

PARKING ANALYSIS FOR BENTLEIGH, CARNEGIE AND ELSTERNWICK DRAFT STRUCTURE PLANS

GLEN EIRA CITY COUNCIL — OCTOBER 2017



GLEN EIRA
CITY COUNCIL

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I. EXECUTIVE SUMMARY

The provision of on street parking within retail strips has long been a complex and emotive issue that Glen Eira City Council has a responsibility to manage. The traditional school of thought suggests that the commercial viability of retail precincts is directly linked to the availability of on street car parking.

This paper sets out to interpret existing parking data to determine the public parking need for each of the three structure plan centres – Bentleigh, Carnegie and Elsternwick.

Data available to Council used for this analysis includes: existing commercial land use floor spaces (2017), off street public parking occupancy studies (2017) and projections of future commercial growth (Blair Warman Economics) for each centre.

2. CURRENT PARKING ANALYSIS (2017)

A summary of the parking need and short fall analysis is provided in the tables below. The report details the methodology used to produce these figures and goes into detail over the breakdown of the parking need and short fall of each centre.

2.1 BENTLEIGH

- Bentleigh activity centre provides 1301 publicly accessible car spaces across a number of Council owned car parks and privately owned car parks.
- The centre has been identified as Glen Eira's primary grocery shopping destination; as such demand for parking is expected to be significantly higher on a typical Saturday than a weekday.
- Bentleigh activity centre does not have the same level of service of public transport as Elsternwick and Carnegie, as such the need to drive to this centre is higher. Therefore we have applied a lower efficiency rating for the shared parking test (10% v 20%) for Bentleigh compared to the other centres.

Analysis based on current parking numbers:

Total Public Parking	Parking Assessment		
	Land Use ¹	Shared Parking Efficiency	4 Hour Peak Occupancy
1301	304 undersupply	144 undersupply	160 undersupply

Analysis based on future parking numbers (based on structure plan strategies):

Total Future Public Parking	Increase ²	Parking Assessment		
		Land Use	Shared Parking Efficiency	4 Hour Peak Occupancy
1656	264	40 undersupply	121 oversupply	104 oversupply

¹ The land use shortfall for each centre is based on current and future projected commercial growth in the centre.

² Based on intervention projects identified within the structure plan, increase in parking numbers are assumptions and will require a detailed design of new parking structures to ascertain exact number of increased spaces.

2.2 CARNEGIE

- Carnegie activity centre provides 1059 publicly accessible car spaces across a number of Council owned car parks and privately owned car parks.
- Carnegie is quickly becoming known as Glen Eira's primary 'night' time restaurant precinct, as such it experiences significant night time visitation, and this is clear from the presence of a night time peak in addition to the typical lunch peak.
- Carnegie Central provides a significant supply of car parking for the centre and is likely used as a last resort for visitors whom cannot parking in the immediate centre.
- Carnegie also has the lowest amount of car parking out of the three centres.

Analysis based on current parking numbers:

Total Public Parking	Parking Assessment		
	Land Use	Shared Parking Efficiency	4 Hour Peak Occupancy
1059	171 undersupply	75 oversupply	122

Analysis based on future parking numbers (based on structure plan strategies):

Total Future Public Parking	Increase	Parking Assessment		
		Land Use	Shared Parking Efficiency	4 Hour Peak Occupancy
1247	188	17 oversupply	263 oversupply	66 oversupply

2.3 ELSTERNWICK

- Elsternwick activity centre provides 1247 publicly accessible car spaces across a number of Council owned car parks and privately owned car parks.
- Elsternwick is well serviced by public transport with high quality tram and train routes and is well suited to walking and cycling for local visitation.
- Elsternwick occupancy rates indicate that the centre is relatively well serviced by the existing car parking supply.

Analysis based on current parking numbers.

Total Public Parking	Parking Assessment		
	Land Use	Shared Parking Efficiency	4 Hour Peak Occupancy
1206	153 undersupply	118 oversupply	146 oversupply

Analysis based on future parking numbers (based on structure plan strategies).

Total Future Public Parking	Increase	Parking Assessment		
		Land Use	Shared Parking Efficiency	4 Hour Peak Occupancy
1312	106	47 undersupply	224 oversupply	252 oversupply

3. METHODOLOGY

3.1 PUBLIC PARKING SUPPLY AUDIT

A parking audit of all activity centres was undertaken by O'Brien Traffic in 2010, this report was used to determine the current supply of publicly accessible parking within the three structure plan centres.

3.2 BENCHMARKING OF LAND USE AND PLANNING SCHEME PARKING REQUIREMENTS

Using data on non-residential floor space within the activity centres supplied in the BWEC (2017) Glen Eira Economic Analysis and Forecasting Study, an approximation of statutory parking supply requirements based on Clause 52.06 of the Glen Eira Planning Scheme can be developed.

