed population travelled to work by public transport compared to 15.4% in Greater Melbourne. While the City of Glen Eira had a higher proportion of people who travelled to work by public transport, it is important to note that this varied across the City.

Area	Number	Percent %
Bentleigh	1,472	18.7
Bentleigh East	1,888	14.4
Carnegie	2,557	34.4
Caulfield	490	19.2
Caulfield North - Caulfield East	1,765	21.8
Caulfield South	991	17.0
Elsternwick - Gardenvale	1,483	25.5
Glen Huntly	948	36.6
McKinnon	553	19.5
Murrumbeena	1,343	25.9
Ormond	1,018	24.3
St Kilda East	321	17.8
Camden Ward	4,664	21.5
Rosstown Ward	6,563	26.9
Tucker Ward	3,602	16.4
City of Glen Eira	15,084	21.9
Greater Melbourne	326,129	15.5

Proportions ranged from a low of 14.4% in Bentleigh East to a high of 36.6% in Glen Huntly. The three areas with the highest percentages were:

- Glen Huntly (36.6%)
- Carnegie (34.4%)
- Murrumbeena (25.9%)

#### GLEN EIRA: PEOPLE WHO TRAVELLED TO WORK BY BIKE (2016)

In 2016, 1.5% of the City of Glen Eira's employed population travelled to work by bicycle (at any

Area	Number	Percent %
Bentleigh	90	1.2
Bentleigh East	115	0.8
Carnegie	119	1.4
Caulfield	24	0.9
Caulfield North - Caulfield East	148	1.9
Caulfield South	83	1.4
Elsternwick - Gardenvale	136	2.3
Glen Huntly	31	1.2
McKinnon	57	2.0
Murrumbeena	89	1.7
Ormond	42	1.0
St Kilda East	30	1.7
Camden Ward	400	1.8
Rosstown Ward	334	1.4
Tucker Ward	230	1.0
City of Glen Eira	1,017	1.5
Greater Melbourne	29,608	1.4

stage of their journey), compared to 1.4% in Greater Melbourne.

Proportions ranged from a low of 0.8% in Bentleigh East to a high of 2.3% in Elsternwick -

Gardenvale. The three areas with the highest percentages were:

- Elsternwick Gardenvale (2.3%)
- McKinnon (2.0%)
- Caulfield North Caulfield East (1.9%)

#### GLEN EIRA: PEOPLE WHO WALKED TO WORK (2016)

In 2016, 2.4% of the City's employed population walked to work, compared to 3.0% in Greater Melbourne. While the City of Glen Eira had a lower proportion of people who walked to work, this varied across the City.

Area	Number	Percent %
Bentleigh	217	2.8
Bentleigh East	194	1.5
Carnegie	208	2.5
Caulfield	52	2.0
Caulfield North - Caulfield East	198	2.5
Caulfield South	89	1.6
Elsternwick - Gardenvale	214	3.8
Glen Huntly	66	3.1
McKinnon	45	1.6
Murrumbeena	95	1.8
Ormond	82	2.0
St Kilda East	102	5.8
Camden Ward	621	2.9
Rosstown Ward	513	2.1
Tucker Ward	428	1.9
City of Glen Eira	1,576	2.3
Greater Melbourne	63,256	3.0

Proportions ranged from a low of 1.6% in Caulfield South to a high of 5.8% in St Kilda East. The five areas with the highest percentages were:

- St Kilda East (5.8%)
- Elsternwick Gardenvale (3.8%)
- Glen Huntly (3.1%)