

**DRAFT**  
**ROAD MANAGEMENT PLAN**  
**(SHORT TO MEDIUM TERM)**

**BRIGHTON ROAD**  
**(ANZAC HIGHWAY, GLENELG**  
**TO SCHOLEFIELD ROAD, SEACLIFF PARK)**

**FEBRUARY 2012**



**Government of South Australia**

Department of Planning,  
Transport and Infrastructure



## TABLE OF CONTENTS

<b>1 OVERVIEW- 1 -</b>	
<b>2 EXISTING ROAD ENVIRONMENT.....</b>	<b>- 3 -</b>
2.1 GENERAL DESCRIPTION.....	- 3 -
2.2 BEHAVIOUR OF TRAFFIC AND LAND USE .....	- 4 -
2.3 ROAD CROSS SECTION.....	- 7 -
2.4 PARKING PROVISION.....	- 10 -
2.4.1 On Road Parking.....	- 10 -
2.4.2 Off Road Parking.....	- 10 -
2.5 PUBLIC TRANSPORT.....	- 10 -
2.6 METROPOLITAN AREA ROAD WIDENING PLAN (MARWP) .....	- 12 -
2.7 ASSET SUSTAINMENT (ASSET MANAGEMENT).....	- 12 -
2.7.1 Road Pavement.....	- 12 -
2.7.2 Structures .....	- 12 -
2.7.3 Electrical Assets .....	- 13 -
2.7.4 Routine Maintenance.....	- 13 -
<b>3 ROAD ROLE AND FUNCTION .....</b>	<b>- 14 -</b>
3.1 FUNCTIONAL OUTCOMES .....	- 14 -
<b>4 ROAD SAFETY .....</b>	<b>- 15 -</b>
4.1 SIGNALISED INTERSECTION CRASHES.....	- 16 -
4.2 UNSIGNALISED INTERSECTION CRASHES.....	- 18 -
4.3 SPEED ENVIRONMENT.....	- 19 -
4.4 PEDESTRIANS.....	- 20 -
4.4.1 Schools .....	- 20 -
4.4.2 Train/Tram Station Pedestrian Movements.....	- 20 -
4.4.3 Glenelg Oval.....	- 21 -
4.5 BICYCLE LANES.....	- 22 -
4.6 ROAD LIGHTING.....	- 23 -
<b>5 ROAD CAPACITY .....</b>	<b>- 24 -</b>
5.1 INTERSECTION PERFORMANCE.....	- 24 -
5.2 MID-BLOCK PERFORMANCE .....	- 24 -
<b>6 TRAFFIC ISSUES AND RECOMMENDATIONS .....</b>	<b>- 26 -</b>
6.1 RECOMMENDATIONS FOR SIGNALISED INTERSECTIONS.....	- 26 -
6.1.1 Brighton Road / ANZAC Highway / Tapleys Hill Road.....	- 26 -
6.1.2 Brighton Road / Jetty Road (Glenelg).....	- 26 -
6.1.3 Brighton Road / Diagonal Road / Pier Street.....	- 27 -
6.1.4 Brighton Road / Whyte Street / Oaklands Road.....	- 29 -
6.1.5 Brighton Road / The Crescent.....	- 30 -
6.1.6 Brighton Road / Jetty Road (Brighton).....	- 31 -
6.1.7 Brighton Road / Sturt Road.....	- 33 -
6.1.8 Brighton Road / Seacombe Road.....	- 34 -
6.2 RECOMMENDATIONS FOR UNSIGNALISED INTERSECTIONS .....	- 36 -
6.2.1 General Recommendations.....	- 36 -
6.2.2 Brighton Road / Augusta Street.....	- 36 -
6.2.3 Brighton Road / High Street.....	- 38 -
6.2.4 Brighton Road / Tassie Street .....	- 40 -
6.2.5 Brighton Road / Cudmore Street / Elgar Road.....	- 41 -
6.2.6 Brighton Road / Bowker Street.....	- 42 -
6.2.7 Brighton Road / Holder Road.....	- 43 -
6.2.8 Brighton Road / Crombie Street.....	- 44 -
6.2.9 Brighton Road / Keelara Street .....	- 45 -
6.2.10 Brighton Road / Hartley Road.....	- 46 -
6.2.11 Brighton Road / Yarmouth Street.....	- 47 -
6.2.12 Brighton Road / Scholefield Road / Ocean Boulevard.....	- 48 -
6.3 RECOMMENDATIONS FOR MID-BLOCK SECTIONS .....	- 50 -
6.3.1 Section 1 – ANZAC Highway to Jetty Road (Glenelg).....	- 51 -
6.3.2 Section 2 – Jetty Road (Glenelg) to Diagonal Road .....	- 52 -
6.3.3 Section 3 – Diagonal Road to Oaklands Road .....	- 53 -
6.3.4 Section 4 – Oaklands Road to The Crescent.....	- 54 -

---

---

6.3.5	Section 5 – The Crescent to Jetty Road (Brighton).....	- 55 -
6.3.6	Section 6 – Jetty Road (Brighton) to Sturt Road.....	- 56 -
6.3.7	Section 7 – Sturt Road to Seacombe Road.....	- 56 -
6.3.8	Section 8 – Seacombe Road to Scholefield Road .....	- 57 -
6.3.9	General Recommendations – Bike Lanes .....	- 58 -
6.3.10	General Recommendations – Bus Stops.....	- 60 -
6.4	OTHER TRAFFIC MANAGEMENT / COMMUNITY CONCERNS .....	- 61 -
<b>7</b>	<b>TREATMENT SUMMARY .....</b>	<b>- 62 -</b>
7.1	INTERSECTION/ JUNCTION TREATMENTS .....	- 62 -
7.2	MID-BLOCK TREATMENTS .....	- 63 -
<b>8</b>	<b>CONCLUSION.....</b>	<b>- 64 -</b>
	<b>APPENDIX A – INTERSECTION CRASH DATA.....</b>	<b>- 65 -</b>
	<b>APPENDIX B – MID BLOCK CRASH DATA.....</b>	<b>- 70 -</b>
	<b>APPENDIX C – SIDRA MODELLING RESULTS.....</b>	<b>- 72 -</b>

## GLOSSARY

AADT	Average Annual Daily Traffic – The number of axle pairs crossing at a specific site per year and dividing this number by 365
DDA	Disability Discrimination Act 1992
DPTI	Department of Planning, Transport and Infrastructure
Intersection	Place where two or more roads cross
Junction	Place where two or more roads meet
MARWP	Metropolitan Area Road Widening Plan
Pedestrian Refuge	An island in a carriageway set aside for the exclusive use of pedestrians
PDO	Property damage only
RMP	Road Management Plan
PAC	Pedestrian Actuated Crossing

## 1 OVERVIEW

This Road Management Plan (RMP) provides an overview of the existing operational and safety issues along Brighton Road, as well as identifying short to medium term traffic management treatment options to be implemented. The RMP covers the section of Brighton Road from its intersection with ANZAC Highway (Glenelg) to the junction of Scholefield Road (Seacliff Park).

The draft RMP is not intended to address potential longer term major road improvement needs (eg the addition of extra lanes or duplication) resulting from future residential and industrial development. Major road improvements that would significantly change the operation of the road corridor are highlighted where known, however extensive investigations of any major improvements are outside the scope of this document.

This document is focussed at identifying potential short term road improvement needs to improve safety and traffic operations of the existing roads.

The process undertaken to identify existing traffic management issues included:-

- Research of historical transport investigation records
- Site auditing and observations
- Analysis of recorded crash data and traffic flow statistics
- Preliminary discussions with council officers and through information gained from the local community and officers of the Metropolitan Region of DPTI

By looking at a road on a route basis, traffic management improvements can be developed to take into account a range of factors including:-

- Broader transport objectives
- Role and function of the road
- Needs of all modes of transport including, freight, buses, bicycles and pedestrians
- Community needs and expectations
- Ensuring that any treatments are consistent with longer term plans for the road or area where these are known
- Application of appropriate standards and guidelines to ensure consistency and effectiveness of any proposed treatments

This draft RMP will form the basis for discussion and comment with the city councils and the community along the length of the route with a view to further development and eventual implementation of the plan. Note that whilst the draft RMP proposes a number of recommended treatments, the majority of the proposals are presently not funded. Funding for any improvements will need to be considered against other state-wide priorities in future financial years. This approach ensures that the funds available each year are allocated to the projects where the greatest benefit can be provided to the community as a whole.

## Brighton Road - Draft Road Management Plan

---

Funding has been secured for the bicycle lanes along Brighton Road (refer Section 6.3.9) and the banning of movements at the intersection of Brighton Road and Augusta Street (refer Section 37).

## **2 EXISTING ROAD ENVIRONMENT**

### **2.1 GENERAL DESCRIPTION**

This report focuses on a section of Brighton Road, from ANZAC Highway to Scholefield Road which is a total length of approximately 7 km running in a north-south direction. The road runs through two council areas, City of Holdfast Bay and City of Marion.

Brighton Road plays a key role for the movement of commuter traffic (particularly longer distance coastal movements), by providing access between high density residential areas and employment locations. While at a lower strategic level than Marion Road and South Road, Brighton Road also facilitates freight access between the southern and north western industrial areas. It also provides parallel access for north-south movements between the City and Southern Suburbs via ANZAC Highway, complimenting both South Road and Marion Road.

Due to its location close to Adelaide's coastline, there is a significant component of tourist and recreational travel using Brighton Road for access to popular beaches and entertainment districts such as Mosley Square in Glenelg. The corridor is also used by a substantial number of recreational cyclists, either travelling North / South or crossing Brighton Road while heading towards the Esplanade/beach.

Brighton Road is a significant Public Transport corridor, serviced by bus routes and intersected by the rail lines for trams and trains.

For the purposes of this report, Brighton Road has been divided into eight sections, with each section being located between major signalised intersections as follows:

- Section 1: Brighton Road between ANZAC Highway and Jetty Road (Glenelg)
- Section 2: Brighton Road between Jetty Road (Glenelg) and Diagonal Road
- Section 3: Brighton Road between Diagonal Road and Oaklands Road
- Section 4: Brighton Road between Oaklands Road and The Crescent
- Section 5: Brighton Road between The Crescent and Jetty Road (Brighton)
- Section 6: Brighton Road between Jetty Road (Brighton) and Sturt Road
- Section 7: Brighton Road between Sturt Road and Seacombe Road
- Section 8: Brighton Road between Seacombe Road and Scholefield Road

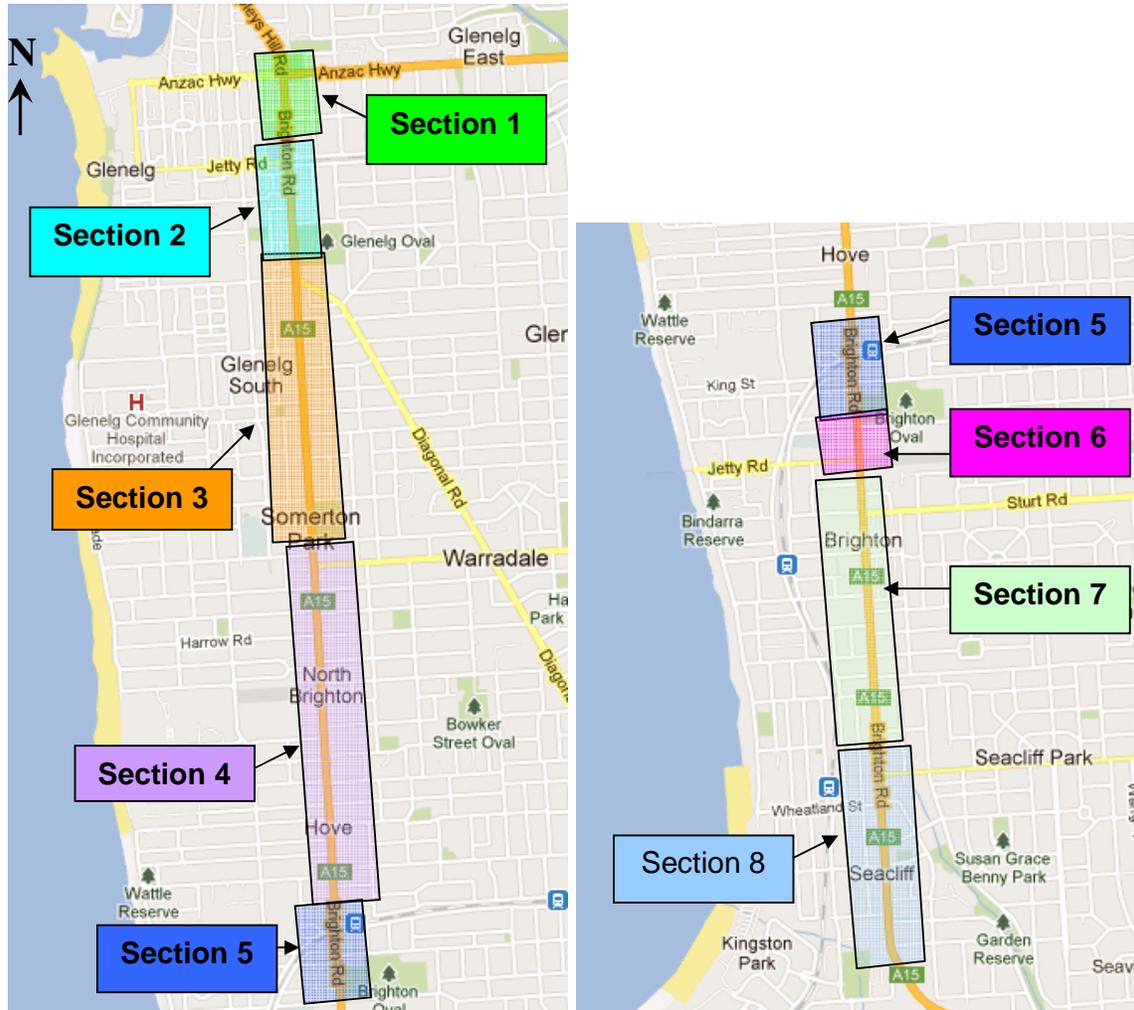


Figure 2-1 – Length of study along Brighton Road and its relative sections

## 2.2 BEHAVIOUR OF TRAFFIC AND LAND USE

Traffic volumes vary along the length of this section of Brighton Road. Average Annual Daily Traffic (AADT) for different road sections is depicted in Figure 2.2.

The land use along Brighton Road consists of a mix of predominantly residential properties with sections of commercial and retail properties along the corridor.

A number of educational and large recreational facilities are also located along or in the immediate vicinity of the road.

The road environment can be considered in three sections, each with a different predominant land use adjacent to it (refer to Figure 2.2):

Northern section: ANZAC Highway to Jetty Road, Glenelg (analysis section 1). This is focussed around tourist and recreational use.

## Brighton Road - Draft Road Management Plan

Central section: Jetty Road, Glenelg to Jetty Road, Brighton (analysis sections 2, 3, 4 & 5). These are focussed around residential use.

Southern section: Jetty Road, Brighton to Scholefield Road (analysis sections 6, 7 & 8). These are focussed around commercial use.

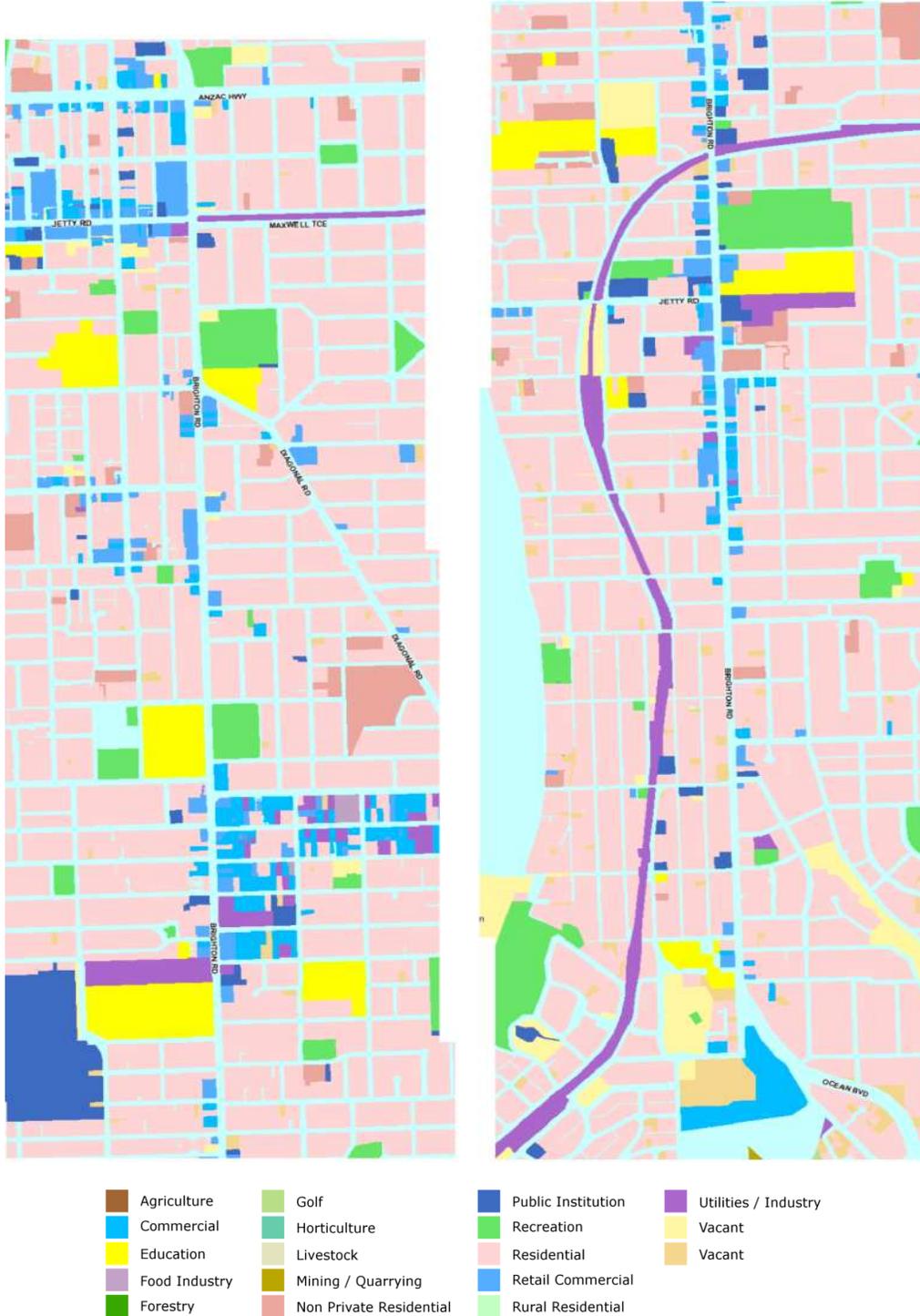


Figure 2-3 – Land Use in region adjacent to area of study

## Brighton Road - Draft Road Management Plan

As a result of these differing types of adjacent land uses, Brighton Road caters for a wide range of often competing traffic demands. This includes motorists using the road for trips to and from the Adelaide CBD, to the retail and commercial districts situated on Brighton Road, northbound / southbound through trips and for access to the adjacent coastline.



Figure 2-3 – Average Annual Daily Traffic (AADT) as of April 2010 (Source: DPTI iTIMS Information System)

## 2.3 ROAD CROSS SECTION

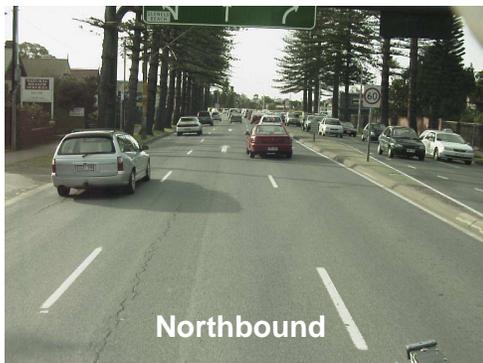
Brighton Road through the length of this study is between two to three lanes wide in the northbound carriageway and two lanes wide for the southbound carriageway. More detailed information about the cross sections for each section of the road is given below.

A raised median, ranging in width between 0.5m and 2.7m, is installed along the entire length of road. This allows for the provision of protected right turn lanes (an area where turning traffic can store out of the main traffic flow) into the majority of the local roads intersecting Brighton Road, whilst also providing protection for pedestrians crossing the road.

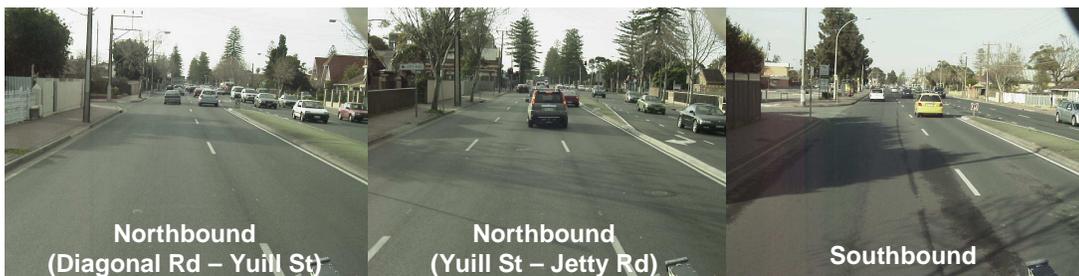
The road's pavement width (kerb to kerb) is typically 19m wide, with 2 to 3m wide footpaths on either side of the road. Consequently, road space available for widening or reallocation to pedestrians or cyclists is limited, without undertaking land acquisition to widen the road corridor.

The typical cross sections for each section of Brighton Road are listed below:

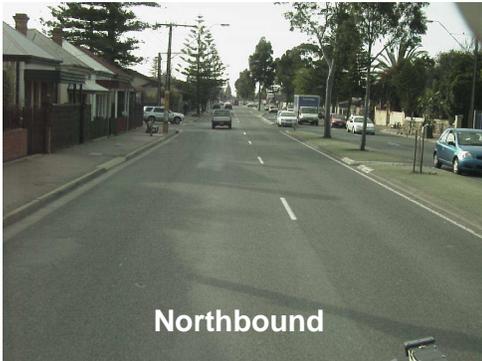
- **Section 1:** ANZAC Highway to Jetty Road (Glenelg) – this section consists of 3 traffic lanes in the northbound direction and 2 traffic lanes in the southbound direction, within a typical road width of 18m.