This gives a clear suggestion of the total number of car parking spaces that should be provided within the centre to meet the commercial needs.

It is also possible to add any known or assumed increases in commercial floor space growth and the applicable car parking requirement.

3.3 PARKING OCCUPANCY STUDIES

To further understand the relationship with parking provision and parking demand within the centres. O'Brien Traffic was commissioned (August 2017) to undertake parking occupancy studies for all Council owned car parks within our study areas. These occupancy studies included both weekday and weekend counts to develop a holistic picture of parking utilisation throughout the centre.

3.4 APPLICATION OF LAND USE SHORTFALL TESTS

Parking shortfall is the number of spaces that are under or over provided currently in the centre.

a. Basic test

[Basic shortfall] = [Planning Scheme Requirement] - [Total Public Parking Provided]

This number is achieved by contrasting the planning scheme requirement and the total parking supply within the centre.

b. Shared parking test

Shared parking analysis acknowledges that the demand for parking is of a time-based nature. Demand fluctuates throughout the day operating on a peak and off-peak schedule depending on related land uses.

Shared Parking is defined as parking spaces that are shared by more than one user, which allows parking facilities to be used more efficiently. It takes advantage of the fact that most parking spaces are only used part time by a particular user. For example the parking provided for the dentist could be easily used by customers of the nearby restaurant after hours when the dentist is shut. When a park is used by more than one user it is considered to be more efficient. This is usually measured as a percentage.

A conservative estimate of the efficiency's gained from taking a shared parking approach normally ranges between 20%-30%. In our centres we have assumed a 20% efficiency rating for Carnegie and Elsternwick and 10% efficiency rating for Bentleigh. We have assumed a lower efficiency rating for Bentleigh, because this centre does not benefit from an established public transport system and acknowledging the role Bentleigh plays as the weekend grocery shopping destination for over 30% of Glen Eira residents.

[Shared Parking Shortfall] = [Planning Scheme Requirement x Shared Parking Efficiency] - [Total Public Parking Provided]

The application of the test applies the efficiency rating against the indicative land use statutory requirement and contrasting this new number with the total parking supply for the centre.

c. 4 hour peak occupancy test

The 4 hour peak occupancy test seeks to test peak occupancy levels against current and future provision of parking.

[4 Hour Peak Occupancy] = [Sum of 4 Highest Occupancy Rates for the Centre] / 4

The average 4-hour peak occupancy represents the average of the four highest hourly parking occupancies recorded across the day. The four highest parking occupancies do not have to occur across consecutive hours. Generally, typically if the average 4-hour peak occupancy is greater than

85%, then further parking management strategies should be considered.

[4 Hour Peak Occupancy Parking Shortfall] = [Planning Scheme Requirement x 4 Hour Peak Occupancy] - [Total Public Parking Provided]

To determine the average 4 hour peak occupancy, the four highest hourly parking occupancies recorded by the O'Brien Traffic parking occupancy studies are averaged. This peak occupancy is then applied to the indicative land use statutory requirement and contrasting this new number with the total parking supply for the centre, will determine a peak occupancy shortfall.

3.5 POTENTIAL FUTURE PARKING SUPPLY PROJECTIONS AND LAND USE SHORTFALL

The application of these short fall tests can then be applied to current parking supply and any future or proposed parking supply.

4. BENTLEIGH

4.1 BACKGROUND DATA

The Bentleigh activity centre has a moderately high level of parking provision primarily in the form of medium and large at-grade public parking facilities provided behind the established shopping strip on Centre Road. Current supply is as follows:

Council Owned Car Parks	
On Street	218
Off Street	915
Total	1133
Private Owned Public Car Parks	
Coles	62
Woolworths	106
Total	168
Grand Total	1301

Benchmarking the total commercial floor area of the activity centres against Clause 52.06 of the Glen Eira Planning scheme demonstrates a suggested parking number for the Bentleigh centre. The below mentioned Gross Floor Area (GFA) of commercial properties is sourced from the Blair Warman Economics (2017) Glen Eira Economic Analysis and Forecasting Study.

Total Commercial Floor Area	Glen Eira Planning Scheme
35,375 m ² GFA	1322

Parking occupancy surveys in Bentleigh were undertaken by Obrien Traffic on Tuesday 25 July and Saturday 29 July 2017 on the Council owned car parks.