- **Section 2:** Jetty Road (Glenelg) to Diagonal Road – this section consists of 2 traffic lanes between Diagonal Road and Yuill Street and 3 traffic lanes between Yuill Street and Jetty Road in the northbound direction, and 2 traffic lanes in the southbound direction within a typical road width of 20m.



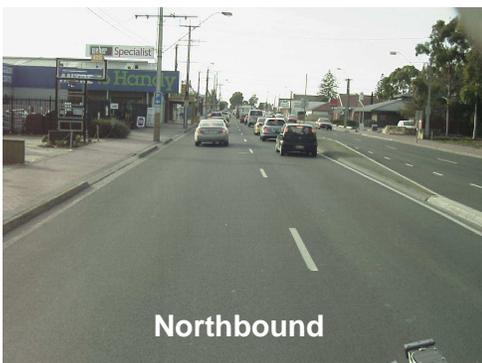
- **Section 3:** Diagonal Road to Oaklands Road – this section consists of 2 traffic lanes in both the northbound and southbound directions within a typical road width of 19m.



- **Section 4:** Oaklands Road to The Crescent – this section consists of 2 traffic lanes in both the northbound and southbound directions within a typical road width of 19m.



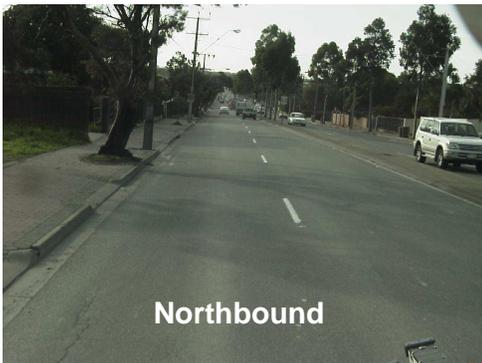
- **Section 5:** The Crescent to Jetty Road (Brighton) – this section consists of 2 traffic lanes in both the northbound and southbound directions within a typical road width of 19m.



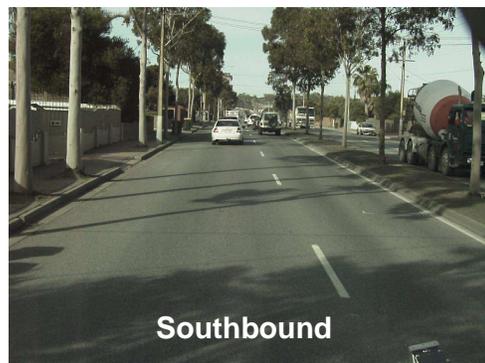
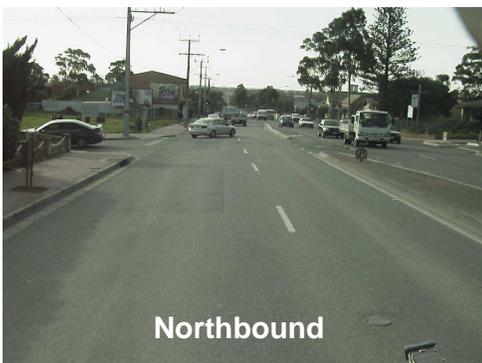
- **Section 6:** Jetty Road (Brighton) to Sturt Road – this section consists of 2 traffic lanes in both the northbound and southbound directions within a typical road width of 19m.



- **Section 7:** Sturt Road to Seacombe Road – this section consists of 2 traffic lanes in both the northbound and southbound directions within a typical road width of 19m.



- **Section 8:** Seacombe Road to Scholefield Road – this section consists of 2 traffic lanes in both the northbound and southbound directions within a typical road width of 19m.



## **2.4 PARKING PROVISION**

### **2.4.1 On Road Parking**

On road parking is currently allowed along the majority of the length of Brighton Road.

For the section of Brighton Road between ANZAC Highway and Jetty Road (Glenelg), parking is prohibited by yellow lines. There are no signs present in this section. Between Jetty Road (Glenelg) and Diagonal Road, both sides of Brighton Road have “No Stopping Anytime between the hours of 7-10am and 3-7pm” installed. The remaining sections of Brighton Road have parking available outside of businesses and residences. The allowed time limits of parking outside of businesses vary, as do the times that these limits are applicable. Parking outside of residences does not have time restrictions.

On road parking is used more frequently in the vicinity of businesses compared to on road parking within residential areas along Brighton Road.

The kerbside lane widths along Brighton Road are not wide enough to allow large vehicles to travel past parked vehicles without encroaching into the adjacent lane. This limits the road capacity to a single lane when vehicles are parked.

It should be noted that Brighton Road is one of the few strategic roads across Adelaide that does not have peak hour parking restrictions or on-road bike lanes. Restricting parking increases the capacity of the road, whilst also providing greater road space to support a safer road environment for pedestrian and cyclists.

### **2.4.2 Off Road Parking**

There are a significant number of locations along Brighton Road where off road parking is provided as part of the adjacent commercial and retail developments. The largest of these areas are located at the Bay Shopping Centre, Glenelg Oval, adjacent to the tram and train lines and a number of small to medium sized shops.

Whilst a car parking survey has not been undertaken, it would appear that there are substantially more car parks available off road behind adjacent retail and commercial facilities than what is currently available on road along Brighton Road. On-site observations also indicate that the majority of these off road parking areas are under utilised at present.

## **2.5 PUBLIC TRANSPORT**

Brighton Road has numerous Adelaide Metro bus services operating along and across it, as well as stations for both the Glenelg Tram and Noarlunga train line adjacent to it. These services can be seen on the Adelaide Metro service map in Figure 2.4.

There are two rail level crossings on Brighton Road; the Glenelg Tram line crossing at the intersection with Jetty Road (Glenelg) and the Noarlunga rail line crossing at the intersection with the Crescent and Addison Road, Hove.



Figure 2-4: Bus Routes on Brighton Road in the area of the study (Source: Adelaide Metro, updated Jan 2011)

## **2.6 METROPOLITAN AREA ROAD WIDENING PLAN (MARWP)**

The MARWP Act was developed in 1972 as a means to control building development so that land would be available for the widening of existing arterial roads and the construction of future arterial roads with minimum disruption to abutting property, should this need arise in the future.

For Brighton Road, MARWP requirements have been identified for a number of key signalised intersections along the arterial route. MARWP requirements exist at the following intersections:

- ANZAC Highway
- Diagonal Road
- Jetty Road (Glenelg)
- Oaklands Road
- Sturt Road

Whilst MARWP requirements have been identified at the above locations, land is generally not acquired by the Commissioner of Highways (CoH) until a project is approved and funded. Furthermore, whilst the plan shows that land is possibly required for widening, the CoH may at some time negotiate for the acquisition of land in accordance with the Highways Act and the Land Acquisition Act.

Currently, there are not any mid-block (sections between major intersections) MARWP requirements have been identified along the extent of Brighton Road. However this may be reviewed in future in line with any development in the area that may increase traffic volumes thus necessitating road widening.

## **2.7 ASSET SUSTAINMENT (ASSET MANAGEMENT)**

DPTI undertake a number of asset sustainment activities across the road network, including the following:

### **2.7.1 Road Pavement**

Pavement rehabilitation works was undertaken on Brighton Road in the sections between Jetty Road and Diagonal Road, and Downing Road and Sturt Road in 2009. A visual inspection of the road pavement along Brighton Road between ANZAC Highway and Scholefield Road was undertaken in October 2010. This inspection revealed that the road surface is of an overall fair condition with no major defects needing immediate attention.

The sections between ANZAC Highway and Jetty Road, and Diagonal Road and Oaklands Road have been identified as requiring remedial works in the short to medium term, however there are a number of higher priority roads across the Adelaide metropolitan network. As part of the continuing assessment of the Adelaide metropolitan network, this road will continue to be monitored, with future rehabilitation or improvement projects identified and implemented as deemed necessary.

### **2.7.2 Structures**

The only major structure identified within the section of Brighton Road being investigated as part of this RMP is the gantry 270 m north of Jetty Road (Glenelg). This gantry spans 20.6 m

and supports Advanced Directional signage. It was last inspected in August 2006 and its overall condition was rated as 'Very Good'. At this time, the suggested reconstruction of this structure would be no sooner than year 2057.



Figure 2-6: Gantry with Advance Directional signage on Brighton Road

### 2.7.3 Electrical Assets

DPTI manage traffic signals, pedestrian crossings and road lighting mounted on tubular lighting poles. Of the roads under the care control and management of the Commissioner of Highways, about 50% of the road lighting is on ETSA Utilities stobie poles. DPTI pay a tariff to ETSA to maintain and repair lamps on their infrastructure and DPTI collect 50% of that tariff from council where it is deemed to provide a service to the public such as lighting footpath areas.

Between Anzac Highway and Jetty Road (Glenelg) road lighting is mounted on DPTI tubular light poles. For the remainder of the corridor between Jetty Road (Glenelg) and Scholefield Road the road lighting is primarily mounted on ETSA stobie poles.

Road lighting on DPTI arterial roads are audited as required by the Auditor General and maintenance and repair is carried out as reported to the Traffic Management Centre.

### 2.7.4 Routine Maintenance

Routine Maintenance activities on this section of road are typically carried out by DPTI staff or an external contractor under a contract. The routine maintenance service agreement addresses the minor maintenance issues; with larger issues being addressed on a priority basis as funding becomes available.

Routine maintenance includes:

- repair of potholes and pavement failures,
- maintenance of the roadside including the moving of grass and trimming of vegetation
- cleaning and replacement of signs and guard fence; and
- grading and repairing potholes on unsealed shoulders

The activities undertaken as part of routine maintenance are:

- the regular inspection, recording and reporting of defects; and
- preparing a prioritised Maintenance program and works program to address the defects

### 3 ROAD ROLE AND FUNCTION

Brighton Road is defined as a 'Strategic Route', a 'Primary Commuter Access Route' and a 'Primary Cycling Route'.

- Strategic routes typically carry high volumes of traffic travelling over long distances throughout the day and connect major metropolitan and state regional centres.
- Commuter routes cater for the safe and efficient movement of people in cars travelling over longer distances, typically between home and employments / educational areas.
- Cycling routes enable the direct, efficient and safe travel for the effective movement of people travelling by bicycle.

It is also a significant Public Transport corridor, serviced by up to three bus routes along various sections. Additionally, it is intersected by the Glenelg Tram line at Jetty Road (Glenelg) and by the Noarlunga Train line at Hove.

#### 3.1 FUNCTIONAL OUTCOMES

Functional outcomes are safety and operational objectives to assist in the selection of traffic management components such as traffic signals, traffic lanes, access control, roadside environment and pedestrian facilities.

A functional outcomes analysis has been used to develop an overall plan of how the arterial road being considered in this RMP should look and operate.

Table 3-1 shows the functional outcomes and recommended design and operational requirements for arterial roads across Adelaide.

**Table 3-1 - Functional Outcomes and recommended design and operational requirements for Brighton Road**

<b>System Management Components</b>	<b>Functional Outcomes</b>	<b>Recommended Design and Operational Requirements</b>
CAPACITY / LANES	<ul style="list-style-type: none"> <li>• Provide adequate road space and number of lanes to ensure safe and efficient operation</li> <li>• Cater for bicycles</li> </ul>	<ul style="list-style-type: none"> <li>• Provide an adequate number of lanes to cater for peak flow volumes in both directions</li> <li>• Provide cycle lane, or wider kerb lane, or sealed shoulder to accommodate bicycles</li> </ul>
TURNING TRAFFIC	<ul style="list-style-type: none"> <li>• Traffic turning right or U turning, should not interfere with the flow of through traffic</li> </ul>	<ul style="list-style-type: none"> <li>• Provide right turn storage lanes at key intersections or at busy access points</li> <li>• Median to be provided where possible to separate the through movements</li> <li>• Raised median to be used at critical locations</li> <li>• Ban U turns and Right turns at critical junctions</li> </ul>
ACCESS	<ul style="list-style-type: none"> <li>• In general, maintain existing level of access to local areas.</li> <li>• Limit direct access where safety or efficiency takes precedence</li> </ul>	<ul style="list-style-type: none"> <li>• Use sheltered or painted turn lanes to provide safe access to local roads</li> <li>• Provide raised medians to prevent undesirable movements / access.</li> </ul>

## Brighton Road - Draft Road Management Plan

<b>System Management Components</b>	<b>Functional Outcomes</b>	<b>Recommended Design and Operational Requirements</b>
SPEED LIMITS	<ul style="list-style-type: none"> <li>Speed limits appropriate to road environment and adjacent development</li> </ul>	<ul style="list-style-type: none"> <li>Maintain existing speed limits</li> </ul>
TRAFFIC MANAGEMENT AND SAFETY AT INTERSECTIONS	<ul style="list-style-type: none"> <li>Minimise conflict points at busy intersections to reduce crashes</li> </ul>	<ul style="list-style-type: none"> <li>Provide active control (e.g. traffic signals, roundabouts) at major intersections if warranted and ensure that current locations are optimised</li> <li>Where possible, minimise conflict points at uncontrolled intersections to improve safety (e.g. ban turn or cross movements)</li> <li>Use raised medians at intersections where clearer traffic control is needed</li> </ul>
PEDESTRIANS AMENITY AND SAFETY	<ul style="list-style-type: none"> <li>Ensure a safe accessible road environment for pedestrians</li> <li>Consider needs of more vulnerable user groups (e.g. children, older pedestrians)</li> </ul>	<ul style="list-style-type: none"> <li>Provide raised medians / walk throughs at busy pedestrian crossing points</li> <li>Provide kerb ramps or cut outs at all road crossing points</li> <li>Provide appropriately designed footpaths with appropriate clear width and height clearances (Council)</li> <li>Reduce traffic speeds where appropriate</li> <li>Provide road lighting to appropriate standards</li> <li>All pedestrian facilities to be DDA compliant</li> </ul>
LANDSCAPING AND ROADSIDE FURNITURE	<ul style="list-style-type: none"> <li>Remove or protect roadside hazards</li> </ul>	<ul style="list-style-type: none"> <li>Trim or remove vegetation where necessary for road safety</li> <li>Remove unprotected roadside obstacles or drop offs (e.g. exposed surface drainage/culverts)</li> <li>Ensure new landscaping / urban design elements do not create a new hazard</li> </ul>

The aim is for Brighton Road to satisfy most of the requirements shown in the table above, and these guidelines have been considered when developing the recommendations in Section 6 of the report.

## 4 ROAD SAFETY

### 4.1 SIGNALISED INTERSECTION CRASHES

Analysis of the crash data includes only those recorded events that resulted in casualties (ie personal injuries or fatalities) or property damage where the estimated value of damage was greater than \$3000 (shown as PDO \$3000+ in the following tables).

Table 4.1 shows the signalised intersection crash data for Brighton Road. The intersections with the total casualty crashes of three and above have been investigated further. The complete intersection crash data can be found in Appendix A.

**Table 4-1 - Signalised Intersection Crashes 2005-2009**

Sect.	Intersection	Crash Type	PDO \$3000+	Number of Casualty Crashes	Total
1	Anzac Highway	Right Angle	2	2	4
		Right Turn	2	2	4
		Rear End	57	22	79
		Hit Pedestrian	-	1	1
		Hit Fixed Object	5	2	7
		Hit Obj. on Road	-	-	-
		Side Swipe	7	1	8
		Head On	1	-	1
		<b>Total</b>	<b>74</b>	<b>30</b>	<b>104</b>
		2	Jetty Road (Glenelg)	Right Angle	-
Right Turn	8			9	17
Rear End	11			1	12
Hit Pedestrian	-			-	-
Hit Fixed Object	-			1	1
Hit Obj. on Road	-			-	-
Side Swipe	3			1	4
Head On	-			-	-
<b>Total</b>	<b>22</b>			<b>13</b>	<b>35</b>
3	Diagonal Road / Pier Street			Right Angle	2
		Right Turn	6	3	9
		Rear End	15	8	23
		Hit Pedestrian	-	-	-
		Hit Fixed Object	2	-	2
		Hit Obj. on Road	-	-	-
		Side Swipe	2	-	2
		Head On	-	1	1
		<b>Total</b>	<b>27</b>	<b>14</b>	<b>41</b>
		3	Whyte Street	Right Angle	4
Right Turn	-			-	-
Rear End	5			4	9
Hit Pedestrian	-			-	-
Hit Fixed Object	-			-	-
Hit Obj. on Road	-			-	-
Side Swipe	2			-	2
Head On	-			-	-
<b>Total</b>	<b>11</b>			<b>4</b>	<b>15</b>

## Brighton Road - Draft Road Management Plan

Sect.	Intersection	Crash Type	PDO \$3000+	Number of Casualty Crashes	Total
4	Oaklands Road	Right Angle	-	-	-
		Right Turn	-	-	-
		Rear End	16	7	23
		Hit Pedestrian	-	-	-
		Hit Fixed Object	-	-	-
		Hit Obj. on Road	-	-	-
		Side Swipe	-	-	-
		Head On	-	-	-
		<b>Total</b>	<b>16</b>	<b>7</b>	<b>23</b>
5	The Crescent	Right Angle	-	-	-
		Right Turn	1	-	1
		Rear End	2	3	5
		Hit Pedestrian	-	-	-
		Hit Fixed Object	-	-	-
		Hit Obj. on Road	-	-	-
		Side Swipe	-	-	-
		Head On	-	-	-
		<b>Total</b>	<b>3</b>	<b>3</b>	<b>6</b>
6	Jetty Road (Brighton)	Right Angle	2	1	3
		Right Turn	4	-	4
		Rear End	16	7	23
		Hit Pedestrian	-	-	-
		Hit Fixed Object	1	-	1
		Hit Obj. on Road	-	-	-
		Hit Parked Vehicle	-	1	1
		Side Swipe	3	-	3
		<b>Total</b>	<b>26</b>	<b>9</b>	<b>35</b>
7	Sturt Road	Right Angle	1	2	3
		Right Turn	14	3	17
		Rear End	36	9	45
		Hit Fixed Object	-	2	2
		Hit Obj. on Road	-	1	1
		Side Swipe	-	1	1
		Head On	1	-	1
<b>Total</b>	<b>52</b>	<b>18</b>	<b>70</b>		
8	Seacombe Road	Right Angle	-	-	-
		Right Turn	3	1	4
		Rear End	15	6	21
		Hit Pedestrian	-	-	-
		Hit Fixed Object	3	-	3
		Hit Obj. on Road	-	-	-
		Side Swipe	1	1	2
		Head On	-	-	-
<b>Total</b>	<b>22</b>	<b>8</b>	<b>30</b>		

It should be noted that, in general terms, the department prioritises specific crash sites using a ranking system aligned to the criteria to determine a 'Black Spot'. These sites are ranked based on the number of casualty crashes that have occurred in the most recent five year period. The ranking of both signalised and unsignalised intersections is reviewed each year.

## 4.2 UNSIGNALISED INTERSECTION CRASHES

The complete intersection crash data can be found in Appendix A.

Table 4.2 shows the unsignalised intersection crash data for the unsignalised intersections where there have been at least three casualty crashes in 2005-2009. There are a number of unsignalised intersections where the number of casualty crashes warrants further investigation and where appropriate, recommendations have been made in Section 6.2 of this report.

**Table 4-2 - Unsignalised Intersection Crashes 2005-2009**

<i>Sect.</i>	<i>Intersection</i>	<i>Crash Type</i>	<i>PDO \$3000+</i>	<i>Number of Casualty Crashes</i>	<i>Total</i>
1	Augusta Street	Right Angle	9	4	13
		Right Turn	27	11	38
		Rear End	9	1	10
		Hit Pedestrian	-	-	-
		Hit Parked Vehicle	-	-	-
		Hit Fixed Object	-	-	-
		Side Swipe	4	-	4
		<b>Total</b>	<b>49</b>	<b>16</b>	<b>65</b>
2	High Street	Right Angle	5	1	6
		Right Turn	25	10	35
		Rear End	-	-	-
		Hit Pedestrian	-	-	-
		Hit Parked Vehicle	-	-	-
		Hit Fixed Object	-	-	-
		Side Swipe	1	-	1
		<b>Total</b>	<b>31</b>	<b>11</b>	<b>42</b>
3	Cudmore Street / Elgar Road	Right Angle	1	2	3
		Right Turn	1	-	1
		Rear End	2	-	2
		Hit Pedestrian	-	-	-
		Hit Parked Vehicle	1	-	1
		Hit Fixed Object	-	-	-
		Side Swipe	-	1	1
		<b>Total</b>	<b>5</b>	<b>3</b>	<b>8</b>
4	Bowker Street	Right Angle	2	-	2
		Right Turn	-	1	1
		Rear End	-	2	2
		Hit Pedestrian	-	-	-
		Hit Parked Vehicle	-	-	-
		Hit Fixed Object	-	1	1
		Side Swipe	-	-	-
		<b>Total</b>	<b>2</b>	<b>4</b>	<b>6</b>
4	Holder Road	Right Angle	2	1	3
		Right Turn	-	-	-
		Rear End	-	-	-
		Hit Pedestrian	-	1	1
		Hit Parked Vehicle	-	-	-
		Hit Fixed Object	-	-	-
		Side Swipe	-	1	1
		<b>Total</b>	<b>2</b>	<b>3</b>	<b>5</b>

Brighton Road - Draft Road Management Plan

Sect.	Intersection	Crash Type	PDO \$3000+	Number of Casualty Crashes	Total
4	Crombie Street	Right Angle	-	-	-
		Right Turn	-	3	3
		Rear End	-	-	-
		Hit Pedestrian	-	-	-
		Hit Parked Vehicle	-	1	1
		Hit Fixed Object	-	-	-
		Side Swipe	-	-	-
		<b>Total</b>	<b>0</b>	<b>4</b>	<b>4</b>
5	Keelara Street	Right Angle	1	2	3
		Right Turn	-	1	1
		Rear End	6	4	10
		Hit Pedestrian	-	2	2
		Hit Parked Vehicle	-	-	-
		Hit Fixed Object	-	-	-
		Side Swipe	-	-	-
		<b>Total</b>	<b>7</b>	<b>9</b>	<b>16</b>
6	Hartley Road	Right Angle	1	-	1
		Right Turn	-	-	-
		Rear End	2	2	4
		Hit Pedestrian	-	1	1
		Hit Parked Vehicle	-	-	-
		Hit Fixed Object	-	-	-
		Side Swipe	-	-	-
		<b>Total</b>	<b>3</b>	<b>3</b>	<b>6</b>
7	Yarmouth Street	Right Angle	-	3	3
		Right Turn	1	-	1
		Rear End	2	-	2
		Hit Pedestrian	-	-	-
		Hit Parked Vehicle	-	1	1
		Hit Fixed Object	-	-	-
		Side Swipe	1	-	1
		<b>Total</b>	<b>4</b>	<b>4</b>	<b>8</b>
8	Scholefield Road / Ocean Boulevard	Right Angle	-	2	2
		Right Turn	2	-	2
		Rear End	9	5	14
		Hit Pedestrian	-	-	-
		Hit Parked Vehicle	-	-	-
		Hit Fixed Object	-	-	-
		Side Swipe	-	1	1
		<b>Total</b>	<b>11</b>	<b>8</b>	<b>19</b>

### 4.3 SPEED ENVIRONMENT

The existing speed limit is 60 km/h through the entire length of Brighton Road. At this time, DPTI considers the posted speed limits are appropriate to the current road environment.