Occupancy Results for Tuesday 25 July

	8:00: 00 AM	9:00: 00 AM	10:00: 00 AM	11:00: 00 AM	12:00: 00 PM	1:00: 00 PM	2:00: 00 PM	3:00: 00 PM	4:00: 00 PM	5:00: 00 PM	6:00: 00 PM	7:00: 00 PM	8:00: 00 PM	9:00: 00 PM	10:00: 00 PM
Oak Street	12 %	55 %	79%	91%	76%	52 %	76 %	58 %	67 %	52 %	48 %	30 %	12 %	3%	0%
Bleazby Street	29 %	37 %	58%	64%	56%	54 %	52 %	44 %	40 %	26 %	22 %	27 %	25 %	16 %	13%
Bent Street	33 %	50 %	59%	66%	63%	72 %	75 %	60 %	60 %	28 %	26 %	15 %	9%	5%	2%
Vickery Street	28 %	55 %	78%	79%	81%	81 %	78 %	79 %	79 %	57 %	48 %	40 %	38 %	36 %	14%
Godfrey Street	17 %	25 %	46%	88%	85%	85 %	85 %	74 %	75 %	30 %	26 %	17 %	12 %	8%	5%
Horsely Street	32 %	48 %	54%	79%	75%	71 %	67 %	59 %	55 %	53 %	46 %	38 %	30 %	21 %	12%
Library	18 %	22 %	21%	82%	79%	77 %	78 %	67 %	55 %	37 %	27 %	21 %	18 %	12 %	4%
Robert Street	0%	25 %	44%	63%	63%	94 %	81 %	69 %	56 %	13 %	6%	25 %	19 %	13 %	0%
Mitchell Street	18 %	22 %	35%	31%	27%	47 %	49 %	47 %	45 %	27 %	27 %	20 %	8%	12 %	6%
Daley Street	34 %	38 %	47%	43%	41%	79 %	72 %	31 %	31 %	24 %	19 %	14 %	5%	3%	2%
Bendigo Street	36 %	43 %	86%	71%	68%	54 %	46 %	54 %	50 %	25 %	18 %	14 %	7%	7%	4%
Burgess Street	50 %	57 %	87%	87%	93%	73 %	73 %	73 %	80 %	37 %	27 %	17 %	7%	3%	0%
Total	27%	39%	54%	72%	69%	71%	70%	60%	58%	35%	30%	24%	18%	13%	7%

Occupancy Results for Saturday 29 July 2017

	9:00:00 AM	10:00:00 AM	11:00:00 AM	12:00:00 PM	1:00:00 PM	2:00:00 PM
Oak Street	64%	79%	79%	97%	94%	88%
Bleazby Street	60%	68%	83%	87%	85%	76%
Bent Street	31%	56%	64%	76%	73%	59%
Vickery Street	57%	91%	88%	97%	93%	95%
Godfrey Street	66%	79%	99%	99%	85%	78%
Horsely Street	46%	53%	98%	98%	88%	83%
Library	39%	49%	98%	95%	83%	77%
Robert Street	31%	44%	100%	100%	75%	69%
Mitchell Street	41%	53%	100%	96%	98%	88%
Daley Street	36%	48%	100%	90%	81%	69%
Bendigo Street	54%	50%	82%	93%	71%	61%
Burgess Street	50%	40%	47%	63%	50%	43%
Total	49%	62%	88%	91%	83%	75%

4.2 OBSERVATIONS

- The occupancy studies highlight that Saturday parking demand is notably higher than recorded weekday demand. Many of the council owned car parks experience occupancy levels in the high 80s and 90s between 11am and 2pm.
- The Godfrey Street car park experiences high weekday demand (11am-2pm) although many of the adjacent parking areas retain significant capacity.
- Parking demand at the major car park sites is highest at the Coles car park and at the Godfrey Street car park; these locations appear to be the most valued for parking.
- Parking occupancy is consistently low at some sites, particularly Bleazby Street and Bent Street suggesting that some reduction in overall parking space provision across the town centre area may be manageable.
- The commuter car parking at the train station may provide some relief on the weekend demand
- Parking surveys do not cover on-street locations. Demand for on-street parking spaces in town centres is generally more than off street locations due to their convenience.

4.3 SHORTFALL TESTS

Completing the three parking need tests as detailed above in the methodology - demonstrates the following results.

Total Public Parking	Parking Assessment		
	Land Use	Shared Parking Efficiency	4 Hour Peak Occupancy
1301	304 undersupply	144 undersupply	160 undersupply

This analysis shows a demonstrable short fall or lack of public parking within the centre, with shortfalls ranging from 305 spaces to 144 spaces.

a. Basic test

This basic test demonstrates that the provision of car parking spaces as required by Clause 52.06 of the planning scheme is currently under supplied by 304 spaces.

b. Shared parking test

By applying a 10% efficiency ratio to parking numbers to make a conservative account for temporal nature of car parking within the centre, demonstrates a short fall of 144 spaces.

c. 4 hour peak occupancy test

Testing the car parking provision by layering the planning scheme requirement against the peak demand for car parking indicates Bentleigh still requires an additional 160 spaces to satisfy the land use based demands.