## **4.4 PEDESTRIANS**

There are many pedestrian generators in and around Brighton Road including parks, ovals and the beach, schools, shopping facilities and public transport. A wide raised median is installed along the entire length of Brighton Road, which allows for pedestrians to stand within the median and cross only one traffic stream at a time. There are many pedestrian openings along Brighton Road which have been constructed to current design standards. However, there are also significant sections along Brighton Road that contain either non standard openings or none at all.

A number of pedestrian actuated crossings (signalised pedestrian crossings) have been installed, predominantly in the vicinity of schools or shopping precincts. Pedestrian facilities are identified in the following sections and in Figure 4.1.

### **4.4.1 Schools**

There are a number of schools located along Brighton Road. Safe crossing points across Brighton Road have been provided for each of these schools as detailed below:

- Saint Peters Woodlands Grammar and Glenelg Junior and Primary;
  - Pedestrian crossing facilities at the signalised intersection of Diagonal Road and Pier Street
- Sacred Heart Catholic College;
  - Signalised pedestrian crossing near Cudmore Street; two pedestrian walkthroughs in median across school frontage and pedestrian crossing facilities at the Whyte Street signalised intersection
- Brighton Secondary;
  - Signalised pedestrian crossing north of Balmoral Avenue
- Brighton Primary and Special School;
  - Signalised pedestrian crossing north of Jetty Road, Brighton and pedestrian crossing facilities at the signalised Jetty Road (Brighton) junction
- Seacliff Primary School
  - Signalised pedestrian crossing near Barwell Avenue of which there has been considerable improvements over recent years including improved kerb ramps, microwave detection and road safety signage.

### **4.4.2 Train/Tram Station Pedestrian Movements**

Signalised pedestrian crossings have been provided near Hove Railway station at the intersection of Brighton Road / The Crescent / Addison Road.

At Jetty Road (Glenelg), pedestrians have the ability to cross Brighton Road on both the north and south sides of the tram crossing.

### 4.4.3 Glenelg Oval

The safest and closest pedestrian crossing across Brighton Road to access the Glenelg Oval is via the traffic signals at the Diagonal Road intersection. Based on the preliminary consultation undertaken in the preparation of this report, an issue was raised whereby on days when the Oval is being used (i.e. football is being played) pedestrians undertake unsafe crossing practices to access the bus-stop on the western side of the road. This is addressed in section 6.2.4.

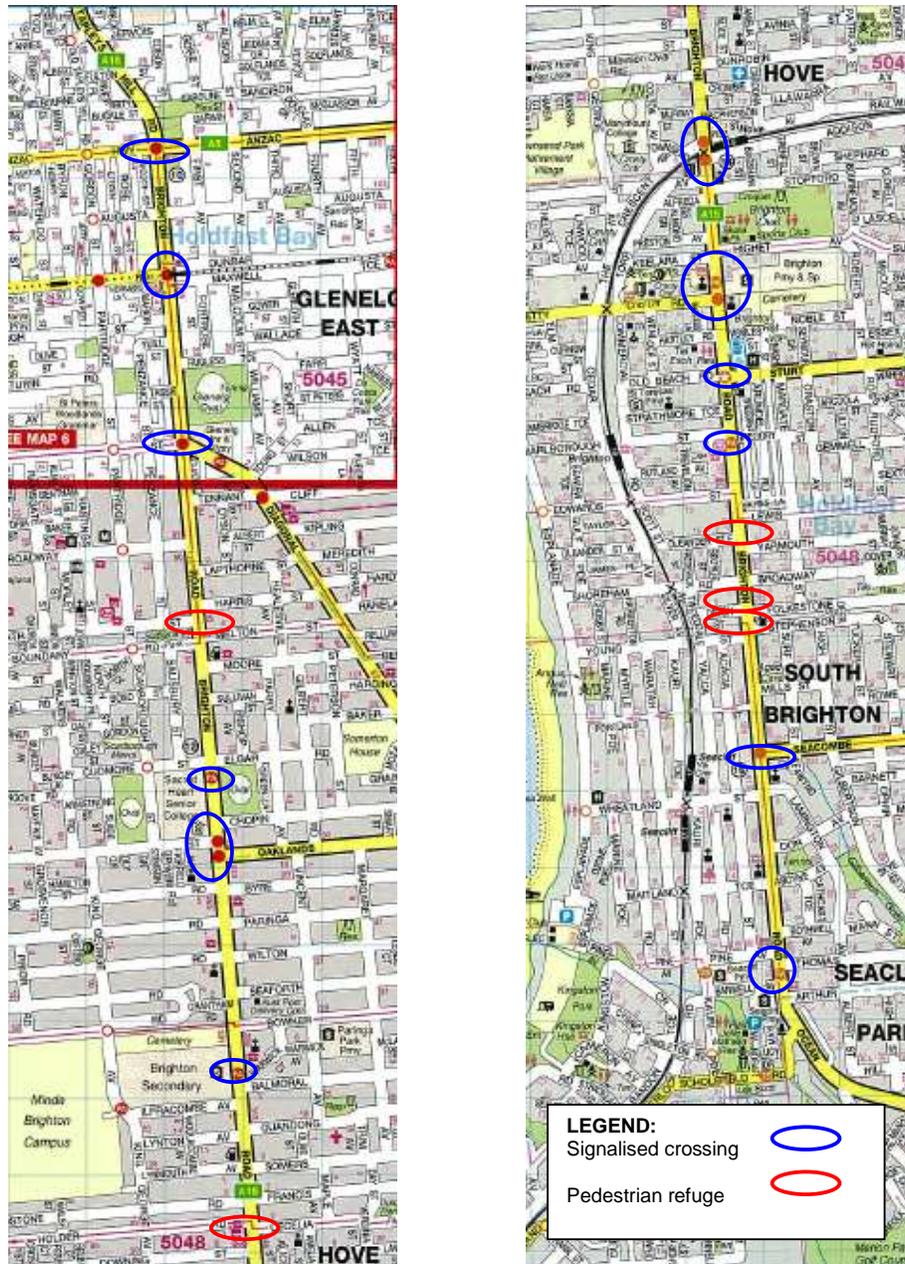


Figure 4-1 Dedicated Pedestrian Crossing Facilities along Brighton Road

## 4.5 BICYCLE LANES

It is a priority of DPTI to consider the installation of bicycle facilities as a part of any road upgrade. However, there are currently no on-road bike lanes marked along the length of Brighton Road. Due to the wide kerbside lanes along most of Brighton Road, there is the potential for marked on-road bike lanes to be provided (see Section 6.3 for potential bike lane opportunities).

As can be seen from the most current 2011 Bike Direct Map (Figure 4.1), Brighton Road is a strategic cycling route which effectively is a “missing link” in the bike lane network, as it does not have marked bike lanes installed along it.

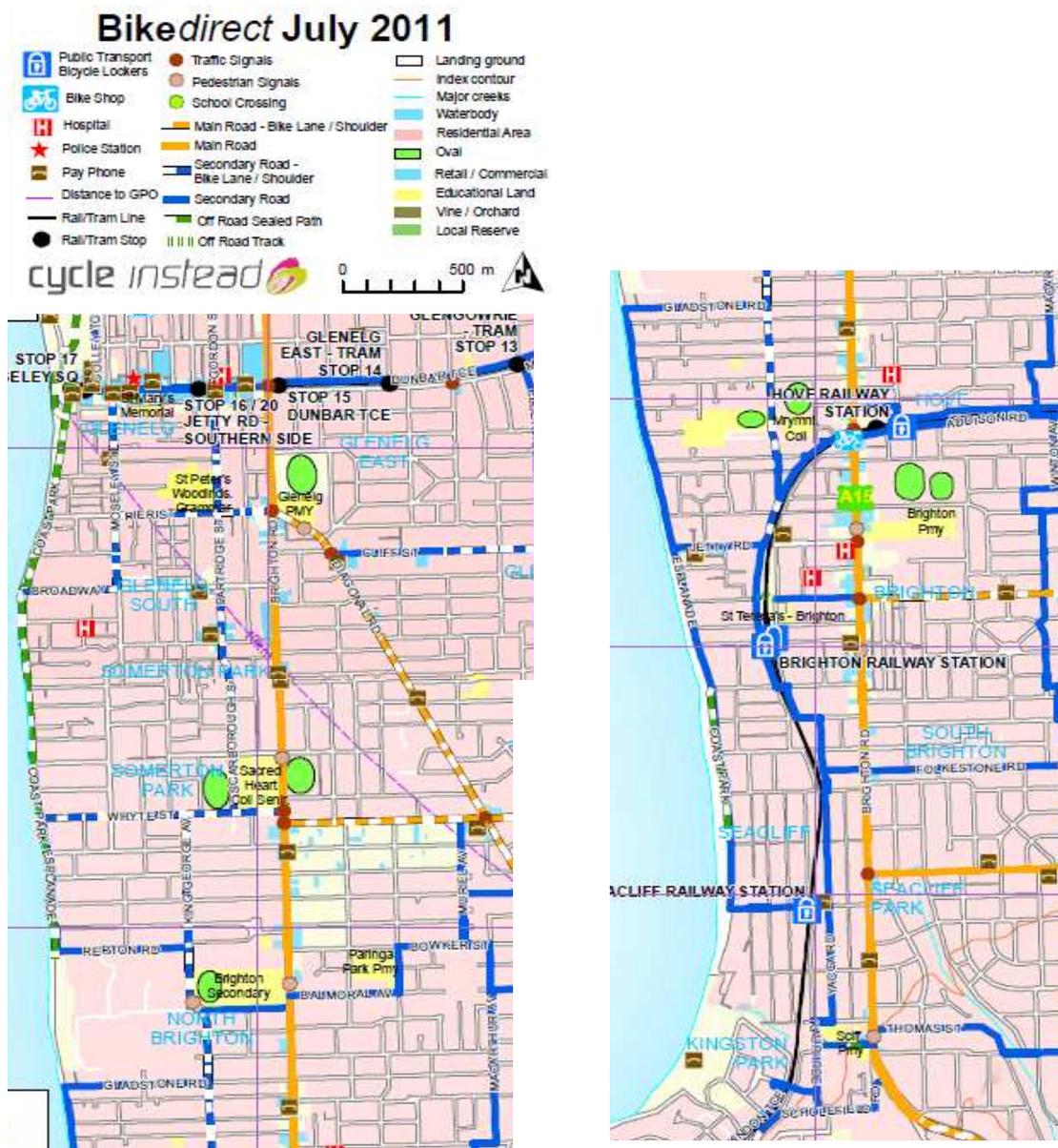


Figure 4-2 Bike routes and facilities adjacent to Brighton Road

There are a number of arterial roads linking into Brighton Road that have been identified by the department as requiring installation of bike lanes. These roads include:

- Diagonal Road
- Sturt Road
- Oaklands Road
- Seacombe Road.

Furthermore, due to its close proximity to the beach and the length of Brighton Road, there are a number of secondary cycling routes that cross Brighton Road. Whilst many of these occur through signalised intersections there are a few that do not, including:

- Tassie Street & Rugless Terrace
- Ilfracombe Avenue & Balmoral Avenue
- Tennant Street & Broadway Street
- Devon Street & Folkstone Road
- Moore Street.

DPTI proposes to install bicycle lanes on Brighton Road between Jetty Road (Glenelg) and Clubhouse Road (a total of 6.7 km) in the 2012/13 financial year.

Further discussion and recommendations on the installation of bike lanes is contained in Section 6.3.

## **4.6 ROAD LIGHTING**

As previously stated in Section 2.7.3, between Anzac Highway and Jetty Road (Glenelg) road lighting is mounted on DPTI tubular light poles. For the remainder of the corridor between Jetty Road (Glenelg) and Scholefield Road the road lighting is primarily mounted on ETSA stobie poles.

The vast majority of the road lighting on Brighton Rd is 90w (Orange) Low Pressure Sodium luminaires and, according to DPTI plans, were installed in the early 1970s. These would have been installed to the standard of the time but are now well below the current lighting standard. The current lighting standard for DPTI maintained arterial roads is V3 which is described in AS1158 Part 1.1: Lighting for roads and public spaces – Vehicular traffic (Category V) lighting – Performance and design requirements. V3 standard lighting is usually achieved using 250w High Pressure Sodium luminaires.

The ratio of night crashes to the total crashes on Brighton Road between ANZAC Highway and Scholefield Road is between 0 – 0.3 in each section. It is therefore considered that the number of night crashes is not a major issue. However, consideration should be given to the upgrade of road lighting to V3 standard in the near future.

## 5 ROAD CAPACITY

Brighton Road is predominantly a four lane (two lanes in each direction) urban arterial road with traffic volumes ranging from 30000 to 43000 vehicles per day (vpd) with between 4% and 6% commercial vehicles.

A review of the Metropolitan Adelaide Strategic Transport Evaluation Model (MASTEM) daily volume predictions for Brighton Road indicates that in the medium term it is not expected that traffic volumes will substantially increase. This is primarily due to Brighton Road already carrying a high traffic volume during the commuter peaks and the lack of vacant land available in the surrounding area for significant additional housing development to be undertaken causing a significant increase in traffic movements.

### 5.1 INTERSECTION PERFORMANCE

Major signalised intersections have been analysed using the Signalised (and Unsignalised) Intersection Design & Research Aid (SIDRA) computer modelling package to provide an overall Level of Service (LoS) for the intersection. The LoS range is a measure describing the operational conditions within a traffic stream, ranging from LoS A (best case) to LoS F (worst case). These results are summarised in Table 5-1.

The capacity analysis has been undertaken using the latest available traffic volume data from the DPTI database.

**Table 5-1: Signalised intersection Level of Service summary (based on 2009 traffic volumes)**

Intersection	LOS (AM Peak)	LOS (PM Peak)	Comments
ANZAC Highway	F	E	
Jetty Road (Glenelg)	E	F	includes tram movements
Diagonal Road	F	F	
Oaklands Road / Whyte Street	C	C	
The Crescent / Addison Road	E	F	includes the rail level crossing delays
Jetty Road (Brighton)	B	B	
Sturt Road	C	C	
Seacombe Road	B	D	

Recommendations to address safety and capacity issues for each of these intersections are made in Section 6.1 and more detailed tables showing the Level of Service for each intersection and their individual movements can be found in Appendix C.

### 5.2 MID-BLOCK PERFORMANCE

A review of the peak hour traffic volumes indicates that between 1000 and 2500 vehicles travel along Brighton Road during the weekday peak hour periods as shown in Figure 5.1.

As stated earlier, Brighton Road is one of the few strategic roads within Adelaide that does not have peak hour parking restrictions installed along its length.

## Brighton Road - Draft Road Management Plan

Austrroads Guide to Traffic Management Part 5 (2008) stipulates that where traffic volumes exceed 800 vehicles per hour for one clear lane of traffic and 1600 vehicles per hour for two clear lanes of traffic then clearways should be installed. Whilst the Austrroads Guide refers to the installation of clearways, it is considered that on road bicycle lanes involving parking restrictions would provide the same level of traffic flow improvements with the additional benefit of providing cyclists with a safe area to travel within.



Figure 5-1 One way peak hour flows (2008-2010)

## 6 TRAFFIC ISSUES AND RECOMMENDATIONS

### 6.1 RECOMMENDATIONS FOR SIGNALISED INTERSECTIONS

#### 6.1.1 Brighton Road / ANZAC Highway / Tapleys Hill Road

The ANZAC Highway / Brighton Road / Tapleys Hill Road intersection experienced a total of 30 casualty crashes in the period 2005 to 2009, with the majority being rear end type crashes. This location meets the Black Spot criteria on a crash basis. There are 30 other signalised intersections with a worse crash history than this site within the metropolitan area.

**Table 6-1- Summary of crashes at ANZAC Highway / Tapleys Hill Road intersection**

Section	Intersection	Crash Type	PDO \$3000+	Casualty	2005	2006	2007	2008	2009
1	ANZAC Highway	Right Angle	2	2	1	2			1
		Right Turn	2	2	1	1	1		1
		Rear End	57	22	16	20	11	21	11
		Hit Pedestrian		1				1	
		Hit Fixed Object	5	2	2	1		2	2
		Side Swipe	7	1	3		1	2	2
		Head On	1			1			
		<b>Total</b>		<b>74</b>	<b>30</b>	<b>23</b>	<b>25</b>	<b>13</b>	<b>26</b>

The majority of the rear end type crashes have occurred on the Brighton Road approach to the intersection. The intersection already has a mast arm traffic signal installed on this approach, on the western traffic signal pole. Mast arms provide overhead signals which greatly improve the visibility of signals for vehicles approaching the intersection, thereby reducing the probability of rear end crashes.

An additional mast arm could be installed on the eastern side of Brighton Road. Installing an additional right turn lane on both approaches of ANZAC Highway will enable more right turning vehicles to clear the intersection in a shorter time. The time that is saved can then be allocated to the north-south movements to extend this phase; thereby reducing congestion and potentially reducing the probability of rear end type crashes.

#### 6.1.2 Brighton Road / Jetty Road (Glenelg)

The junction of Jetty Road (Glenelg) experienced a total of 13 casualty crashes (between 2005-2009), with the predominant crash type being Right Turn, whereby vehicles that are turning right from Brighton Road into Jetty Road are not selecting the appropriate gap in the oncoming traffic stream. There are some other 139 signalised intersections with a worse crash history than this site within the metropolitan area.

**Table 6-2 - Summary of crashes at Jetty Road (Glenelg) junction**

Section	Intersection	Crash Type	PDO \$3000+	Casualty	2005	2006	2007	2008	2009
2	Jetty Road (Glenelg)	Right Angle		1			1		
		Right Turn	8	9	6	6	3	2	
		Rear End	11	1	5	2	3		2
		Hit Fixed Object		1		1			
		Side Swipe	3	1	2	1		1	
		<b>Total</b>		<b>22</b>	<b>13</b>	<b>13</b>	<b>10</b>	<b>7</b>	<b>3</b>

Trams at the Jetty Road (Glenelg) intersection are required to obey the same signal control as all other vehicles using the road network, allowing the crossing to essentially operate as a regular signalised intersection but with reduced capacity to the side road because of the space taken up by the tram.

The department undertook works in December 2008 which included extending the right turn lane and controlling the right turn movement in the off peak periods. From the table above, it appears that this treatment has since reduced the incidence of right turn collisions at this location (no Right Turn crashes recorded in 2009). It is considered that the works already undertaken are appropriate and that the intersection is monitored further to assess the effectiveness of these improvements.

### 6.1.3 Brighton Road / Diagonal Road / Pier Street

The intersection of Brighton Road / Diagonal Road / Pier Street experienced a total of 14 casualty crashes (between 2005-2009), with the predominant crash types being Rear End and Right Turn. There are some other 140 signalised intersections with a worse crash history than this site within the metropolitan area.

**Table 6-3 - Summary of crashes at Diagonal Road / Pier Street intersection**

Section	Intersection	Crash Type	PDO \$3000+	Casualty	2005	2006	2007	2008	2009
3	Diagonal Road / Pier Street	Right Angle	2	2	2	2			
		Right Turn	6	3	2	1	4	1	1
		Rear End	15	8	9	4	2	3	5
		Hit Fixed Object	2		1	1			
		Side Swipe	2				1	1	
		Head On		1			1		
		<b>Total</b>		<b>27</b>	<b>14</b>	<b>14</b>	<b>8</b>	<b>8</b>	<b>5</b>

The intersection currently operates at a LOS of F, resulting in significant delays for motorists at this intersection. Based on traffic turning data and site observations, the following improvements will improve the level of service of the intersection and thereby reduce the delays to motorists (shown in Figure 6-1):

- Extend the right turn lane on Brighton Road into Pier Street though a reduction in the right turn lane length into the Glenelg Oval and minor narrowing of the median;
- The installation of a second 45m long left turn lane into Diagonal Road;
- Realigning the kerbing on the South-West corner of the intersection to improve the left turn movements of large vehicles into Pier Street if possible. Pedestrian safety is to be maintained at this location.

Based on these improvements being implemented, the level of service for the intersection would be improved to a LOS D, which is considered acceptable.

Additionally, to address the crashes that have occurred at this intersection, the following treatments are proposed:

- Installation of traffic signals on mast arms to reduce rear end collisions; and
- Control right turn movements from Brighton Road in the off-peak traffic periods

It should be noted that whilst all of the above improvements should be undertaken at the same time to achieve the benefits discussed, the improvements could be staged to commence achieving safety and efficiency benefits in the short term.