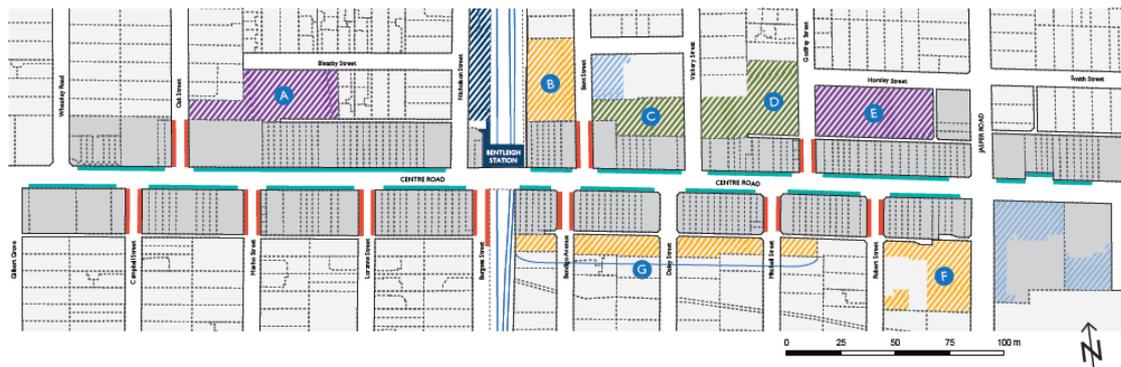
4.4 DRAFT STRUCTURE PLAN

The draft structure plan for Bentleigh identifies the follow parking interventions for the centre:

1. Increase the car parking numbers in the Bleazby and Horsely Streets public car parks by constructing two new multi deck car parks.
2. Repurpose Godfrey Street car park as a green public open space, by relocating the existing car parking into the new Horsely Street site.
3. Relocate Vickery Street car parking into Horsely Street car park and repurpose site for diverse housing and employment.
4. Prioritise Centre Road for short-term and needs-based parking.
5. Improve access and quality of linear car park south of Centre Road.
6. Remove car parking at the commercial end of selected side streets to improve pedestrian safety and access.

The increase in parking at the Horsely Street and Bleazby Street parking sites is intended to absorb the relocation of existing public parking that is to be repurposed (Vickery Street and Godfrey Street) and to provide for additional car parking needs of the centre.

Map of parking interventions from Draft Structure Plan



Future proposed parking by numbers of Council owned car parks.

	Council-Owned Car Parks	No. of Existing Spaces	No. of Projected Future spaces	Change
A	Bleazby Street	157	300	143
B	Bent Street	136	136	0
C	Vickery Street	58	0	-58
D	Godfrey Street	151	0	-151
E	Horsely Street	150	480	330
F	Library	82	82	0
G	South of Centre Rd	181	181	0
	Total	915	1179	264

The increased parking numbers are based on assumptions of parking yields based on land parcel sizes and industry best practice (It is assumed each car space in a multi deck or basement car park requires 30 square meters to account for required ramping and access lanes).

- I. Horsely Street is expected to need 3 levels of car parking with approximately 160 spaces per level.

2. Bleazby Street is expected to be a double storey parking structure with 150 spaces per level.

Completing the three parking need tests on the draft structure plan scenario with increased public parking demonstrates the following results:

Total Future Public Parking	Increase	Parking Assessment		
		Land Use	Shared Parking Efficiency	4 Hour Peak Occupancy
1656	264	40 undersupply	121 oversupply	104 oversupply

This analysis shows a demonstrable short fall or lack of public parking within the centre, with shortfalls ranging from 40 spaces to an oversupply of 121 spaces.

a. Basic test

This basic test demonstrates that the provision of car parking spaces as required by Clause 52.06 of the planning scheme is currently under supplied by 40 spaces.

b. Shared parking test

By applying a 10% efficiency ratio to parking numbers to make a conservative account for temporal nature of car parking within the centre, demonstrates an oversupply of 121 spaces.

c. 4 hour peak occupancy test

Testing the car parking provision by layering the planning scheme requirement against the peak demand for car parking indicates Bentleigh activity centre will have 104 spaces surplus to the requirement of the land use based demands.

4.5 FINAL COMMENTS

- Currently Bentleigh activity centre provides 1301 publicly accessible car spaces across a number of Council owned car parks and privately owned car parks.
- Increasing the supply of parking by 264 spaces will result in an oversupply of 121 spaces only represents a 7% of total public parking provision in Bentleigh and is considered appropriate to meeting continuing demand.

5. CARNEGIE

5.1 BACKGROUND DATA

The Carnegie activity centre currently has a moderately high level of parking. It is primarily in the form of some medium and large at-grade public parking facilities provided behind the established shopping strip on Koornang Road. Current supply is as follows:

Council Owned Car Parks	
On Street	409
Off Street	193
Total	602
Private Owned Public Car Parks	
Woolworths	81
Carnegie Central	376
Total	457
Grand Total	1059

Benchmarking the total commercial floor area of the activity centres against Clause 52.06 of the Glen Eira Planning scheme demonstrates a suggestive parking number for the Carnegie centre. The below mentioned Gross Floor Area (GFA) of commercial properties is sourced from the Blair Warman Economics (2017) Glen Eira Economic Analysis and Forecasting Study.