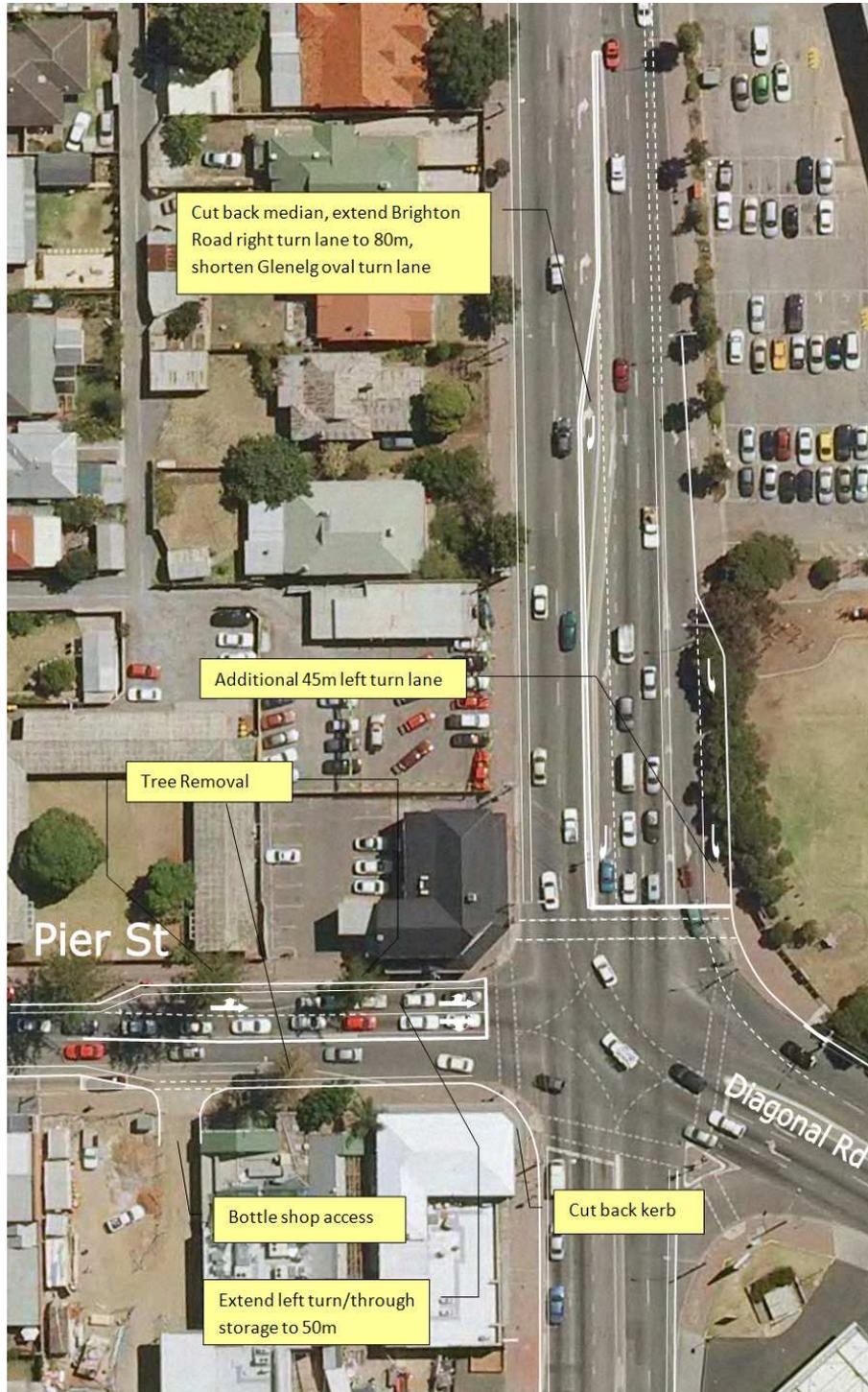


Figure 6-1: Proposed Brighton Road / Diagonal Road / Pier Street Improvements

### 6.1.4 Brighton Road / Whyte Street / Oaklands Road

The intersections of Brighton Road / Whyte Street and Brighton Road / Oaklands Road form a signalised staggered T-junction with Whyte Street about 50 metres north of Oaklands Road.

The intersection of Brighton Road / Whyte Street experienced a total of four casualty crashes in the period 2005-2009 all of which were Rear End type crashes. This intersection does not rank among the top 300 signalised intersections for crashes. The intersection of Brighton Road / Oaklands Road meanwhile has had seven casualty crashes in the same period, all of which were also Rear End. There are some 292 other signalised intersections in the Metropolitan area with a worse crash history in the same period.

**Table 6-4 - Summary of crashes at Whyte Street/Oaklands Road intersection**

Sect.	Intersection	Crash Type	PDO \$3000+	Casualty	2005	2006	2007	2008	2009
3	Whyte Street	Right Angle	4		3				1
		Rear End	5	4	1		3	3	2
		Side Swipe	2					2	
		<b>Total</b>	<b>11</b>	<b>4</b>	<b>4</b>	<b>0</b>	<b>3</b>	<b>5</b>	<b>3</b>
4	Oaklands Road	Rear End	16	7	8	3	3	5	4
		<b>Total</b>	<b>16</b>	<b>7</b>	<b>8</b>	<b>3</b>	<b>3</b>	<b>5</b>	<b>4</b>

A review of the details of the casualty crashes at these two intersections revealed that the majority of the crashes are caused by driver inattention, particularly the rear ends involving vehicles turning left from Oaklands Road to head south on Brighton Road. Rear ends in the middle of the intersection suggest there may be an issue with vehicles attempting to get through the intersection in one signal phase and crashing into vehicles in front that stop. However this is difficult to verify given the lack of detailed information in the crash reports. There are no sight distance issues at the intersection as the vertical alignment of the intersection is consistent and there are no obstructions to the driver's view of the signals.

While it is generally desirable to realign this type of intersection into a standard four-leg signalised intersection, it is not possible to do so without impacting the properties adjacent to both sides of the intersection. Also, this intersection operates at a reasonable Level of Service C in both peak periods, with the Brighton road through movements in the AM peak period performing at LOS B. Therefore no recommendations are made for this intersection at this stage.



Figure 6-2: Existing Layout of Brighton Road /Whyte Street /Oaklands Road intersection

### 6.1.5 Brighton Road / The Crescent

There have only been six crashes at this intersection in the period 2005 – 2009; three of which resulted in casualties. All three of these casualty crashes were rear end type crashes. With so few crashes, this intersection does not rank among the top 300 signalised intersections in the Metropolitan area in terms of casualty crashes between 2005 and 2009.

Table 6-5 - Summary of crashes at The Crescent intersection

Sect.	Intersection	Crash Type	PDO \$3000+	Casualty	2005	2006	2007	2008	2009
5	The Crescent	Right Turn	1			1			
		Rear End	2	3		2	2		1
		<b>Total</b>	<b>3</b>	<b>3</b>	<b>0</b>	<b>3</b>	<b>2</b>	<b>0</b>	<b>1</b>

This intersection is impacted on by the location of Hove railway station, as a westbound train stopping at the station will close off the intersection from when it first arrives at the station until all commuters have boarded/alighted and it has crossed Brighton Road. With the planned future increase in train frequency along this line, the impact of this level crossing is set to increase further. Therefore any changes to Brighton Road close to the crossing must take into consideration the potential for significant train delay.

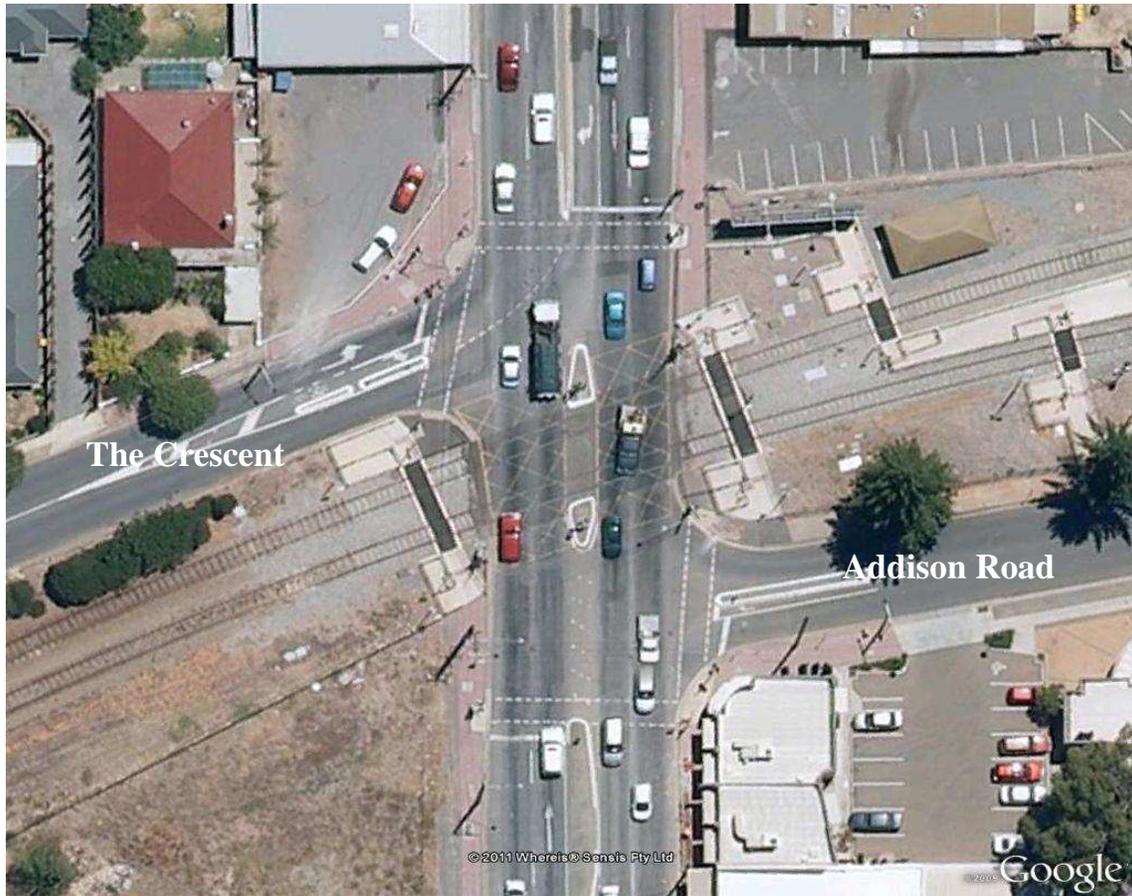


Figure 6-3: Existing Layout of Brighton Road / The Crescent / Addison Road intersection

### 6.1.6 Brighton Road / Jetty Road (Brighton)

The junction of Brighton Road / Jetty Road (Brighton) experienced a total of 35 crashes in the period 2005-2009; nine of which resulted in casualties. Seven of these casualty crashes were Rear End type crashes. There are 251 other signalised intersections in the Metropolitan area which have had more crashes in the same period.

Table 6-6 - Summary of crashes at Jetty Road (Brighton) junction

Sect.	Intersection	Crash Type	PDO \$3000+	Casualty	2005	2006	2007	2008	2009
6	Jetty Road (Brighton)	Right Angle	2	1		1		1	1
		Right Turn	4		3				1
		Rear End	16	7	4	3	7	5	4
		Hit Fixed Object	1		1				
		Hit Parked Vehicle		1		1			
		Side Swipe	3		1			2	
		<b>Total</b>		<b>26</b>	<b>9</b>	<b>9</b>	<b>5</b>	<b>7</b>	<b>8</b>

From SIDRA modelling, this junction appears to be performing well in both the AM and PM peak periods, with the Brighton Road through movements operating at LOS B or better. The right turn lane from Brighton Road into Jetty Road is 20m in length and was sufficient to cater for the 2009 traffic demand in both peak periods. A more up-to-date turning movement

survey has not been undertaken so the performance of the turn lane with current (2011) traffic volumes cannot be accurately assessed. However, it is not unreasonable to assume that a future volume increase will necessitate extending the right turn lane and this may impact upon the PAC located just north of the end of the taper. The operation of this PAC is linked to the signals at the intersection to better coordinate the movements at this location.

A short term solution would be to extend the right turn lane by shortening the taper length. Extending the left turn lane on Jetty Road should also be considered as there appears to be provision to do so within the existing footprint.

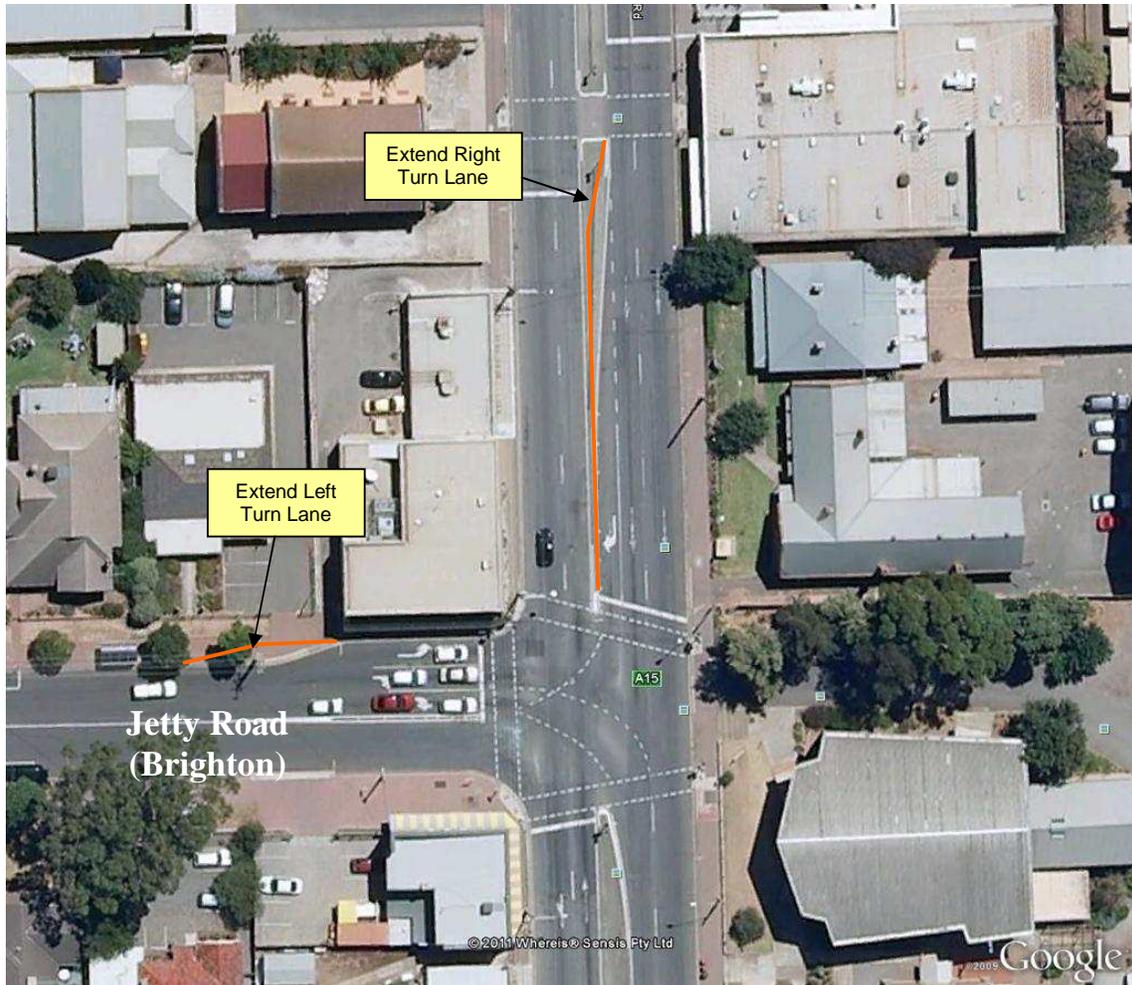


Figure 6-4: Proposed Brighton Road / Jetty Road (Brighton) Improvements

### 6.1.7 Brighton Road / Sturt Road

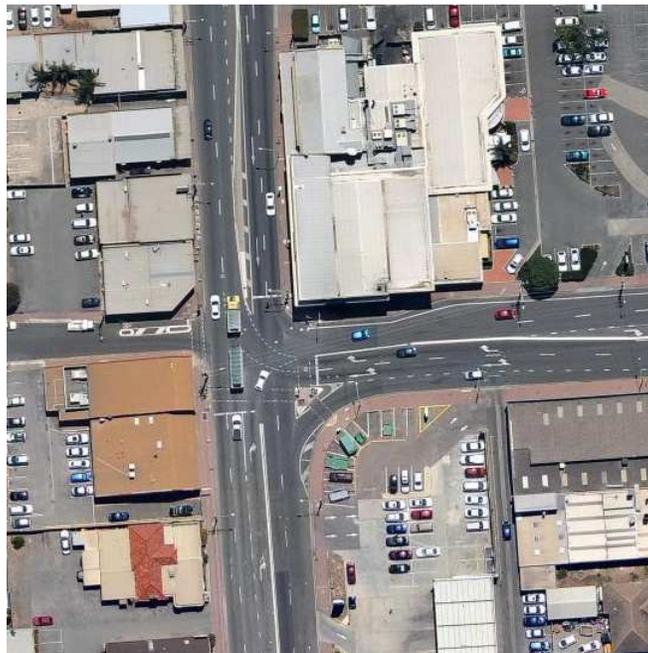
There have been 70 crashes at this intersection from 2005 to 2009; 18 of which were casualty crashes. There are some other 87 signalised intersections with a worse crash history than this site within the metropolitan area. The predominant types of crashes at this intersection are rear end and right turn.

**Table 6-7 - Summary of crashes at Sturt Road intersection**

Section	Intersection	Crash Type	PDO \$3000+	Casualty	2005	2006	2007	2008	2009
7	Sturt Road	Right Angle	1	2	1		1		1
		Right Turn	14	3	4	1	5	4	3
		Rear End	36	9	14	14	3	9	5
		Hit Fixed Object		2		1		1	
		Hit Obj. on Road		1				1	
		Side Swipe		1			1		
		Head On	1			1			
		<b>Total</b>		<b>52</b>	<b>18</b>	<b>19</b>	<b>17</b>	<b>10</b>	<b>15</b>

In 2008 Black Spot funding was provided to undertake improvements to the intersection due to its poor crash history. A second right turn lane was installed on the Sturt Road approach as well as a high entry angle left turn lane. A safety camera had previously been installed in 2002 for the southbound traffic movement.

The table above suggests that there has been a reduction in the number of Right Turn and Rear End crashes since the upgrade in 2008. It is considered that the works already undertaken are appropriate and that the intersection is monitored further to assess the effectiveness of these improvements.



**Figure 6-5: Brighton Road / Sturt Road**

### 6.1.8 Brighton Road / Seacombe Road

A review of the crash history shows there have been 30 crashes at this intersection from 2005 to 2009; eight of which were casualty crashes. There are some other 286 signalised intersections with a worse crash history than this site within the metropolitan area. The crash type at this intersection is rear end.

**Table 6-8 - Summary of crashes at Seacombe Road junction**

<i>Sect.</i>	<i>Intersection</i>	<i>Crash Type</i>	<i>PDO \$3000+</i>	<i>Casualty</i>	<i>2005</i>	<i>2006</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>
8	Seacombe Road	Right Turn	3	1	1	2			1
		Rear End	15	6	3	2	8	6	2
		Hit Fixed Object	3		2				1
		Side Swipe	1	1	1				1
		<b>Total</b>	<b>22</b>	<b>8</b>	<b>7</b>	<b>4</b>	<b>8</b>	<b>6</b>	<b>5</b>

Concerns have been raised about merging issues for left turn movements from Seacombe Road into Brighton Road. Currently, the intersection contains an unsignalised left turn with a short auxiliary acceleration lane which becomes a third through lane before terminating about 45 m north of Lamington Avenue. This layout is undesirable as there is no defined merge point for left turn traffic and the proximity of the next downstream intersection is likely to be critical for weaving manoeuvres. Furthermore, the Austroads Guide to Traffic Engineering Practice Part 5 suggests a minimum desirable acceleration lane length of 125m for merging onto a 60 km/hr road, a length which would extend the lane past Lamington Avenue.

Due to the lack of available space for extending the current acceleration lane to an acceptable length, it is suggested that the intersection be modified to include a 70 degree channelised left turn treatment without acceleration lane, as shown in Figure 6.6. This will allow motorists to approach Brighton Road at an angle giving a safe sight distance, provide greater delineation of the give way priority and eliminate the current merging issues. This type of treatment is consistent with the majority of signalised locations across the arterial road network.

An additional improvement to the intersection is the installation of a mast arm traffic signal on the Brighton Road northern approach. Mast arms provide overhead signals which greatly improve the visibility of signals for vehicles approaching the intersection, thereby reducing the probability of rear end crashes.



Figure 6-6: Proposed Brighton Road / Seacombe Road Improvements

## 6.2 RECOMMENDATIONS FOR UNSIGNALISED INTERSECTIONS

### 6.2.1 General Recommendations

Brighton Road has median openings provided into most local side streets. Many of these openings have created uncontrolled four-way intersections, thus increasing potential conflict points, whilst many others result in the creation of off-set T-junctions that are in close proximity to each other. Many of these off-set T-junctions (known as left right staggered T-junctions) have created areas which could cause confusion among motorists wishing to exit Brighton Road as it is not clear who has priority should there be another vehicle wishing to turn right from the opposite direction.

Furthermore, a number of the right turn lanes have short storage lengths and should more than one vehicle wish to turn right into the same side street then there is the potential for vehicles to queue back into the flow of traffic.

To improve overall road safety and to assist in the flow of traffic along Brighton Road, it is recommended that the median openings along Brighton Road be rationalised by implementing the following:

- Four-way median openings be restricted to a T-junction into one of the side streets to reduce the number of conflict points at that location,
- Left right staggered T-junctions be restricted to a single T-junction into one of the side streets to reduce confusion and the potential for collisions,
- Protected right turn lanes within the raised median that are less than 12m in storage length be lengthened where possible or alternatively closed off permanently.

Prior to implementing any of these changes, extensive consultation will need to be undertaken with Council to ensure local access is maintained and that traffic changes are distributed over the local road network.

### 6.2.2 Brighton Road / Augusta Street

A review of the recorded collision data at this intersection indicates a significant right turn collision history for vehicles wishing to turn right from Brighton Road to head west along Augusta Street with 38 collisions resulting in 11 casualties occurring between 2005 and 2009. 13 Right angled collisions, of which four were casualty crashes have also been recorded from motorists crossing this uncontrolled five lane section of Brighton Road to head in a westerly direction. There are only five other unsignalised intersections in the Metropolitan area with more crashes over the same period, indicating that safety issues at this intersection need to be addressed.