Total Commercial Floor Area	Glen Eira Planning Scheme
28,087m ² GFA	1118

Surveys in Carnegie were commissioned by O'Brien Traffic on Thursday 27 July and Saturday 29 July 2017 on Council owned car parks.

Occupancy Results for Thursday 27 July

	8:00 AM	9:00 AM	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM	9:00 PM	10:00 PM
Children's Centre	33%	89%	100%	89%	100%	78%	100%	89%	89%	89%	78%	89%	56%	44%	33%
Kokaribb Street	10%	21%	54%	75%	97%	94%	82%	90%	90%	99%	94%	91%	88%	43%	22%
Shepparson Avenue	8%	28%	62%	82%	86%	92%	98%	93%	69%	55%	82%	97%	94%	37%	16%
Total	10%	28%	61%	80%	91%	93%	92%	77%	71%	86%	94%	90%	40%	19%	

Occupancy Results for Saturday 29 July 2017

	9:00 AM	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM
Children's Centre	78%	89%	89%	100%	100%	100%
Kokaribb Street	25%	90%	99%	87%	88%	70%
Shepparson Avenue	25%	44%	77%	100%	98%	83%
Total	27%	61%	84%	96%	96%	80%

5.2 OBSERVATIONS

- The assessment of the public or shared parking available compared to the requirements set by the Glen Eira Planning scheme based on the existing land uses would show an approximate undersupply based against these provisions. However this does not account for the temporal demand of different land uses, for example in Carnegie there are many restaurants that do not open during the day and vice versa many fresh food providers not open during the night.
- The occupancy studies indicate there are two clear peaks in parking demand for the centre, a lunch and dinner trade peak. During these peaks, parking demand is considered very high, approaching 90-95% occupancy on both the typical week day and weekend.
- The car park to the north of the Carnegie library is notable for its sustained high parking demand from 9 am – 7 pm, however the very small size of this parking area suggests this of very little significance in the context of the greater activity centre
- The commuter car parking at the train station may provide some relief on the weekend demand

- Due to its distance from the Koornang Road shopping strip, the Carnegie Central carpark does not provide demand relief for the shopping strip.
- The surveys suggest there is an undersupply or high demand of public car parking in and around the Koornang Road shopping strip. The results indicate that parking occupancy consistently exceeds ideal levels of 70-85% in Carnegie, suggesting that some mitigating measures, potentially including demand management strategies, are warranted.
- Saturday parking demand is generally consistent across all parking areas during peak periods from 11 am – 1 pm, however parking demand at Shepparson Ave is noticeably lower earlier in the day, suggesting that Shepparson Ave is in a less desirable location for parking in comparison to the comparably sized Kokaribb car park.
- Parking surveys do not cover on-street locations. Demand for on-street parking spaces in town centres is generally than off street locations due to convenience.

5.3 SHORTFALL TESTS

Completing the three parking need tests as detailed above in the methodology - demonstrates the following results.

Total Public Parking	Parking Assessment		
	Land Use	Shared Parking Efficiency	4 Hour Peak Occupancy
1059	171 undersupply	75 oversupply	122

This analysis shows a demonstrable short fall or lack of public parking within the centre, with shortfalls ranging from 171 spaces to an oversupply of 75 spaces.

a. Basic test

This basic test demonstrates that the provision of car parking spaces as required by Clause 52.06 of the planning scheme is currently under supplied by 171 spaces.

b. Shared parking test

By applying a 20% efficiency ratio to parking numbers to make a conservative account for temporal nature of car parking within the centre, demonstrates an oversupply of 75spaces.

c. 4 hour peak occupancy test

Testing the car parking provision by layering the planning scheme requirement against the peak demand for car parking indicates Carnegie still requires an additional 122 spaces to satisfy the land use based demands.

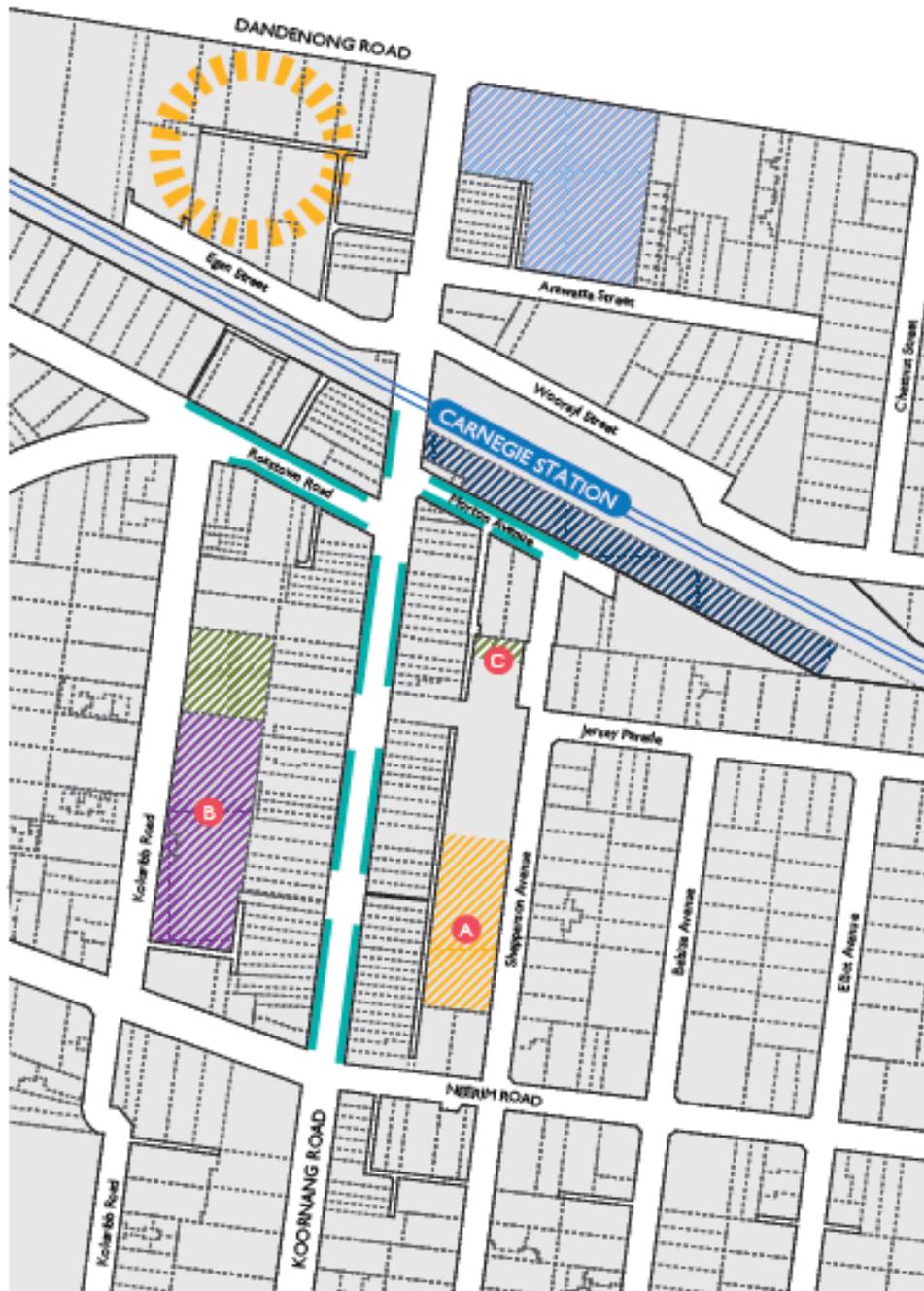
5.4 DRAFT STRUCTURE PLAN

The draft structure plan for Carnegie identifies the follow parking interventions for the centre.

1. Maintain existing car parking numbers at the Shepparson Avenue carpark.
2. Relocate Kokaribb Road car park into redevelopment od supermarlet site in partnership with private landowner to increase the number of car parks provided and create a new park at street level on Council-owned land.
3. Explore options to provide new public car parking in the urban renewal development area between the railway line and Dandenong Road.
4. Prioritise Koornang Road for short term and needs-based parking on street.
5. Reduce parking on Morton Avenue to increase the footpath width and greenery.

The increase in parking at the privately-owned supermarket site on Kokaribb Road is intended to provide for the additional car parking needs of the centre, whilst maintaining existing numbers at Shepparson Avenue.

Map of parking interventions from Draft Structure Plan



Future proposed parking by numbers of Council owned car parks.

	Council-Owned Car Parks	No. of Existing Spaces	No. of Projected Future spaces	Change
A	Shepparson Street	121	121	0
B	Kokaribb Road	67	190	123
C	Child centre	5	0	-5
	Total	193	311	118

The increased parking numbers are based on assumptions of parking yields based on land parcel sizes and industry best practice. (It is assumed each car space in a multi deck or basement car park requires 30 square meters to account for required ramping and access lanes).

- I. Kokaribb Road is expected to be a single-level basement car park that will be incorporated into the redevelopment of the existing supermarket.

Completing the three parking need tests on the draft structure plan scenario with increased public parking - demonstrates the following results.