**Table 6-9 - Summary of crashes at Augusta Street intersection**

Section	Intersection	Crash Type	PDO \$3000+	Casualty	2005	2006	2007	2008	2009
1	Augusta Street	Right Angle	9	4	4	3	2	3	1
		Right Turn	27	11	3	8	11	8	8
		Rear End	9	1	2	4	2		2
		Side Swipe	4		2	1			1
		<b>Total</b>	<b>49</b>	<b>16</b>	<b>11</b>	<b>16</b>	<b>15</b>	<b>11</b>	<b>12</b>

The redevelopment of the Bay Shopping Centre located between Augusta Street and Jetty Road (Glenelg) will introduce a left turn slip lane from Brighton Road into Augusta Street as shown in Figures 6.7 and 6.8. However, a site inspection conducted in April 2011 found that this slip lane has not been installed.

To improve safety at this uncontrolled four-way intersection, it is recommended that the right turn out and through movements from both approaches of Augusta Street be prevented by providing a solid island in the middle of the intersection as shown in Figure 6.7.



Figure 6-7: Proposed Brighton Road / Augusta Street Improvements (Option 1)

However, the preferred option that treats the majority of the crashes at the intersection, by preventing right turns into Augusta Street (west), is shown in Figure 6.8.

It is considered that these intersection improvements will not pose any significant access issues for motorists attempting to enter Augusta Street West from the North or East as safer alternatives exist via ANZAC Highway, Old Tapleys Hill Road and Gordon Street. These works will also allow a safer crossing point for pedestrians wishing to cross either Brighton Road or Augusta Street through the provision of safe areas within the raised median.

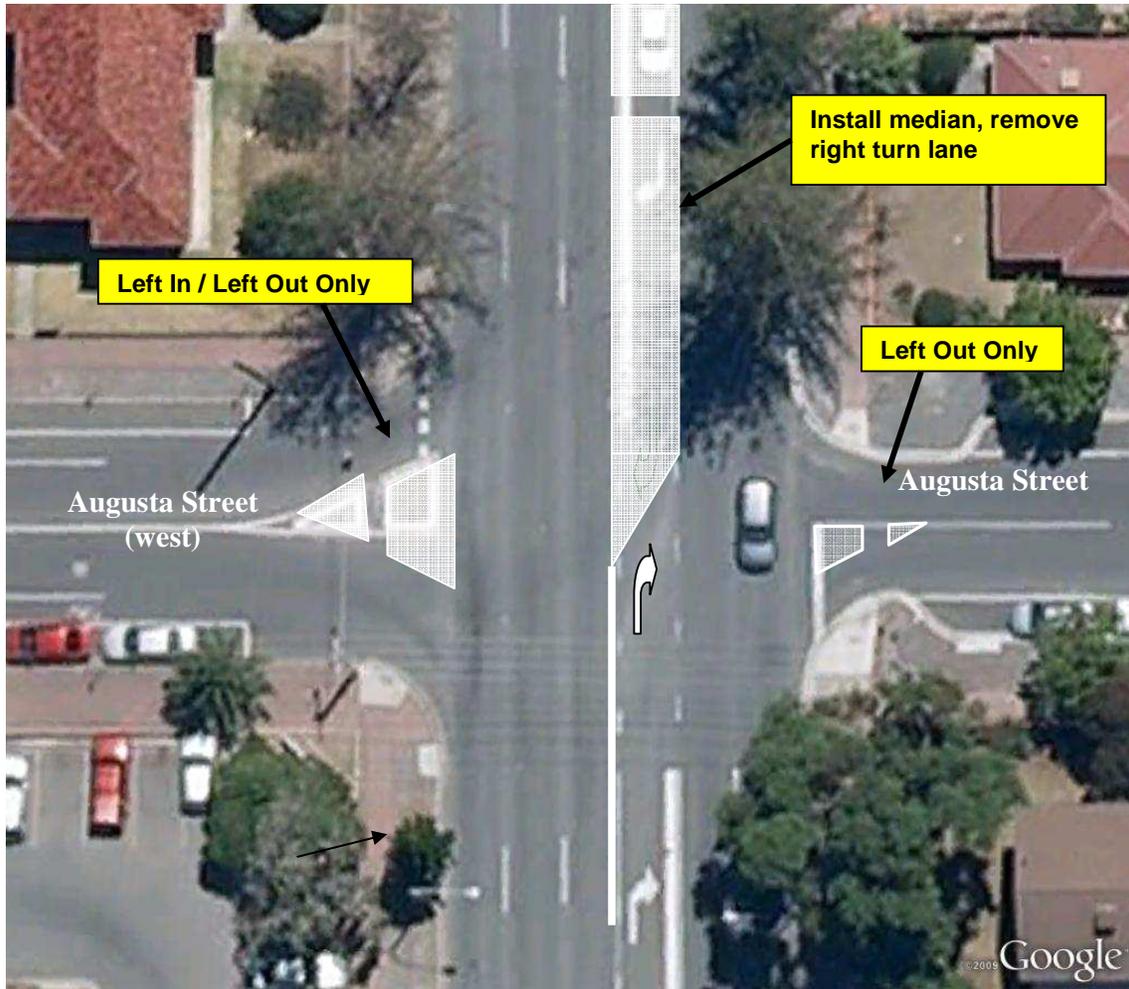


Figure 6-8: Proposed Brighton Road / Augusta Street Improvements (Option 2)

### 6.2.3 Brighton Road / High Street

A review of the recorded collision data at this junction indicates that there is a substantial number of right turn crashes for vehicles turning right from Brighton Road into High Street (35 collisions resulting in 10 casualties from 2005 to 2009). There are 24 other unsignalised intersections in the Metropolitan area with more crashes over the same period.

Brighton Road at this location consists of three northbound lanes, and the collision data does not state the actual cause of the collision. It is likely that motorists are attempting to carry out the manoeuvre without selecting an appropriate gap in the oncoming traffic stream, which may be difficult due to having to cross three lanes of through traffic.

Table 6-10 - Summary of crashes at High Street junction

Section	Intersection	Crash Type	PDO \$3000+	Casualty	2005	2006	2007	2008	2009
2	High Street	Right Angle	5	1		2	1	1	2
		Right Turn	25	10	11	6	7	6	5
		Side Swipe	1					1	
		<b>Total</b>	<b>31</b>	<b>11</b>	<b>11</b>	<b>8</b>	<b>8</b>	<b>8</b>	<b>7</b>

The following upgrades are proposed for the High Street intersection (shown in Figure 6.8):

- Close off the median and removing the right turn lane into High Street and,
- High Street becoming left in/left out only

It is considered that this road safety improvement will not pose any significant access issues for motorists as safer alternatives exist via Jetty Road (Glenelg) or Pier Street.



Figure 6-9: Proposed Brighton Road / High Street Improvements

#### 6.2.4 Brighton Road / Tassie Street

Tassie Street is located immediately opposite Glenelg Oval. While there have been no casualty crashes at this location in the period 2005-2009, preliminary consultation undertaken as part of this Road Management Plan identified that when sporting events are held at the Oval, pedestrians often attempt unsafe crossings of Brighton Road to access Bus Stop 24 located opposite the Glenelg Oval. Therefore this site has been investigated further.

To improve road safety, and in particular the safety of unprotected road users, it is recommended the right turn lane into Tassie Street be closed off and a pedestrian refuge provided in the median to allow pedestrians and cyclists to stand clear of through traffic.

Bus Stop 24, located in the immediate vicinity should be relocated further from the adjacent side roads and indented to allow buses to park clear of these side roads. These upgrades are shown in Figure 6.11.

It is considered that this road safety improvement will not pose any significant access issues for motorists as safer alternatives exist via Pier Street and Yuill Street.



Figure 6-10: Bus Stop on Brighton Road north of Tassie Street



Figure 6-11: Proposed Brighton Road/Tassie Street Improvements

### 6.2.5 Brighton Road / Cudmore Street / Elgar Road

A review of the recorded collision data shows that there have been eight crashes at this intersection in the years 2005-2009.; three of which resulted in casualties. It does not rank among the top 400 unsignalised intersections in the Metropolitan area in terms of casualty crashes during this period.

Table 6-11 - Summary of crashes at Cudmore Street/Elgar Road intersection

Sect.	Intersection	Crash Type	PDO \$3000+	Casualty	2005	2006	2007	2008	2009
3	Cudmore Street / Elgar Road	Right Angle	1	2	1			1	1
		Right Turn	1						1
		Rear End	2				1		1
		Hit Parked Vehicle	1		1				
		Side Swipe		1		1			
		<b>Total</b>	<b>5</b>	<b>3</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>3</b>

Right angle crashes account for two of the three casualty crashes that have occurred at this intersection. A review of the crash details revealed that these crashes have been caused by drivers failing to obey the Stop signs when entering the intersection from Cudmore Street and Elgar Road.

While the number of crashes at this intersection is not significant, it may be worth considering the treatment shown in Figure 6.12 which prevents vehicles on the minor approaches from moving straight through the intersection. Reducing the number of conflicting movements will improve the safety of the intersection.



Figure 6-6: Proposed Brighton Road / Cudmore Street / Elgar Road improvements

### 6.2.6 Brighton Road / Bowker Street

A review of the recorded collision data shows that there have been six crashes at this intersection in the years 2005-2009.; four of which resulted in casualties. It does not rank among the top 400 unsignalised intersections in the Metropolitan area in terms of casualty crashes during this period.

Table 6-12- Summary of crashes at Bowker Street junction

Sect.	Intersection	Crash Type	PDO \$3000+	Casualty	2005	2006	2007	2008	2009
4	Bowker Street	Right Angle	2					1	1
		Right Turn		1					1
		Rear End		2			1		1
		Hit Fixed Object		1			1		
		<b>Total</b>		<b>2</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>1</b>

There is no obvious trend in terms of the crashes that have occurred at this junction. A review of the detailed crash reports revealed that these crashes occurred due to driver error and not due to issues associated with the junction. Therefore, no treatments are considered necessary.

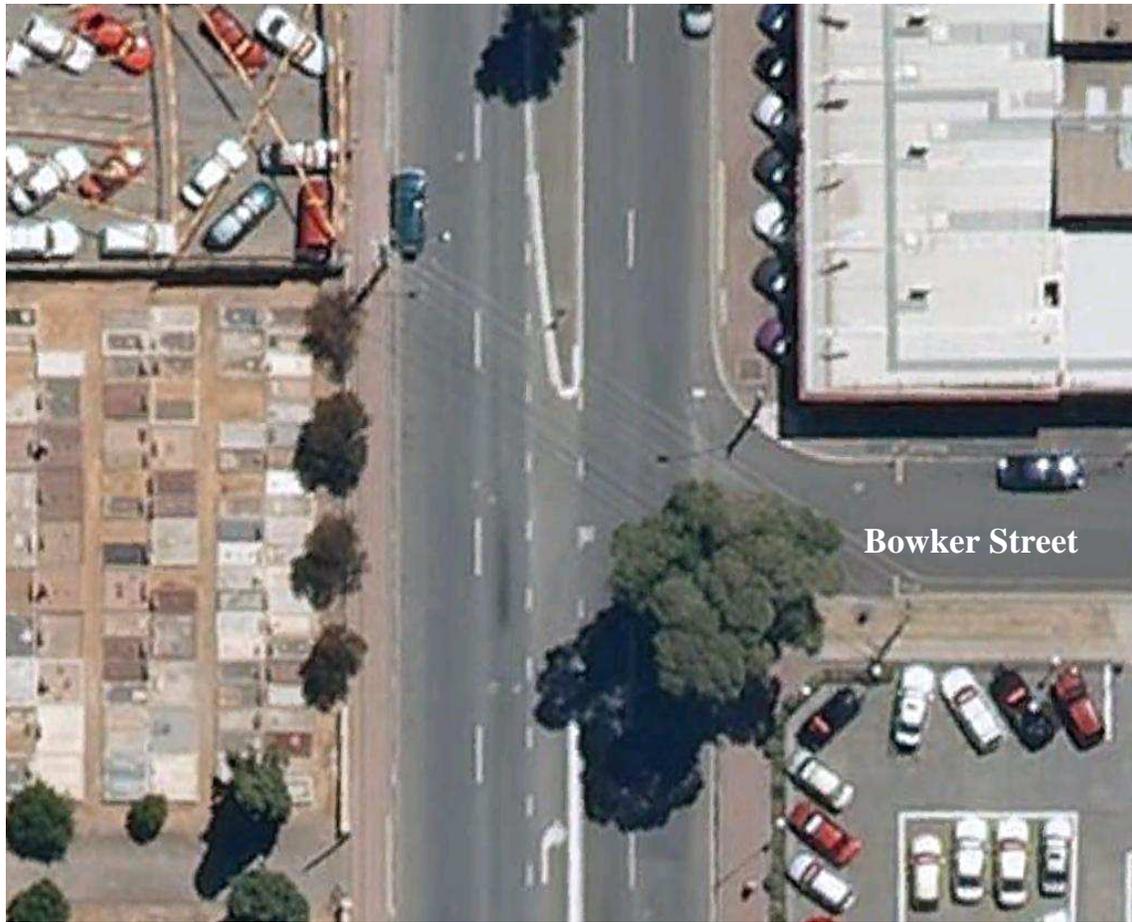


Figure 6-7: Existing Layout of Brighton Road / Bowker Street junction

### 6.2.7 Brighton Road / Holder Road

A review of the recorded collision data shows that there have been five crashes at this intersection in the years 2005-2009.; three of which resulted in casualties. It does not rank among the top 400 unsignalised intersections in the Metropolitan area in terms of casualty crashes during this period.

Table 6-13 - Summary of crashes at Holder Road junction

Sect.	Intersection	Crash Type	PDO \$3000+	Casualty	2005	2006	2007	2008	2009
4	Holder Road	Right Angle	2	1			3		
		Hit Pedestrian		1			1		
		Side Swipe		1	1				
		<b>Total</b>	<b>2</b>	<b>3</b>	<b>1</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>0</b>

A review of the detailed crash reports revealed that these crashes have been caused by driver error, and, given the low number of crashes at this location, no treatments are considered necessary.



Figure 6-8: Existing Layout of Brighton Road / Holder Road junction

### 6.2.8 Brighton Road / Crombie Street

A review of the recorded collision data shows that there have been four crashes at this intersection in the years 2005-2009.; all of which resulted in casualties. There are 364 other unsignalised intersections in the Metropolitan area with more casualty crashes during this period.

Table 6-14 - Summary of crashes at Crombie Street junction

Sect.	Intersection	Crash Type	PDO \$3000+	Casualty	2005	2006	2007	2008	2009
4	Crombie Street	Right Turn		3	2		1		
		Hit Parked Vehicle		1					1
		<b>Total</b>	<b>0</b>	<b>4</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>

Right Turn crashes are the predominant crash type at this junction, however a review of the crash details revealed that these are due to drivers failing to stand and wait for appropriate gaps in the oncoming traffic before making the turn into Crombie Street. There is no underlying problem with the junction itself therefore no recommendations are considered necessary.



Figure 6-9: Existing Layout of Brighton Road / Crombie Street junction

### 6.2.9 Brighton Road / Keelara Street

A review of the crash history at this junction shows that 16 crashes (nine of which resulted in casualties) have occurred in the years 2005-2009. The predominant crash types are rear end and right angle collisions. There are 50 other unsignalised intersections in the Metropolitan area with more crashes over the same period.

Table 6-15 - Summary of crashes at Keelara Street junction

Sect.	Intersection	Crash Type	PDO \$3000+	Casualty	2005	2006	2007	2008	2009
5	Keelara Street	Right Angle	1	2	2		1		
		Right Turn		1				1	
		Rear End	6	4		1	3	3	3
		Hit Pedestrian		2		1		1	
		<b>Total</b>	<b>7</b>	<b>9</b>	<b>2</b>	<b>2</b>	<b>4</b>	<b>5</b>	<b>3</b>

The offset T-junctions of Highet Avenue and Keelara Street currently cause confusion to motorists as to who would have priority should more than one motorist wish to turn right from opposing directions. As a safer alternative to Keelara Street exists via Jetty Road, it is recommended that the right turn into Keelara Street be blocked and a formal right turn into Highet Avenue be created.

It is also worth considering a full time parking ban between Highet Avenue and Jetty Road (Brighton) as there is adequate off-road parking within this area. This will improve traffic flow in this section and also prevent any possibility of vehicles colliding with parked vehicles.



Figure 6-10: Proposed Brighton Road / Keelara Street / Highet Avenue improvements

It is considered that these intersection improvements would not pose any significant access issues for motorists attempting to enter or exit Keelara Street from / to the north as a safer alternative exists via Jetty Road.

**6.2.10 Brighton Road / Hartley Road**

A review of the recorded collision data shows that there have been six crashes at this intersection in the years 2005-2009.; three of which resulted in casualties. It does not rank among the top 400 unsignalised intersections in the Metropolitan area in terms of casualty crashes during this period.

Table 6-16 - Summary of crashes at High Street junction

Sect.	Intersection	Crash Type	PDO \$3000+	Casualty	2005	2006	2007	2008	2009
6	Hartley Road	Right Angle	1				1		
		Rear End	2	2	1		2	1	
		Hit Pedestrian		1			1		
		<b>Total</b>	<b>3</b>	<b>3</b>	<b>1</b>	<b>0</b>	<b>4</b>	<b>1</b>	<b>0</b>

A review of the detailed crash reports revealed that these crashes have been caused by driver error, and, given the low number of crashes at this location, no treatments are considered necessary.



Figure 6-11: Existing Layout of Brighton Road /Hartley Road junction

### 6.2.11 Brighton Road / Yarmouth Street

A review of the recorded collision data shows that there have been eight crashes at this intersection in the years 2005-2009.; four of which resulted in casualties. There are 266 other unsignalised intersections in the Metropolitan area with more casualty crashes during this period.

Table 6-17 - Summary of crashes at High Street junction

Sect.	Intersection	Crash Type	PDO \$3000+	Casualty	2005	2006	2007	2008	2009
7	Yarmouth Street	Right Angle		3		1	1	1	
		Right Turn	1			1			
		Rear End	2			2			
		Hit Parked Vehicle		1		1			
		Side Swipe	1		1				
		<b>Total</b>	<b>4</b>	<b>4</b>	<b>1</b>	<b>5</b>	<b>1</b>	<b>1</b>	<b>0</b>

A review of the detailed crash reports revealed that these crashes have been caused by driver error, and, given the low number of crashes at this location, no treatments are considered necessary.



Figure 6-18: Existing Layout of Brighton Road / Yarmouth Street junction

### 6.2.12 Brighton Road / Scholefield Road / Ocean Boulevard

A review of the crash history at this junction shows that 19 crashes have occurred in the period 2005-2009, with eight of those resulting in casualties. Of those casualty crashes, rear end crashes are the most common. There are 55 other unsignalled intersections within the Metropolitan area with more casualty crashes over the same period.

Table 6-18 - Summary of crashes at Scholefield Road / Ocean Boulevard junction

Section	Intersection	Crash Type	PDO \$3000+	Casualty	2005	2006	2007	2008	2009
8	Scholefield Road / Ocean Boulevard	Right Angle		2	1	1			
		Right Turn	2			1	1		
		Rear End	9	5	3	3	2	5	1
		Side Swipe		1				1	
		<b>Total</b>	<b>11</b>	<b>8</b>	<b>4</b>	<b>5</b>	<b>3</b>	<b>6</b>	<b>1</b>

Based on discussions with local government officers and submissions by the community, the safety of this junction with Brighton Road has been raised as a concern.

The installation of traffic signals has been proposed at this site to overcome concerns with this junction. An initial review of this junction indicated that it did not meet the warrants for the installation of traffic signals based on traffic volume or collision data. Typically, warrants for signals at a T-junction do not consider the left turn movements from the minor road

(Scholefield Road), unless special circumstances exist. From the latest traffic survey data conducted in 2011, it was found that the left turn movement from Scholefield Road accounts for 90% of the total movement from that approach. Therefore, it is considered that the left turn volumes should be included in the traffic volume analysis. Using this method, signals could be warranted at this junction.

Furthermore, it should be noted that a new residential development has been planned adjacent to the junction. Completion of this development will most likely result in increased traffic volumes at the junction, hence at this time; assessment of the junction for installation of signals should be revisited.

On-site observations identify concerns with sight distances, the grade of Brighton Road (north and southbound), the percentage of commercial vehicles and the speed of vehicles travelling north down the hill. Each of these observations would require careful consideration should the installation of traffic signals be considered at this site in the future.



Figure 6-12: Existing Layout of Brighton Road / Scholefield Road / Ocean Boulevard Junction

### 6.3 RECOMMENDATIONS FOR MID-BLOCK SECTIONS

Mid block crashes which occurred between 2005 and 2009 are listed in Table 6.13 below. A more detailed table can be found in Appendix B.

The data collected relies on accurate recording by the police officer or personnel involved. In some cases the exact location is not known and therefore recorded as an unknown location. These crashes have been included within the mid-block crash data.

Rear end type crashes are the most prevalent in all of the sections. However further investigation of the crash reports suggests that the majority of these rear end crashes occur due to queues from the signalised intersections. Therefore these crashes will be treated as intersection rather than mid block crashes.

The crash data includes a number of hit parked vehicle and side swipe crashes, which may be the result of lane changing movements to avoid parked cars. The installation of extended parking restrictions and installation of bicycle lanes is an effective measure to mitigate these types of crashes.

**Table 6-19 – Mid-block Crashes for 2005-2009**

Section	Mid Block Section	Crash Type	PDO \$3000+	Casualty	Total	AADT
1	ANZAC Highway - Jetty Road (Glenelg)	Head On		1	1	43000
		Hit Fixed Object		1	1	
		Rear End	33	6	39	
		Right Angle	1	2	3	
		Side Swipe	1	5	6	
		Hit Fixed Object	2		2	
		Hit Parked Vehicle	5		5	
		<b>Total</b>	<b>42</b>	<b>15</b>	<b>57</b>	
2	Jetty Road (Glenelg) - Diagonal Road	Hit Pedestrian		3	3	43000
		Rear End	9	2	11	
		Right Angle	1	3	4	
		Right Turn	1		1	
		Side Swipe	5	2	7	
		<b>Total</b>	<b>16</b>	<b>10</b>	<b>26</b>	
3	Diagonal Road - Oaklands Road	Hit Fixed Object	2	4	6	30600
		Hit Parked Vehicle	8	1	9	
		Hit Pedestrian		2	2	
		Other		1	1	
		Rear End	11	5	16	
		Side Swipe	1		1	
		<b>Total</b>	<b>22</b>	<b>13</b>	<b>35</b>	
4	Oaklands Road - The Crescent	Hit Fixed Object	2	2	4	36700
		Hit Parked Vehicle	2	1	3	
		Hit Pedestrian		2	2	
		Rear End	18	7	25	
		Right Angle	1		1	
		Side Swipe	3	3	6	
		<b>Total</b>	<b>26</b>	<b>15</b>	<b>41</b>	

## Brighton Road - Draft Road Management Plan

<b>Section</b>	<b>Mid Block Section</b>	<b>Crash Type</b>	<b>PDO \$3000+</b>	<b>Casualty</b>	<b>Total</b>	<b>AADT</b>
5	The Crescent - Jetty Road (Brighton)	Hit Fixed Object	1		1	34600
		Hit Parked Vehicle	7		7	
		Rear End	18	4	22	
		Right Angle	2	1	3	
		Side Swipe	4	2	6	
		<b>Total</b>	<b>32</b>	<b>7</b>	<b>39</b>	
6	Jetty Road (Brighton) - Sturt Road	Hit Fixed Object		1	1	37200
		Other	1	1	2	
		Rear End	9	7	16	
		<b>Total</b>	<b>10</b>	<b>9</b>	<b>19</b>	
7	Sturt Road - Seacombe Road	Head On	2		2	36300
		Hit Fixed Object	2	5	7	
		Hit Parked Vehicle	7	1	8	
		Rear End	13	9	21	
		Right Angle		1	1	
		Side Swipe	6		6	
		<b>Total</b>	<b>30</b>	<b>16</b>	<b>45</b>	
8	Seacombe Road - Scholefield Road	Hit Fixed Object	4		4	37500
		Hit Object on Ground	1		1	
		Hit Parked Vehicle	2		2	
		Rear End	11	8	19	
		Side Swipe	2	4	6	
		<b>Total</b>	<b>20</b>	<b>12</b>	<b>32</b>	

### 6.3.1 Section 1 – ANZAC Highway to Jetty Road (Glenelg)

The section of Brighton Road between ANZAC Highway and Jetty Road is kerbed on both sides of the road, with an 18.0 m typical road carriageway width. This section has three through lanes in the northbound direction and two through lanes in the southbound direction. The AADT for this section is 43000 vehicles per day and there are three bus stops within this section of Brighton Road; two on the western side and one on the eastern side.

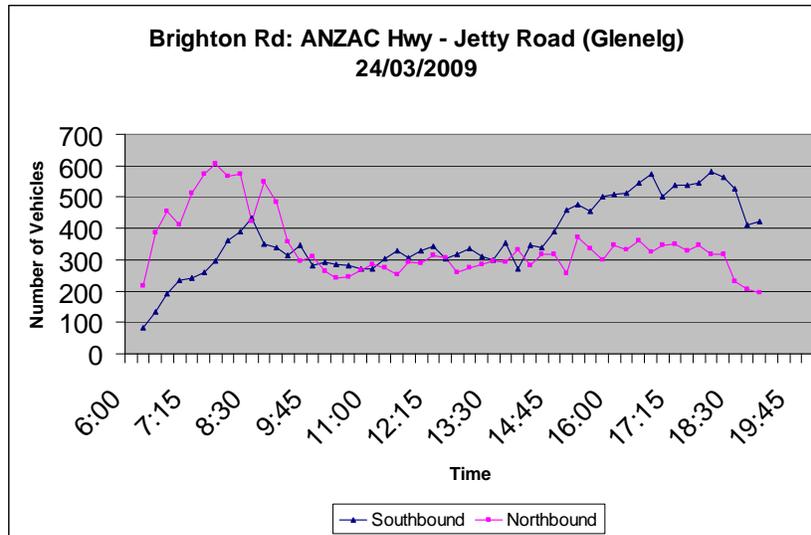


Figure 6-20: Traffic Volumes (at 15 minute intervals) for Brighton Road Section 1: ANZAC Highway – Jetty Road (Glenelg)

This section of Brighton Road is relatively narrow and carries a high volume of traffic. Volumes exceed 2000 in both the AM (Northbound) and PM (Southbound) peaks. From Figure 6.20 the peak periods appear to be from 7 – 10 am and 3 – 7 pm. The yellow lines in place to restrict parking are to be retained to ensure traffic lanes can flow continuously.

As Brighton Road is a strategic cycle route, it is recommended that peak hour bike lanes be installed. However, in this particular section bike lanes cannot be installed without significant road widening and land acquisition from adjoining properties. Therefore it is recommended that the existing median be narrowed and linemarking modified to allow a wider kerbside traffic lane to improve safety for cyclists.

### 6.3.2 Section 2 – Jetty Road (Glenelg) to Diagonal Road

The section of Brighton Road between Jetty Road (Glenelg) and Diagonal Road is kerbed on both sides of the road, with a 20.0 m typical road carriageway width. This section has three through lanes in the northbound direction between Jetty Road and Yuill Street, and two lanes between Yuill Street and Diagonal Road. There are two through lanes through this section in the southbound direction. The AADT for this section is 43000 vehicles per day and there are two bus stops within this section of Brighton Road; one on each side. Peak hour volumes are 2551 vehicles per hour in the AM Peak and 2249 vehicles per hour in the PM Peak.

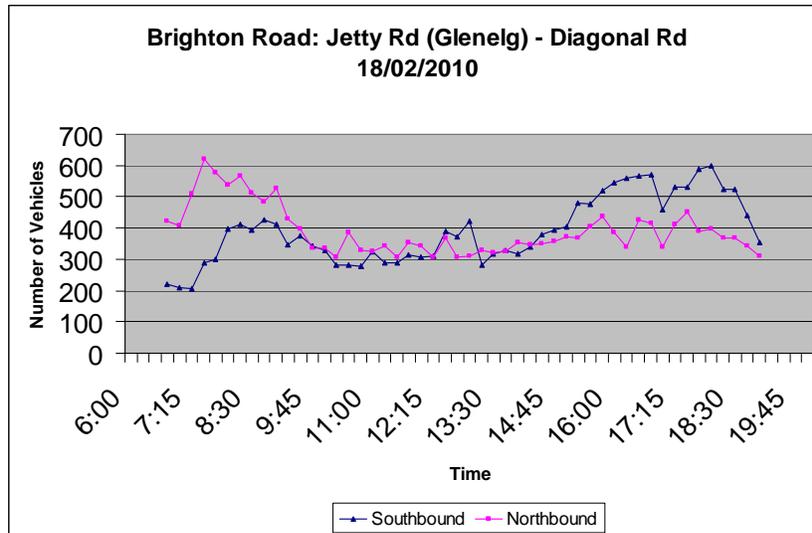


Figure 6-21: Traffic Volumes (at 15 minute intervals) for Brighton Road Section 2: Jetty Road (Glenelg) – Diagonal Road

DPTI has proposed installing bike lanes in this section in the 2012/13 financial year. For the western side of Brighton Road, there are “No Stopping Anytime between the hours of 7 – 10 am and 3 - 7 pm” parking restrictions. On this side of Brighton Road, between Diagonal Road and Yuill Street on-road bike lanes can be installed with minimal effort. However, between Yuill Street and Jetty Road (Glenelg) on-road bike lanes cannot be installed in the northbound direction without significant road widening and therefore land acquisition from adjoining properties. It is therefore recommended that along this section of Brighton Road that the raised median is narrowed to provide additional kerbside lane width and that the current parking restrictions remain in operation.

For the eastern side of Brighton Road, between Jetty Road (Glenelg) and Diagonal Road, on-road bike lanes can be installed with minimal effort through the reduction in width of the existing raised median and the minor relocation of the traffic lane lines. The bike lanes should operate as per the existing No Stopping Anytime parking restrictions which operate between 7 - 10am and 3 - 7pm Monday to Friday.

### 6.3.3 Section 3 – Diagonal Road to Oaklands Road

The section of Brighton Road between Diagonal Road and Oaklands Road is kerbed on both sides of the road, with a 19.0 m typical road carriageway width and two through lanes in each direction. The AADT for this section is 30600 vehicles per day and there are nine bus stops in this section of Brighton Road; four on the western side and five on the eastern side.

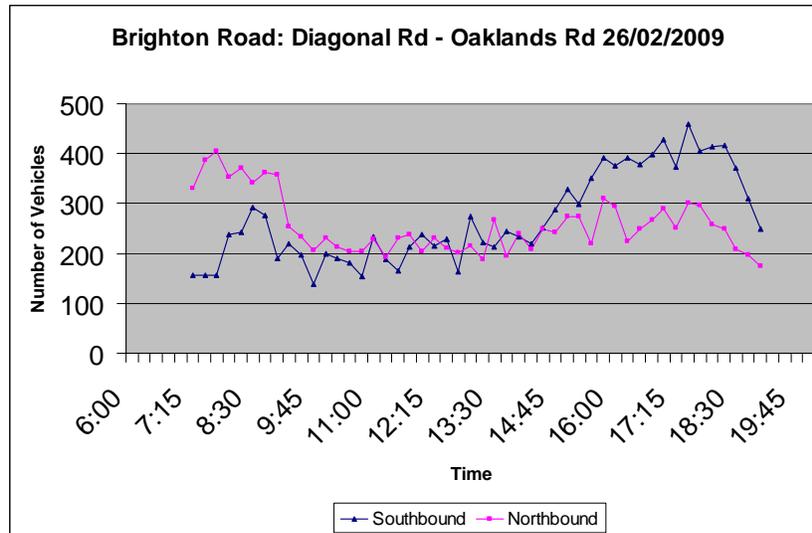


Figure 6.22: Traffic Volumes (at 15 minute intervals) for Brighton Road Section 3: Diagonal Road –Oaklands Road

DPTI proposes to install bike lanes in this section in the 2012/13 financial year. This can be done without the need for road widening or changes to linemarking as there is sufficient kerb to median pavement width. From Figure 6.22 the peak periods appear to be from 7 – 9:30 am and 3 – 7 pm. For consistency with the rest of Brighton Road, it is recommended that the bike lanes are installed and operate between 7 -10 am and 3 – 7 pm.

### 6.3.4 Section 4 – Oaklands Road to The Crescent

The section of Brighton Road between Oaklands Road and The Crescent is kerbed on both sides of the road, with a 19.0 m typical road carriageway width and two through lanes in each direction. The AADT for this section is 36700 vehicles per day and there are six bus stops within this section of Brighton Road; three on each side.

The Noarlunga Line level crossing has a substantial impact on this section of Brighton Road, especially during the AM and PM commuter peaks when the high volume of traffic is interrupted by frequent train crossings.

DPTI proposes to install bike lanes in this section of Brighton Road in the 2012/13 financial year as there is sufficient kerb to median pavement width to do so. Minor linemarking changes will be required for the sections between Francis Street to McPherson Street (Southbound) and Francis Street to Murray Street (Northbound). From Figure 6.23 the peak periods appear to be from 7 – 9:30 am and 3:30 – 6.30 pm. For consistency with the rest of Brighton Road, it is recommended that the bike lanes are installed and operate between 7 - 10 am and 3 – 7 pm.

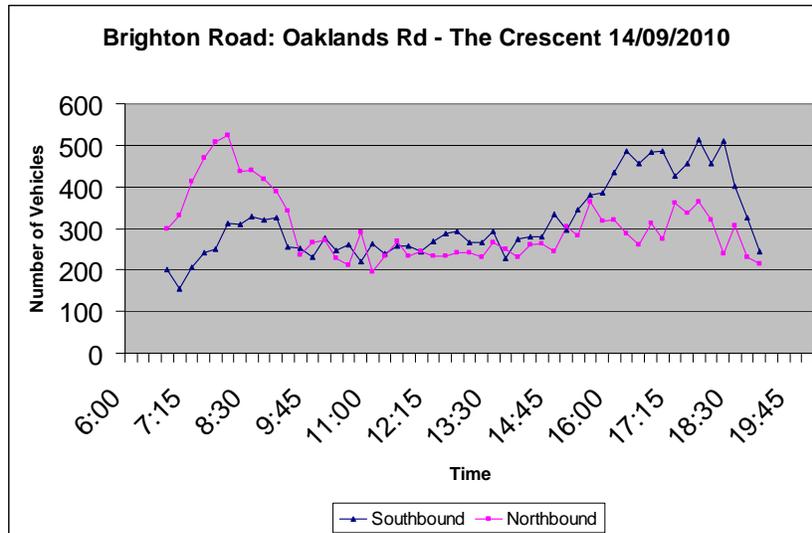


Figure 6-23: Traffic Volumes (at 15 minute intervals) for Brighton Road Section 4: Oaklands Road – The Crescent

### 6.3.5 Section 5 – The Crescent to Jetty Road (Brighton)

The section of Brighton Road between The Crescent and Jetty Road (Brighton) is kerbed on both sides of the road, with a 19.0 m typical road carriageway width and two through lanes in each direction. The AADT for this section is 34600 vehicles per day and there are two bus stops within this section of Brighton Road; one on each side.

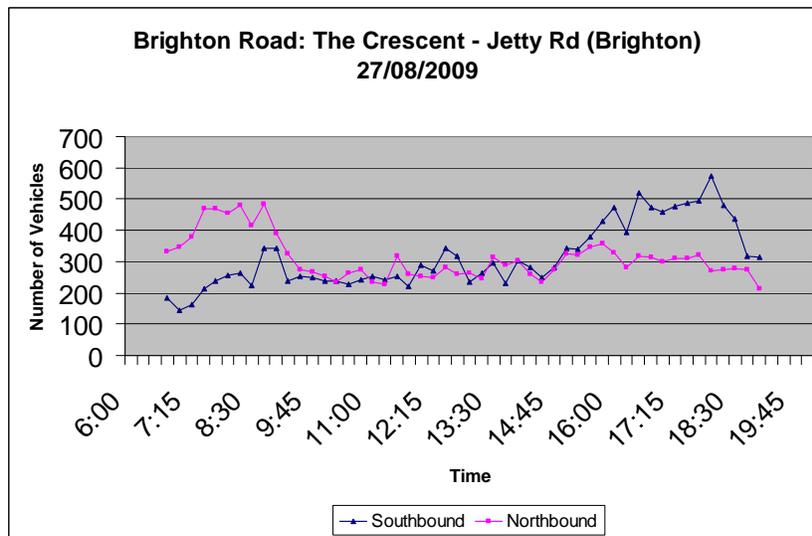


Figure 6-24: Traffic Volumes (at 15 minute intervals) for Brighton Road Section 5: The Crescent – Jetty Road (Brighton)

The Noarlunga Line level crossing has a substantial impact on this section of Brighton Road, especially during the AM and PM commuter peaks when the high volume of traffic is interrupted by frequent train crossings.

DPTI proposes to install bike lanes in this section in the 2012/13 financial year. There is potential for the installation of bike lanes on both sides without the need for road widening as there is sufficient kerb to median pavement width. Minor linemarking changes will be required for the sections between Stopford Road to Hight Avenue (Southbound) and Torr Avenue to

Keelara Street (Northbound). From Figure 6.24 it appears that the peak periods are from 7.30 – 9:30 am and 3.30 to 6.30 pm. For consistency with the rest of Brighton Road, it is recommended that the bike lanes are installed and operate between 7 -10 am and 3 – 7 pm.

**6.3.6 Section 6 – Jetty Road (Brighton) to Sturt Road**

The section of Brighton Road between Jetty Road (Brighton) and Sturt Road is kerbed on both sides of the road, with a 19.0 m typical road carriageway width and two through lanes in each direction. The AADT for this section is 37200 vehicles per day and there are no bus stops within this section of Brighton Road.

DPTI proposes to install bike lanes in this section of Brighton Road in the 2012/13 financial year as there is sufficient kerb to median pavement width to do so. From Figure 6.25, the peak periods are from 7 – 9 am and 3.30 – 6.30 pm. For consistency with the rest of Brighton Road, it is recommended that the bike lanes are installed and operate between 7 -10 am and 3 – 7 pm.

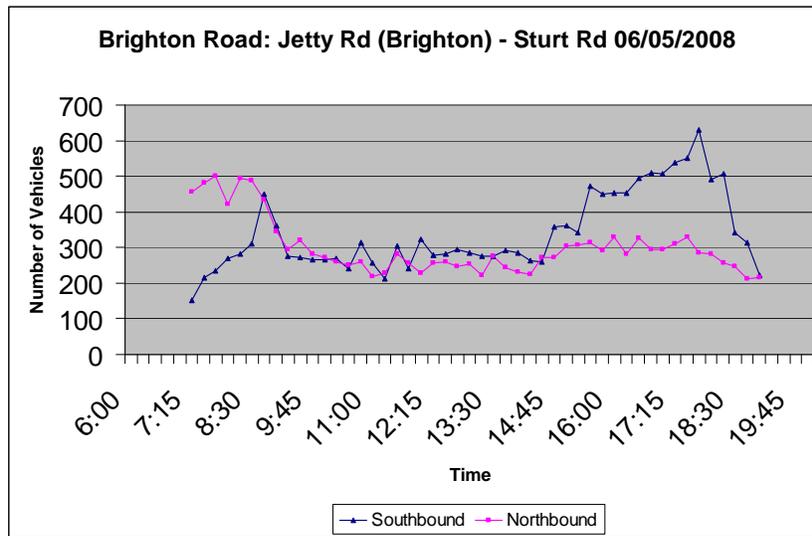


Figure 6-13: Traffic Volumes (at 15 minute intervals) for Brighton Road Section 6: Jetty Road (Brighton)– Sturt Road

**6.3.7 Section 7 – Sturt Road to Seacombe Road**

The section of Brighton Road between Sturt Road and Seacombe Road is kerbed on both sides of the road, with a 19.0 m typical road carriageway width and two through lanes in each direction. The AADT for this section is 36300 vehicles per day and there are five bus stops within this section of Brighton Road; two on the western side and three on the eastern side.

DPTI proposes to install bike lanes in this section in the 2012/13 financial year as there is potential for the installation of bike lanes on both sides without the need for road widening or changes to linemarking as there is sufficient kerb to median pavement width. From Figure 6.26, the peak periods for this section are from 7 – 9 am and 3- 6.30 pm. For consistency with the rest of Brighton Road, it is recommended that the bike lanes are installed and operate between 7 -10 am and 3 – 7 pm.

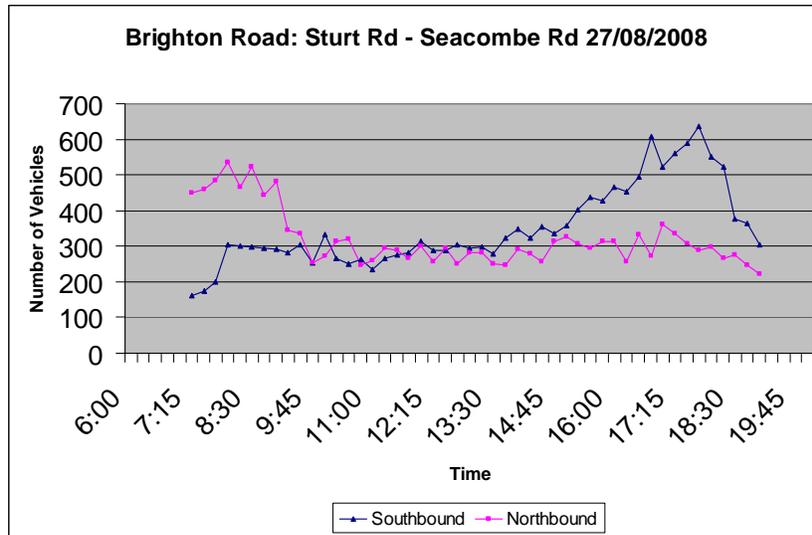


Figure 6-14: Traffic Volumes (at 15 minute intervals) for Brighton Road Section 7: Sturt Road – Seacombe Road

### 6.3.8 Section 8 – Seacombe Road to Scholefield Road

The section of Brighton Road between Seacombe Road and Scholefield Road is kerbed on both sides of the road, with a 19.0 m typical road carriageway width and two through lanes in each direction. The AADT for this section is 37500 vehicles per day and there are four bus stops within this section of Brighton Road; two on each side.

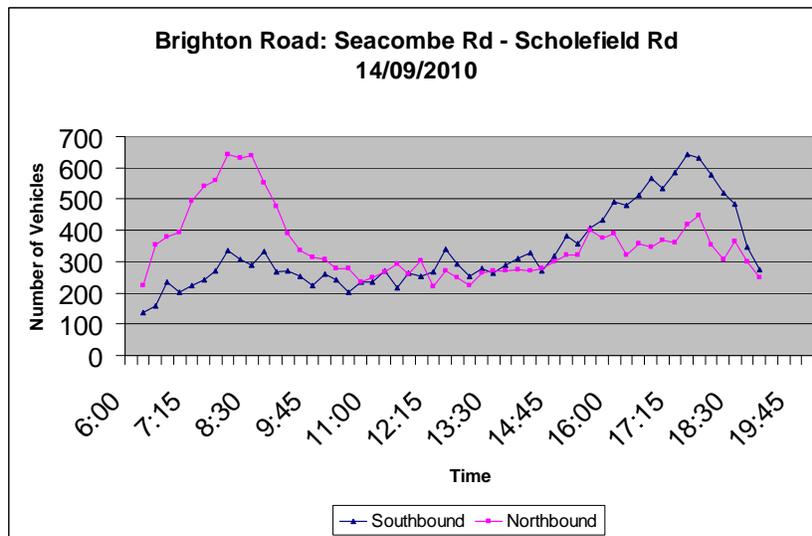


Figure 6-15: Traffic Volumes (at 15 minute intervals) for Brighton Road Section 8: Seacombe Road – Scholefield Road

DPTI also proposes to install bike lanes in this section; terminating at Clubhouse Road which is beyond the scope of this Road Management Plan. However, this will require some minor road widening or median narrowing in the sections between Arthur Street to Scholefield Road (Southbound) and Barwell Avenue to Scholefield Road (Northbound). From Figure 6.27 the peak periods for this section are from 7 – 9 am and 3.30 – 6.30 pm. For consistency with the rest of Brighton Road, it is recommended that the bike lanes are installed and operate between 7 -10 am and 3 – 7 pm.

### **6.3.9 General Recommendations – Bike Lanes**

Due to Brighton Road being a strategic cycle route, it is recommended that peak hour bike lanes be installed along the entire length. There are many midblock sections where the current corridor width is adequate for the installation of bike lanes. These have been discussed in sections 6.3.1 to 6.3.8. Where the existing kerbside lane width does not have adequate width, bike lanes are possible through either the re-adjusting of the existing lane widths, minor road widening or narrowing of the raised median. A summary of the potential midblock bike lane improvements is shown in Table 6.14.