Total Future Public Parking	Increase	Parking Assessment		
		Land Use	Shared Parking Efficiency	4 Hour Peak Occupancy
1247	188	17 oversupply	263 oversupply	66 oversupply

This analysis shows a demonstrable oversupply of public parking within the centre, with the oversupply ranging from 17 spaces to 263 spaces.

a. Basic test

This basic test demonstrates that the provision of car parking spaces as required by Clause 52.06 of the planning scheme is currently over supplied by 17 spaces.

b. Shared parking test

By applying a 10% efficiency ratio to parking numbers to make a conservative account for temporal nature of car parking within the centre, demonstrates an oversupply of 263 spaces.

c. 4 hour peak occupancy test

Testing the car parking provision by layering the planning scheme requirement against the peak demand for car parking indicates Carnegie activity centre will have 66 spaces surplus to the requirement of the land use based demands.

5.5 FINAL COMMENTS

- Carnegie activity centre currently provides 1059 publicly accessible car spaces across a number of Council owned car parks and privately owned car parks,
- The structure planning projects will increase the centre parking supply by 118 spaces.
- An oversupply of 263 spaces is skewed by the provision of parking at Carnegie Central, the real over supply is likely closer to the 4 hour peak occupancy test result of 66. This parking would likely be welcomed and easily absorbed if Carnegie hospitality offer continues to grow.

6. ELSTERNWICK

6.1 BACKGROUND DATA

The Elsternwick activity centre has a moderately high level of parking provision primarily in the form of some medium and large at-grade public parking facilities provided behind the established shopping strip on Glenhuntly Road. Current supply is as follows:

Council Owned Car Parks	
On Street	415
Off Street	364
Total	779
Private Owned Public Car Parks	
Coles	227
Potential Future Woolworths	200
Total	427
Grand Total	1206

Benchmarking the total commercial floor area of the activity centres against Clause 52.06 of the Glen Eira Planning scheme demonstrates a suggestive parking number for the Elsternwick centre. The below mentioned Gross Floor Area (GFA) of commercial properties is sourced from the Blair Warman Economics (2017) Glen Eira Economic Analysis and Forecasting Study.

Total Commercial Floor Area	Glen Eira Planning Scheme
28,999 m2 GFA	1054

Parking occupancy surveys in were commissioned by O'Brien Traffic on Tuesday 25 July and Saturday 29 July 2017 on the Council owned car parks.

Occupancy Results for Tuesday 25 July

	8:00 :00 AM	9:00 :00 AM	10:0 0:00 AM	11:0 0:00 AM	12:0 0:00 PM	1:00 :00 PM	2:00 :00 PM	3:00 :00 PM	4:00 :00 PM	5:00 :00 PM	6:00 :00 PM	7:00 :00 PM	8:00 :00 PM	9:00 :00 PM	10:0 0:00 PM
Library	36 %	62 %	64%	92%	91%	84 %	79 %	93 %	61 %	61 %	33 %	16 %	7%	4%	1%
Orrong Road	56 %	23 %	40%	76%	79%	64 %	67 %	67 %	79 %	46 %	17 %	12 %	17 %	13 %	10%
Stanley Street West	9% %	53 %	77%	92%	92%	90 %	88 %	75 %	82 %	73 %	49 %	47 %	58 %	32 %	27%
Stanley Street East	4% %	29 %	51%	66%	67%	67 %	55 %	64 %	48 %	42 %	18 %	15 %	12 %	3% %	3% %
Total	23 %	41 %	57%	80%	81%	75 %	70 %	74 %	65 %	54 %	28 %	21 %	22 %	12 %	9% %

Occupancy Results for Saturday 29 July 2017

	9:00:00 AM	10:00:00 AM	11:00:00 AM	12:00:00 PM	1:00:00 PM	2:00:00 PM
Library	27%	39%	69%	64%	61%	45%
Orrong Road	12%	23%	67%	56%	59%	42%
Stanley Street West	31%	45%	92%	92%	86%	88%
Stanley Street East	14%	33%	52%	44%	35%	35%
Total	20%	35%	69%	62%	57%	51%

6.2 OBSERVATIONS

- The results indicate that parking occupancy is generally reasonably low, although total Tuesday occupancy may be approaching levels that warrant consideration of some minor changes to parking management strategies
- Results suggest parking may be oversupplied in some areas, with Orrong Road car park and Stanley Street East car park consistently recording low occupancy across both Tuesday and Saturday survey periods.
- Tuesday parking demand is very low before 9 am, before ramping up slowly to a peak from approximately 11 am – 12 noon, with elevated demand lasting until approximately 3 pm.

There is little night-time parking demand, with occupancy remaining consistently low from 5 pm – 10 pm.