As previously mentioned in Sections 6.3.1 to 6.3.8, DPTI propose to install bike lanes on Brighton Road between Jetty Road (Glenelg) and Clubhouse Road.

Due to additional through and turning lanes, the signalised intersections on Brighton Road are not wide enough to accommodate bike lanes. Minor widening may be sufficient to achieve the desired width in some sections. If not, then major intersection widening works will be required. In some locations road widening will be required to ensure the bike lanes are continuing through intersections to the advanced stop line provided for cyclists just ahead of the regular stop line.

## Brighton Road - Draft Road Management Plan

**Table 6-20 – Locations on Brighton Road for Potential Bike Lane Installation**

Midblock Segment	Current Carriageway Width (m)	Potential for Bike Lane Installation?
<b>South Bound</b>		
ANZAC Hwy to Jetty Rd (Glenelg)	6.3	No – median narrowing and line marking relocation required to achieve wider kerbside lane widths.
Jetty Rd (Glenelg) to Yuill St	7.0	Yes – median narrowing and line marking relocation required
Yuill St to Diagonal Rd	8.0	Yes
Diagonal Rd to Chopin Rd	8.1	Yes
Chopin Rd to Byre Ave	7.9	Yes
Byre Ave to Francis St	8.1	Yes
Francis St to McPherson St	8.2	Yes – minor line marking relocation required
Stopford Rd to Hightet Ave	8.2	Yes – minor line marking relocation required
Sturt Rd to Brighton Shopping Centre	8.1	Yes
Edwards St to Portland St	8.1	Yes
Lamington Avenue to Arthur St	8.1	Yes
Arthur St to Scholefield Rd	7.4	Yes – Minor Road Widening or Median Narrowing Required
Midblock Segment	Current Pavement Width (m)	On-road Cycle Lane Provision
<b>North Bound</b>		
ANZAC Hwy to Jetty Rd (Glenelg)	9.3	No – median narrowing and line marking relocation required to achieve wider kerbside lane widths.
Jetty Rd (Glenelg) to High St	9.3	No – median narrowing and line marking relocation required to achieve wider kerbside lane widths.
High St to Yuill St	9.0	No
Yuill St to Pier St	8.0	Yes
Tennant St to Chopin Rd	8.1	Yes
Chopin Rd to College Rd	7.9	Yes
College Rd to Francis St	8.1	Yes
Francis St to Murray St	8.2	Yes – minor line marking relocation required
Torr Ave to Keelara St	8.2	Yes – minor line marking relocation required
Hartley Rd to Beach Rd	8.1	Yes
Strathmore Tce to Brighton Shopping Centre	8.1	Yes
Lewis St to Portland St	8.1	Yes
Wheatland St to Barwell Ave	8.1	Yes
Barwell Ave to Scholefield Rd	7.4	Minor Road Widening or Median Narrowing Required

### **6.3.10 General Recommendations – Bus Stops**

As per DPTI Road Design Standards & Guidelines, a 5.7m wide kerbside lane is required to allow vehicles to pass a stationary bus whilst remaining within the kerbside lane. The kerbside lane width along the entire length of Brighton Road is less than 5.7m and does not allow vehicles to safely pass a stationary bus without encroaching into the adjacent travelling lane.

It is recommended that wherever possible, partially indented bus bays are installed to provide increased road capacity, particularly in the peak periods (enabling two clear lanes to be used by through traffic) as well as road safety benefits by minimising potential for rear end and side swipe type crashes. Where bus shelters are required to be moved or installed, a minimum 2.5m wide footpath must be provided to meet DDA requirements.

## 6.4 OTHER TRAFFIC MANAGEMENT / COMMUNITY CONCERNS

The community often raises concerns with regards to road safety or operational issues with DPTI or Council. Issues relating to the roads in this RMP have been identified from DPTI records and are listed below.

No.	Concerns	Action
1	Dunrobin Road / Wattle Avenue – Uncontrolled Staggered T-junctions	<ul style="list-style-type: none"> <li>• Consider banning of parking between Hulbert Street and Crombie Street</li> <li>• Consider banning right turns into Dunrobin Road and Wattle Avenue</li> <li>• Assessment of change of access to local road network will need to be undertaken with council</li> </ul>
2	Wheatland Street / Lamington Avenue	<ul style="list-style-type: none"> <li>• Consider making Lamington Avenue left in / left out to reduce number of conflicting movements</li> <li>• Assessment of change of access to local road network will need to be undertaken with council</li> </ul>
3	Maitland Terrace / Aboyne Avenue	<ul style="list-style-type: none"> <li>• Consider making Aboyne Avenue left in / left out to reduce number of conflicting movements</li> <li>• Assessment of change of access to local road network will need to be undertaken with council</li> </ul>
4	Barwell Avenue – request for early warning signs at PAC	<ul style="list-style-type: none"> <li>• DPTI has commissioned ARRB to evaluate effectiveness of these signs</li> <li>• No decision to be made until after results of this study are reported</li> </ul>
5	Cecelia Street / Downing Street – request for installation of PAC	<ul style="list-style-type: none"> <li>• Recommend the installation of a PAC at this location</li> </ul>
6	Yarmouth Street – request for installation of PAC	<ul style="list-style-type: none"> <li>• Pedestrian survey indicates low numbers at this area; PAC is not warranted</li> <li>• Consider additional pedestrian refuge within raised median</li> </ul>
7	Brighton Primary School PAC – red light runners	<ul style="list-style-type: none"> <li>• Consider installation of mast arm to improve visibility of lantern</li> </ul>

## 7 TREATMENT SUMMARY

A number of traffic management and road maintenance improvements have been recommended in this report. Recommendations are summarised in the following tables, included in the table is a priority rating for each recommendation.

Three levels of priority are indicated – High (RED), Medium (ORANGE) and Low (YELLOW). The priority of treatments has been determined based on:

- safety benefits, to improve safety for vulnerable road users,
- reducing roadside hazards
- improving amenity and appearance of the roads
- benefit/cost appraisal of treatment

### 7.1 INTERSECTION/ JUNCTION TREATMENTS

INTERSECTION / JUNCTION	TREATMENT	PRIORITY
Brighton Rd / Diagonal Rd / Pier St	Extend Right Turn Lane into Pier St	Medium
	Install second Left Turn Lane into Diagonal Rd	High
	Install mast arms	High
	Control Right Turns from Brighton Rd in off peak	High
Brighton Rd / Jetty Rd (Brighton)	Extend Right Turn lane into Jetty Rd	Medium
	Extend Left Turn lane into Brighton Rd	Medium
Brighton Rd / Seacombe Rd	Install 70 degree Channelised Left Turn from Seacombe Rd	High
Brighton Rd / Augusta St	Reduce number of conflicting movements	High
Brighton Rd / High St	Ban Right Turn movement into High St by closing median	High

## Brighton Road - Draft Road Management Plan

INTERSECTION / JUNCTION	TREATMENT	PRIORITY
Brighton Rd / Tassie St	Ban Right Turn into Tassie St by closing median and install pedestrian refuge	Medium
Brighton Rd / Cudmore St / Elgar Rd	Prevent Through movements from minor approaches	Low
Brighton Rd / Keelara St / Highet Ave	Ban Right Turn movement into Keelara St and create Right Turn lane into Highet Ave	Low
Brighton Rd / Scholefield Rd / Ocean Bvd	Installation of traffic signals	Low

### 7.2 MID-BLOCK TREATMENTS

ROAD SECTION	TREATMENT	PRIORITY
Whole Corridor	Install Peak Hour Bike Lanes	High
	Partially or fully indent bus stops where possible	High
Oaklands Road to The Crescent	Installation of a signalised pedestrian crossing at the Hove Shopping Centre adjacent to Cecelia Street and Downing Street	High

## **8 CONCLUSION**

This draft RMP has been prepared to address the operational and safety issues identified along the Brighton Road corridor.

The proposed treatments will be used as the basis for further discussion with the Holdfast Bay and Marion Councils before their implementation. The funding for the treatments contained in this draft RMP is subject to normal budgetary processes and priorities.

It is understood that the treatments in this plan will be implemented so that areas identified as being higher priority will be targeted first with the aim of reaching the long term functional outcomes of the corridor.

## APPENDIX A – INTERSECTION CRASH DATA

Sect.	Intersection	Crash Type	PDO \$3000+	Casualty	2005	2006	2007	2008	2009	Total
1	ANZAC Highway	Right Angle	2	2	1	2			1	4
		Right Turn	2	2	1	1	1		1	4
		Rear End	57	22	16	20	11	21	11	79
		Hit Pedestrian		1				1		1
		Hit Fixed Object	5	2	2	1		2	2	7
		Side Swipe	7	1	3		1	2	2	8
		Head On	1			1				1
		<b>Total</b>	<b>74</b>	<b>30</b>	<b>23</b>	<b>25</b>	<b>13</b>	<b>26</b>	<b>17</b>	<b>104</b>
1	Augusta Street	Right Angle	9	4	4	3	2	3	1	13
		Right Turn	27	11	3	8	11	8	8	38
		Rear End	9	1	2	4	2		2	10
		Side Swipe	4		2	1			1	4
		<b>Total</b>	<b>49</b>	<b>16</b>	<b>11</b>	<b>16</b>	<b>15</b>	<b>11</b>	<b>12</b>	<b>65</b>
2	Jetty Road (Gleneig)	Right Angle		1			1			1
		Right Turn	8	9	6	6	3	2		17
		Rear End	11	1	5	2	3		2	12
		Hit Fixed Object		1		1				1
		Side Swipe	3	1	2	1		1		4
		<b>Total</b>	<b>22</b>	<b>13</b>	<b>13</b>	<b>10</b>	<b>7</b>	<b>3</b>	<b>2</b>	<b>35</b>
2	Maxwell Terrace	Right Turn	2				2			2
		Rear End	1	1				2		2
		Roll Over	1					1		1
		<b>Total</b>	<b>4</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>3</b>	<b>0</b>	<b>5</b>
2	Newmans Lane	Right Turn	2				1	1		2
		<b>Total</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>2</b>
2	High Street	Right Angle	5	1		2	1	1	2	6
		Right Turn	25	10	11	6	7	6	5	35
		Side Swipe	1					1		1
		<b>Total</b>	<b>31</b>	<b>11</b>	<b>11</b>	<b>8</b>	<b>8</b>	<b>8</b>	<b>7</b>	<b>42</b>
2	Rugless Terrace	Right Angle	1					1		1
		Right Turn	1		1					1
		Rear End	1						1	1
		<b>Total</b>	<b>3</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>3</b>
3	Diagonal Road / Pier Street	Right Angle	2	2	2	2				4
		Right Turn	6	3	2	1	4	1	1	9
		Rear End	15	8	9	4	2	3	5	23
		Hit Fixed Object	2		1	1				2
		Side Swipe	2				1	1		2
		Head On		1			1			1
		<b>Total</b>	<b>27</b>	<b>14</b>	<b>14</b>	<b>8</b>	<b>8</b>	<b>5</b>	<b>6</b>	<b>41</b>
3	Broadway	Right Angle	6	1		4	1		2	7
		Rear End	1		1					1
		Side Swipe	2		1			1		2
		<b>Total</b>	<b>9</b>	<b>1</b>	<b>2</b>	<b>4</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>10</b>
3	Laphorne Street	Rear End		2	1			1		2
		<b>Total</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>2</b>
3	Harris Street	Hit Parked Vehicle		1					1	1
		<b>Total</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>
3	Bath Street	Right Angle	6	1		1	2	1	3	7
		Right Turn	2		1			1		2
		Rear End	1						1	1
		Roll Over		1				1		1
		Hit Parked Vehicle	1					1		1
		<b>Total</b>	<b>10</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>4</b>	<b>4</b>	<b>4</b>

Brighton Road - Draft Road Management Plan

Sect.	Intersection	Crash Type	PDO \$3000+	Casualty	2005	2006	2007	2008	2009	Total	
3	Melton Street	Rear End	3		1			2		3	
		<b>Total</b>	<b>3</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>3</b>	
3	Boundary Road	Right Angle	1			1				1	
		Rear End		1		1				1	
		<b>Total</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>
3	Moore Street	Right Angle	3		1	1	1			3	
		Rear End		1				1		1	
		Hit Pedestrian		1					1		1
		Hit Fixed Object	1				1				1
		<b>Total</b>	<b>4</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>6</b>
3	Sullivan Street	Hit Parked Vehicle		1		1				1	
		<b>Total</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>
3	Cudmore Street / Elgar Road	Right Angle	1	2	1			1	1	3	
		Right Turn	1						1	1	
		Rear End	2				1		1	2	
		Hit Parked Vehicle	1		1					1	
		Side Swipe		1		1					1
		<b>Total</b>	<b>5</b>	<b>3</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>3</b>	<b>8</b>
3	Whyte Street	Right Angle	4		3				1	4	
		Rear End	5	4	1		3	3	2	9	
		Side Swipe	2					2		2	
		<b>Total</b>	<b>11</b>	<b>4</b>	<b>4</b>	<b>0</b>	<b>3</b>	<b>5</b>	<b>3</b>	<b>3</b>	<b>15</b>
4	Oaklands Road	Rear End	16	7	8	3	3	5	4	23	
		<b>Total</b>	<b>16</b>	<b>7</b>	<b>8</b>	<b>3</b>	<b>3</b>	<b>5</b>	<b>4</b>	<b>23</b>	
4	College Road	Right Turn	1					1		1	
		Rear End		1		1				1	
		<b>Total</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>2</b>
4	Byre Avenue	Right Angle	1	1	1			1		2	
		<b>Total</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>2</b>
4	Eton Road	Rear End		1	1					1	
		Side Swipe	1						1	1	
		<b>Total</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>2</b>
4	Paringa Avenue	Right Angle	2			1	1			2	
		Rear End		1			1			1	
		<b>Total</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>
4	Harrow Road / Wilton Avenue	Rear End	1					1		1	
		Hit Fixed Object	1					1		1	
		<b>Total</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>2</b>
4	Seaforth Avenue	Rear End	1			1				1	
		Side Swipe	1		1					1	
		<b>Total</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>
4	Grantham Road	Right Angle		1	1					1	
		Rear End	2						2	2	
		<b>Total</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>3</b>
4	Bowker Street	Right Angle	2					1	1	2	
		Right Turn		1					1	1	
		Rear End		2			1		1	2	
		Hit Fixed Object		1			1			1	
		<b>Total</b>	<b>2</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>3</b>	<b>6</b>
4	Balmoral Avenue	Rear End		1	1					1	
		Head On	1			1				1	
		<b>Total</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>
4	Ilfracombe Avenue	Right Angle	1						1	1	
		Right Turn	1				1			1	
		Rear End	1	2			2		1	3	
		<b>Total</b>	<b>3</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>5</b>
4	Quandong Street	Rear End	1					1		1	

Brighton Road - Draft Road Management Plan

Sect.	Intersection	Crash Type	PDO \$3000+	Casualty	2005	2006	2007	2008	2009	Total
		<b>Total</b>	1	0	0	0	0	1	0	1
4	Lynton Avenue	Rear End		2		1			1	2
		<b>Total</b>	0	2	0	1	0	0	1	2
4	Lynmouth Avenue	Right Angle	1						1	1
		<b>Total</b>	1	0	0	0	0	0	1	1
4	Somers Street	Rear End		1				1		1
		<b>Total</b>	0	1	0	0	0	1	0	1
4	Francis Street	Right Angle	2	1	1				2	3
		Right Turn	2		1		1			2
		Rear End	1	1			1		1	2
		Hit Fixed Object	1						1	1
		<b>Total</b>	6	2	2	0	2	0	4	8
4	Holder Road	Right Angle	2	1			3			3
		Hit Pedestrian		1			1			1
		Side Swipe		1	1					1
		<b>Total</b>	2	3	1	0	4	0	0	5
4	Cecelia Street	Rear End	1			1				1
		<b>Total</b>	1	0	0	1	0	0	0	1
4	Downing Street	Right Angle	3	1		1		1	2	4
		Rear End	1		1					1
		Side Swipe	1			1				1
		<b>Total</b>	5	1	1	2	0	1	2	6
4	Hulbert Street	Right Angle	1	1			1		1	2
		<b>Total</b>	1	1	0	0	1	0	1	2
4	Dunrobin Road	Right Angle	2	1			1	1	1	3
		Right Turn	1				1			1
		Rear End	2		1			1		2
		Hit Fixed Object	2			1	1			2
		Hit Parked Vehicle	1			1				1
		Side Swipe	1				1			1
		<b>Total</b>	9	1	1	2	3	3	1	10
4	Wattle Avenue	Right Angle	3						3	3
		Rear End	1	1	1		1			2
		Hit Fixed Object	1				1			1
		<b>Total</b>	5	1	1	0	2	0	3	6
4	Crombie Street	Right Turn		3	2		1			3
		Hit Parked Vehicle		1					1	1
		<b>Total</b>	0	4	2	0	1	0	1	4
5	The Crescent	Right Turn	1			1				1
		Rear End	2	3		2	2		1	5
		<b>Total</b>	3	3	0	3	2	0	1	6
5	Addison Road	Rear End	5	1		1	2	3		6
		<b>Total</b>	5	1	0	1	2	3	0	6
5	Stopford Road	Right Angle	3		1		1	1		3
		Rear End	4				2	1	1	4
		<b>Total</b>	7	0	1	0	3	2	1	7
5	Alfreda Street	Rear End	1		1					1
		<b>Total</b>	1	0	1	0	0	0	0	1
5	Preston Avenue	Right Turn		1	1					1
		Rear End	1					1		1
		<b>Total</b>	1	1	1	0	0	1	0	2
5	Highet Avenue	Right Angle	1						1	1
		Rear End	1						1	1
		<b>Total</b>	2	0	0	0	0	0	2	2
5	Keelara Street	Right Angle	1	2	2		1			3
		Right Turn		1				1		1
		Rear End	6	4		1	3	3	3	10

Brighton Road - Draft Road Management Plan

Sect.	Intersection	Crash Type	PDO \$3000+	Casualty	2005	2006	2007	2008	2009	Total
		Hit Pedestrian		2		1		1		2
		<b>Total</b>	<b>7</b>	<b>9</b>	<b>2</b>	<b>2</b>	<b>4</b>	<b>5</b>	<b>3</b>	<b>16</b>
6	Jetty Road (Brighton)	Right Angle	2	1		1		1	1	3
		Right Turn	4		3				1	4
		Rear End	16	7	4	3	7	5	4	23
		Hit Fixed Object	1		1					1
		Hit Parked Vehicle		1		1				1
		Side Swipe	3		1			2		3
		<b>Total</b>	<b>26</b>	<b>9</b>	<b>9</b>	<b>5</b>	<b>7</b>	<b>8</b>	<b>6</b>	<b>35</b>
6	Hartley Road	Right Angle	1				1			1
		Rear End	2	2	1		2	1		4
		Hit Pedestrian		1			1			1
		<b>Total</b>	<b>3</b>	<b>3</b>	<b>1</b>	<b>0</b>	<b>4</b>	<b>1</b>	<b>0</b>	<b>6</b>
6	Voules Street	Right Angle	2	1		1		1	1	3
		Right Turn	1				1			1
		Hit Fixed Object	1		1					1
		Side Swipe	1					1		1
		<b>Total</b>	<b>5</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>6</b>
7	Sturt Road	Right Angle	1	2	1		1		1	3
		Right Turn	14	3	4	1	5	4	3	17
		Rear End	36	9	14	14	3	9	5	45
		Hit Fixed Object		2		1		1		2
		Hit Obj. on Road		1				1		1
		Side Swipe		1			1			1
		Head On	1			1				1
<b>Total</b>	<b>52</b>	<b>18</b>	<b>19</b>	<b>17</b>	<b>10</b>	<b>15</b>	<b>9</b>	<b>70</b>		
7	Strathmore Terrace	Right Turn	2				1	1		2
		Rear End	1						1	1
		<b>Total</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>3</b>
7	Marlborough Street	Right Angle	2		1	1				2
		Right Turn		1			1			1
		Rear End	1			1				1
		Hit Pedestrian		1		1				1
		<b>Total</b>	<b>3</b>	<b>2</b>	<b>1</b>	<b>3</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>5</b>
7	Gregory Street	Rear End	1		1					1
		Hit Fixed Object	1		1					1
		<b>Total</b>	<b>2</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>
7	Edwards Street	Right Angle	11	1	1	5	2	2	2	12
		Hit Pedestrian		1					1	1
		Side Swipe	2		1	1				2
		<b>Total</b>	<b>13</b>	<b>2</b>	<b>2</b>	<b>6</b>	<b>2</b>	<b>2</b>	<b>3</b>	<b>15</b>
7	Lewis Street	Right Angle	4				2	1	1	4
		Side Swipe	1			1				1
		Other	1				1			1
		<b>Total</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>6</b>
7	Oleander Street East	Right Angle	1				1			1
		Right Turn		1		1				1
		<b>Total</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>2</b>
7	Yarmouth Street	Right Angle		3		1	1	1		3
		Right Turn	1			1				1
		Rear End	2			2				2
		Hit Parked Vehicle		1		1				1
		Side Swipe	1		1					1
		<b>Total</b>	<b>4</b>	<b>4</b>	<b>1</b>	<b>5</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>8</b>
7	Shoreham Road / Broadway	Right Angle	1					1		1
		Right Turn								0