- The Stanley Street West car park is the only parking area that experiences high parking demand on a Saturday however the adjacent Stanley Street East car park experiences much lower parking demand
- Peak occupancy for centre of around 80% occurs only briefly around 11 am, and while Staniland Grove and Stanley Street West record occupancies of above 90%, other car parking areas record much lower corresponding occupancies,
- Staniland Grove and Stanley Street West are the most valued parking locations the occupancy studies highlight that Saturday parking demand is notably higher than recorded weekday demand. Many of the council owned car parks experience occupancy levels in the high 80's and 90's. Between 11am until 2pm
- The commuter car parking at the train station may provide some relief on the weekend demand
- Parking surveys do not cover on-street locations. Demand for on-street parking spaces in town centres is generally than off street locations due to convenience,

6.3 SHORTFALL TESTS

Completing the three parking need tests as detailed above in the methodology - demonstrates the following results.

Total Public Parking	Parking Assessment		
	Land Use	Shared Parking Efficiency	4 Hour Peak Occupancy
1206	153 undersupply	118 oversupply	146 oversupply

This analysis shows a demonstrable short fall or lack of public parking within the centre, with shortfalls ranging from 153 spaces to an oversupply of 146 spaces.

a. Basic test

This basic test demonstrates that the provision of car parking spaces as required by Clause 52.06 of the planning scheme is currently under supplied by 153 spaces.

b. Shared parking test

By applying a 20% efficiency ratio to parking numbers to make a conservative account for temporal nature of car parking within the centre, demonstrates an oversupply of 118 spaces.

c. 4 hour peak occupancy test

Testing the car parking provision by layering the planning scheme requirement against the peak demand for car parking indicates Elsternwick have 146 spaces surplus to the requirement of the land use based demands.

6.4 DRAFT STRUCTURE PLAN

The draft structure plan for Elsternwick identifies the follow parking interventions for the centre:

1. Increase the car parking numbers at the Stanley Street East public car park.
2. Relocate car parking from the Staniland Grove car park to create a new local urban park at street level.
3. Continue to provide public car parking within the Orrong Road car park
4. Repurpose Stanley Street West car park for employment and diverse housing whilst continuing to provide a some limited public car parking.
5. Prioritise Glenhuntly Road for short-term and needs-based parking.
6. Explore options to provide new publicly accessible car parking within the urban renewal development area to the west of the railway line.

The increase in parking at the Stanley Street East parking site is intended to absorb the relocation of existing public parking that is to be repurposed (Staniland Grove and Stanley Street West) and to provide for additional car parking needs of the centre.

Map of parking interventions from Draft Structure Plan



Future proposed parking by numbers of Council owned car parks.

	Council-Owned Car Parks	No. of Existing Spaces	No. of Projected Future spaces	Change
A	Orrong Road + Library	161	120	-41
B	Stanley E	126	350	224
C	Stanley W	77	50	-27
	Total	364	520	156

The increased parking numbers are based on assumptions of parking yields based on land parcel sizes and industry best practice. (It is assumed each car space in a multi deck or basement car park requires 30 square meters to account for required ramping and access lanes)

1. Stanley Street East car park is expected to need 3 levels of car parking with approximately 100 spaces per level.
2. Stanley Street East car park is expected to be reduced with public parking cover approximately 2/3 of the ground level to allow for future development and commercial tenancies.
3. By realigning the Orrong Road car park, Library and Children’s Centre we expect to be able to gain efficiencies in the car park design and maintain 120 spaces, in addition to creating a new public park.

Completing the three parking need tests on the draft structure plan scenario with increased public parking - demonstrates the following results:

Total Future Public Parking	Increase	Parking Assessment		
		Land Use	Shared Parking Efficiency	4 Hour Peak Occupancy
1312	106	47 undersupply	224 oversupply	252 oversupply

This analysis shows a demonstrable short fall or lack of public parking within the centre, with shortfalls ranging from 47 spaces to an oversupply of 252 spaces.

a. Basic test

This basic test demonstrates that the provision of car parking spaces as required by Clause 52.06 of the planning scheme is currently under supplied by 47 spaces.

b. Shared parking test

By applying a 20% efficiency ratio to parking numbers to make a conservative account for temporal nature of car parking within the centre, demonstrates an oversupply of 224 spaces.

c. 4 hour peak occupancy test

Testing the car parking provision by layering the planning scheme requirement against the peak demand for car parking indicates Bentleigh activity centre will have 252 spaces surplus to the requirement of the land use based demands.

6.5 FINAL COMMENTS

- Elsternwick activity centre currently provides 1247 publicly accessible car spaces across a number of Council owned car parks and privately owned car parks.
- The structure planning projects will increase the centre parking supply by 156 spaces.
- The provision of car parking with the Elsternwick centre is primarily the realisation of opportunities the draft structure plan work presents – consolidation of parking and efficiency gains as opposed to a response to a real need for additional car parking unlike Bentleigh and Carnegie.