Brighton Road - Draft Road Management Plan

Sect.	Intersection	Crash Type	PDO \$3000+	Casualty	2005	2006	2007	2008	2009	Total
		Rear End								0
		Roll Over								0
		Hit Pedestrian								0
		Hit Fixed Object		1				1		1
		Hit Animal								0
		Side Swipe	1						1	1
		Head On								0
		Other								0
		<b>Total</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>3</b>
7	Folkestone Road	Right Angle	4			2	1		1	4
		Rear End	3		2		1			3
		<b>Total</b>	<b>7</b>	<b>0</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>7</b>
7	Mills Street	Right Turn	1			1				1
		Rear End	1				1			1
		<b>Total</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>2</b>
8	Seacombe Road	Right Turn	3	1	1	2			1	4
		Rear End	15	6	3	2	8	6	2	21
		Hit Fixed Object	3		2				1	3
		Side Swipe	1	1	1				1	2
		<b>Total</b>	<b>22</b>	<b>8</b>	<b>7</b>	<b>4</b>	<b>8</b>	<b>6</b>	<b>5</b>	<b>30</b>
8	Lamington Avenue	Rear End		1			1			1
		<b>Total</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>1</b>
8	Wheatland Street	Right Angle	11	1	3		5	2	2	12
		Right Turn	2			1			1	2
		Rear End	1						1	1
		Side Swipe		1				1		1
		<b>Total</b>	<b>14</b>	<b>2</b>	<b>3</b>	<b>1</b>	<b>5</b>	<b>3</b>	<b>4</b>	<b>16</b>
8	Maitland Terrace / Aboyne Avenue	Right Angle	1	1		1	1			2
		Right Turn	1						1	1
		<b>Total</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>3</b>
8	Bothwell Avenue	Right Angle	1					1		1
		Right Turn	1						1	1
		Rear End	1			1				1
		<b>Total</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>3</b>
8	Pine Avenue	Right Angle	2				1		1	2
		Right Turn	1				1			1
		Rear End	2	1	1		2			3
		<b>Total</b>	<b>5</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>1</b>	<b>6</b>
8	Thomas Street	Rear End	1						1	1
		<b>Total</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>
8	Barwell Avenue	Side Swipe		1					1	1
		<b>Total</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>
8	Scholefield Road / Ocean Boulevard	Right Angle		2	1	1				2
		Right Turn	2			1	1			2
		Rear End	9	5	3	3	2	5	1	14
		Side Swipe		1				1		1
		<b>Total</b>	<b>11</b>	<b>8</b>	<b>4</b>	<b>5</b>	<b>3</b>	<b>6</b>	<b>1</b>	<b>19</b>

## APPENDIX B – MID BLOCK CRASH DATA

Sect.	Mid Block Section	Crash Type	PDO \$3000+	Casualty	2005	2006	2007	2008	2009	Total
1	ANZAC Highway - Jetty Road (Glenelg)	Head On		1			1			1
		Hit Fixed Object		1	1					1
		Rear End	33	6	3	7	10	12	7	39
		Right Angle	1	2		2	1			3
		Side Swipe	1	5		2		1	3	6
		Hit Fixed Object	2		1				1	2
		Hit Parked Vehicle	5		1	2	1	1		5
		<b>Total</b>	<b>42</b>	<b>15</b>	<b>6</b>	<b>13</b>	<b>13</b>	<b>14</b>	<b>11</b>	<b>57</b>
2	Jetty Road (Glenelg) - Diagonal Road	Hit Pedestrian		3		1	1	1		3
		Rear End	9	2	5	1	2	1	2	11
		Right Angle	1	3	1		2		1	4
		Right Turn	1						1	1
		Side Swipe	5	2		2	1	2	2	7
		<b>Total</b>	<b>16</b>	<b>10</b>	<b>6</b>	<b>4</b>	<b>6</b>	<b>4</b>	<b>6</b>	<b>26</b>
3	Diagonal Road - Oaklands Road	Hit Fixed Object	2	4	2	3			1	6
		Hit Parked Vehicle	8	1	3	2	3	1		9
		Hit Pedestrian		2		1	1			2
		Other		1		1				1
		Rear End	11	5	2	3	4	3	4	16
		Side Swipe	1				1			1
				<b>Total</b>	<b>22</b>	<b>13</b>	<b>7</b>	<b>10</b>	<b>9</b>	<b>4</b>
4	Oaklands Road - The Crescent	Hit Fixed Object	2	2		2		2		4
		Hit Parked Vehicle	2	1			1	1	1	3
		Hit Pedestrian		2		1	1			2
		Rear End	18	7	6	6	5	6	2	25
		Right Angle	1			1				1
		Side Swipe	3	3	2	1	2		1	6
				<b>Total</b>	<b>26</b>	<b>15</b>	<b>8</b>	<b>11</b>	<b>9</b>	<b>9</b>
5	The Crescent - Jetty Road (Brighton)	Hit Fixed Object	1					1		1
		Hit Parked Vehicle	7		1	1	1	1	3	7
		Rear End	18	4	6	3	6	6	1	22
		Right Angle	2	1	1	1		1		3
		Side Swipe	4	2	2		1	2	1	6
				<b>Total</b>	<b>32</b>	<b>7</b>	<b>10</b>	<b>5</b>	<b>8</b>	<b>11</b>
6	Jetty Road (Brighton) - Sturt Road	Hit Fixed Object		1	1					1
		Other	1	1	2					2
		Rear End	9	7	4	1	3	2	6	16
				<b>Total</b>	<b>10</b>	<b>9</b>	<b>7</b>	<b>1</b>	<b>3</b>	<b>2</b>
7	Sturt Road - Seacombe Road	Head On	2		1				1	2
		Hit Fixed Object	2	5	1	3			3	7
		Hit Parked Vehicle	7	1	2	1		2	3	8
		Rear End	13	9	5	4	7	3	2	21
		Right Angle		1			1			1
		Side Swipe	6		1	2	1	1	1	6
				<b>Total</b>	<b>30</b>	<b>16</b>	<b>10</b>	<b>10</b>	<b>9</b>	<b>6</b>
8	Seacombe Road - Scholefield Road	Hit Fixed Object	4			2		2		4
		Hit Object on Ground	1						1	1
		Hit Parked Vehicle	2			1			1	2

Brighton Road - Draft Road Management Plan

<i>Sect.</i>	<i>Mid Block Section</i>	<i>Crash Type</i>	<i>PDO \$3000+</i>	<i>Casualty</i>	<i>2005</i>	<i>2006</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>Total</i>
		Rear End	11	8	2	5	4	4	4	19
		Side Swipe	2	4	2	2		1	1	6
		<b>Total</b>	<b>20</b>	<b>12</b>	<b>4</b>	<b>10</b>	<b>4</b>	<b>7</b>	<b>7</b>	<b>32</b>

## APPENDIX C – SIDRA MODELLING RESULTS

### MOVEMENT SUMMARY Brighton Rd / ANZAC Hwy AM Peak

Site: ts125am Count Date  
24/03/2009 {Verify Phasing &  
Variable Parameters-Ban Ped.  
Movement Definitions fo

ANZAC HwyRN6212-Brighton RdRN6604-Tapleys Hill RdRN5833 24/03/09 \* TS125AM \*  
I/S125 AM - TG735266 - Glenelg 4 ARM-1[ E]2[ S]3[ W]4[ N]5[ ]  
Signals - Fixed Time Cycle Time = 130 seconds (User-Given Cycle Time)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow	HV %	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Brighton Road [S] RN6604											
1	L	43	4.7	1.122	310.3	LOS F	155.6	972.5	1.00	2.34	6.4
2	T	1727	4.1	1.126	302.0	LOS F	155.6	972.5	1.00	2.34	6.4
3	R	340	4.9	1.082	246.6	LOS F	49.3	310.4	1.00	1.61	7.8
Approach		2110	4.3	1.126	293.3	LOS F	155.6	972.5	1.00	2.22	6.6
East: ANZAC Highway [E] RN6212											
4	L	341	5.6	0.301	36.8	LOS D	10.7	67.6	0.73	0.77	30.1
5	T	348	3.3	0.604	56.3	LOS E	12.1	75.3	0.98	0.80	22.6
6	R	187	2.9	1.058	177.8	LOS F	21.9	135.5	1.00	1.35	10.3
Approach		876	4.1	1.058	74.6	LOS E	21.9	135.5	0.89	0.91	19.5
North: Tapleys Hill Rd [N]RN5833											
7	L	144	4.9	0.079	7.7	NA <sup>9</sup>	NA <sup>9</sup>	NA <sup>9</sup>	NA <sup>9</sup>	0.60	49.8
8	T	1064	7.7	0.696	34.0	LOS C	28.1	181.7	0.89	0.79	29.7
9	R	27	33.3	0.119	33.0	LOS C	1.3	10.2	0.84	0.70	32.0
Approach		1235	7.9	0.696	30.9	LOS C	28.1	181.7	0.78	0.77	31.2
West: ANZAC Highway [W] RN6212											
10	L	76	10.5	0.148	22.0	LOS C	3.2	21.5	0.52	0.69	37.7
11	T	636	2.8	1.077	229.1	LOS F	45.4	280.3	1.00	1.76	8.1
12	R	126	0.0	1.091	260.8	LOS F	19.3	115.9	1.00	1.52	7.4
Approach		838	3.1	1.091	215.1	LOS F	45.4	280.3	0.96	1.62	8.6
All Vehicles		5059	4.9	1.126	178.4	LOS F	155.6	972.5	0.92	1.54	10.1

### MOVEMENT SUMMARY Brighton Rd / ANZAC Hwy PM Peak

Site: ts125pm Count Date  
24/03/2009 {Verify Phasing &  
Variable Parameters-Ban Ped.  
Movement Definitions fo

ANZAC HwyRN6212-Brighton RdRN6604-Tapleys Hill RdRN5833 24/03/09 \* TS125PM \*  
I/S125 PM - TG735266 - Glenelg 4 ARM-1[ E]2[ S]3[ W]4[ N]5[ ]  
Signals - Fixed Time Cycle Time = 130 seconds (User-Given Cycle Time)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow	HV %	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Brighton Road [S] RN6604											
1	L	70	0.0	0.697	43.4	LOS D	28.5	174.8	0.90	0.90	28.5
2	T	998	2.4	0.698	35.3	LOS D	28.5	175.3	0.90	0.80	29.1
3	R	279	0.7	0.944	93.3	LOS F	23.3	140.8	1.00	1.11	16.9
Approach		1347	1.9	0.944	47.7	LOS D	28.5	175.3	0.92	0.87	25.3
East: ANZAC Highway [E] RN6212											
4	L	576	0.7	0.506	40.6	LOS D	17.9	108.2	0.80	0.81	28.6
5	T	426	1.6	0.729	59.0	LOS E	14.8	90.4	1.00	0.87	22.1
6	R	157	0.0	0.640	50.2	LOS D	9.8	58.8	1.00	0.81	25.3
Approach		1159	0.9	0.729	48.7	LOS D	17.9	108.2	0.90	0.83	25.4
North: Tapleys Hill Rd [N]RN5833											
7	L	82	0.0	0.044	7.6	NA <sup>9</sup>	NA <sup>9</sup>	NA <sup>9</sup>	NA <sup>9</sup>	0.60	49.8
8	T	1465	1.3	0.956	74.3	LOS E	61.7	374.8	1.00	1.19	19.1
9	R	39	25.6	0.143	26.1	LOS C	1.6	11.9	0.73	0.72	35.5
Approach		1586	1.8	0.956	69.7	LOS E	61.7	374.8	0.94	1.15	20.0

## Brighton Road - Draft Road Management Plan

West: ANZAC Highway [W] RN6212											
10	L	45	11.1	0.085	13.3	LOS B	1.2	8.3	0.34	0.66	44.3
11	T	477	1.5	0.801	62.1	LOS E	17.1	104.1	1.00	0.92	21.4
12	R	156	0.0	0.901	85.2	LOS F	13.0	77.8	1.00	1.02	18.0
Approach		678	1.8	0.901	64.2	LOS E	17.1	104.1	0.96	0.92	21.2
All Vehicles		4770	1.6	0.956	57.6	LOS E	61.7	374.8	0.93	0.96	22.7

## Brighton Road - Draft Road Management Plan

### MOVEMENT SUMMARY Brighton Rd / Jetty Rd (Glenelg) AM Peak

**Site: ts312am Count Date  
09/05/2006 {Verify Phasing &  
Variable Parameters-Ban Ped.  
Movement Definitions fo**

\* BEHAVES AS 3-ARM \* Brighton RdRN6604-Jetty Rd-Maxwell 09/05/06 \* TS312AM \*  
I/S312 AM - TG735262 - Glenelg 4 ARM-1[ N]2[ E]3[ S]4[ W]5[ ]  
Signals - Fixed Time Cycle Time = 130 seconds (User-Given Cycle Time)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
							Vehicles veh	Distance m			
South: Brighton Road [S] RN6604											
1	L	72	4.2	0.999 <sup>3</sup>	69.7	LOS E	49.9	310.4	1.00	1.01	21.4
2	T	2011	3.6	1.010	106.0	LOS F	74.7	464.3	1.00	1.35	14.9
Approach		2083	3.6	1.010	104.8	LOS F	74.7	464.3	1.00	1.33	15.1
East: Maxwell/Dunbar Terrace[E]											
4	L	48	2.1	0.045	32.0	LOS C	1.4	8.3	0.74	0.71	31.9
Approach		48	2.1	0.045	32.0	LOS C	1.4	8.3	0.74	0.71	31.9
North: Brighton Road [N] RN6604											
7	L	7	0.0	0.760	40.5	LOS D	36.0	229.9	0.91	0.91	29.8
8	T	1333	6.5	0.784	32.1	LOS C	36.0	229.9	0.91	0.83	30.4
9	R	51	3.9	0.323	42.7	LOS D	2.9	17.8	0.99	0.73	27.6
Approach		1391	6.3	0.784	32.5	LOS C	36.0	229.9	0.91	0.82	30.3
West: Jetty Road [W]											
10	L	43	4.7	0.931	93.9	LOS F	10.1	66.5	1.00	1.08	16.8
12	R	65	13.8	0.927	94.0	LOS F	10.1	66.5	1.00	1.08	16.8
Approach		108	10.2	0.927	94.0	LOS F	10.1	66.5	1.00	1.08	16.8
All Vehicles		3630	4.8	1.010	75.8	LOS E	74.7	464.3	0.96	1.12	18.9

### MOVEMENT SUMMARY Brighton Rd / Jetty Rd (Glenelg) PM Peak

**Site: ts312pm Count Date  
09/05/2006 {Verify Phasing &  
Variable Parameters-Ban Ped.  
Movement Definitions fo**

\* BEHAVES AS 3-ARM \* Brighton RdRN6604-Jetty Rd-Maxwell 09/05/06 \* TS312PM \*  
I/S312 PM - TG735262 - Glenelg 4 ARM-1[ N]2[ E]3[ S]4[ W]5[ ]  
Signals - Fixed Time Cycle Time = 130 seconds (User-Given Cycle Time)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
							Vehicles veh	Distance m			
South: Brighton Road [S] RN6604											
1	L	80	0.0	0.663	48.9	LOS D	24.2	147.7	0.91	0.91	26.6
2	T	1238	2.0	0.663	39.2	LOS D	24.2	147.7	0.91	0.81	27.6
Approach		1318	1.9	0.663	39.8	LOS D	24.2	147.7	0.91	0.81	27.5
East: Maxwell/Dunbar Terrace[E]											
4	L	58	0.0	0.054	31.2	LOS C	1.6	9.6	0.75	0.71	32.2
Approach		58	0.0	0.054	31.2	LOS C	1.6	9.6	0.75	0.71	32.2
North: Brighton Road [N] RN6604											
7	L	7	0.0	1.205	551.2	LOS F	269.4	1648.0	1.00	3.25	3.8
8	T	2147	2.0	1.267	545.4	LOS F	269.4	1648.0	1.00	3.32	3.7
9	R	50	0.0	0.250	36.8	LOS D	2.9	17.2	0.87	0.74	29.8
Approach		2204	1.9	1.267	533.8	LOS F	269.4	1648.0	1.00	3.26	3.8
West: Jetty Road [W]											
10	L	73	0.0	1.183	422.1	LOS F	36.5	218.8	1.00	1.92	4.7
12	R	107	0.0	1.184	422.0	LOS F	36.5	218.8	1.00	1.92	4.8
Approach		180	0.0	1.184	422.1	LOS F	36.5	218.8	1.00	1.92	4.8
All Vehicles		3760	1.8	1.267	347.6	LOS F	269.4	1648.0	0.96	2.30	5.6

Brighton Road - Draft Road Management Plan

**MOVEMENT SUMMARY**  
**Brighton Rd / Diagonal Rd / Pier St AM Peak**

Site: ts104am Count Date  
 26/02/2009 {Verify Phasing &  
 Variable Parameters-Ban Ped.  
 Movement Definitions fo

Brighton Road RN6604-Diagonal Road RN6608-Pier Street 26/02/09 \* TS104AM \*  
 I/S104 AM - TG736256 - Glenelg East 4 ARM-1[ N]2[SE]3[ S]4[ W]5[ ]  
 Signals - Fixed Time Cycle Time = 130 seconds (User-Given Cycle Time)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
							Vehicles veh	Distance m			
South: Brighton Road [S] RN6604											
1	L	27	3.7	1.163	345.2	LOS F	126.1	782.8	1.00	2.02	5.8
2	T	1360	3.5	1.159	350.3	LOS F	132.3	821.2	1.00	2.33	5.6
3	R	40	12.5	0.263	42.2	LOS D	2.4	16.5	0.92	0.74	28.0
Approach		1427	3.7	1.159	341.6	LOS F	132.3	821.2	1.00	2.28	5.7
South East: Diagonal Road [SE] RN6607											
21	L	13	0.0	0.920	67.6	LOS E	20.0	122.9	0.93	0.86	21.4
22	T	299	2.7	0.939	65.3	LOS E	20.0	122.9	0.93	0.85	21.4
23	R	1140	1.8	1.140	339.1	LOS F	103.4	631.2	1.00	1.94	5.8
Approach		1452	1.9	1.140	280.3	LOS F	103.4	631.2	0.98	1.71	6.9
North: Brighton Road [N] RN6604											
7	L	524	5.7	0.750	22.5	LOS C	17.8	112.9	0.66	0.79	37.2
8	T	914	8.0	0.794	46.2	LOS D	27.9	181.0	0.98	0.90	25.4
9	R	44	2.3	0.284	43.5	LOS D	2.7	16.3	0.98	0.73	27.4
Approach		1482	7.0	0.794	37.7	LOS D	27.9	181.0	0.87	0.86	28.6
West: Pier Street [W]											
10	L	51	3.9	1.000 <sup>3</sup>	62.9	LOS E	7.1	43.6	0.99	0.78	22.2
11	T	276	2.2	1.140	292.3	LOS F	62.0	381.6	1.00	1.82	6.6
12	R	120	3.3	1.139	343.1	LOS F	62.0	381.6	1.00	2.03	5.8
Approach		447	2.7	1.140	279.8	LOS F	62.0	381.6	1.00	1.76	6.9
All Vehicles		4808	4.1	1.159	223.7	LOS F	132.3	821.2	0.95	1.62	8.3

**MOVEMENT SUMMARY**  
**Brighton Rd / Diagonal Rd / Pier St PM Peak**

Site: ts104pm Count Date  
 26/02/2009 {Verify Phasing &  
 Variable Parameters-Ban Ped.  
 Movement Definitions fo

Brighton Road RN6604-Diagonal Road RN6608-Pier Street 26/02/09 \* TS104PM \*  
 I/S104 PM - TG736256 - Glenelg East 4 ARM-1[ N]2[SE]3[ S]4[ W]5[ ]  
 Signals - Fixed Time Cycle Time = 130 seconds (User-Given Cycle Time)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
							Vehicles veh	Distance m			
South: Brighton Road [S] RN6604											
1	L	54	0.0	0.676	45.6	LOS D	27.7	171.3	0.87	0.93	27.7
2	T	1012	3.3	0.675	35.1	LOS D	27.7	171.3	0.87	0.79	29.2
3	R	73	1.4	0.487	43.4	LOS D	3.6	22.1	1.00	0.75	27.5
Approach		1139	3.0	0.675	36.1	LOS D	27.7	171.3	0.88	0.79	29.0
South East: Diagonal Road [SE] RN6607											
21	L	15	0.0	0.855	98.5	LOS F	19.7	120.3	1.00	0.96	16.5
22	T	217	1.8	0.855	96.2	LOS F	19.7	120.3	1.00	0.96	16.4
23	R	546	1.1	1.030	166.3	LOS F	31.3	190.0	1.00	1.44	10.7
Approach		778	1.3	1.030	145.5	LOS F	31.3	190.0	1.00	1.30	12.0
North: Brighton Road [N] RN6604											
7	L	688	1.5	1.000 <sup>3</sup>	32.6	LOS C	27.3	166.2	1.00	0.90	31.6
8	T	1610	1.1	1.020	135.2	LOS F	92.3	559.6	1.00	1.53	12.4
9	R	62	1.6	0.282	32.5	LOS C	3.1	19.0	0.84	0.75	31.8
Approach		2360	1.2	1.020	102.6	LOS F	92.3	559.6	1.00	1.33	15.4
West: Pier Street [W]											
10	L	34	5.9	1.004	61.2	LOS E	7.1	43.4	1.00	0.78	22.7
11	T	324	0.6	1.053	168.1	LOS F	49.6	301.1	1.00	1.41	10.7

## Brighton Road - Draft Road Management Plan

12	R	131	2.3	1.053	199.9	LOS F	49.6	301.1	1.00	1.58	9.3
Approach		489	1.4	1.053	169.2	LOS F	49.6	301.1	1.00	1.41	10.6
All Vehicles		4766	1.7	1.053	100.5	LOS F	92.3	559.6	0.97	1.20	15.7

## Brighton Road - Draft Road Management Plan

### MOVEMENT SUMMARY Brighton Rd / Whyte St / Oaklands Rd AM Peak

**Site: ts105am Count Date  
08/03/2007 {Verify Phasing &  
Variable Parameters-Ban Ped.  
Movement Definitions fo**

Brighton Road RN6604 - Oaklands Road RN6464      08/03/07 \* TS105AM \*  
I/S105 AM - TG737243 - Somerton Park      4 ARM-1[ N]2[ E]3[ S]4[ W]5[ ]  
Signals - Fixed Time    Cycle Time = 110 seconds (User-Given Cycle Time)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
							Vehicles veh	Distance m			
South: Brighton Road [S] RN6604											
1	L	81	2.5	0.726	27.1	LOS C	32.2	198.9	0.80	0.94	36.2
2	T	1516	3.0	0.724	18.8	LOS B	32.2	198.9	0.80	0.73	37.5
3	R	241	2.9	0.558	26.6	LOS C	10.4	64.3	0.71	0.81	34.7
Approach		1838	3.0	0.724	20.2	LOS C	32.2	198.9	0.79	0.75	37.0
East: Oaklands Road [E] RN6464											
4	L	383	2.3	0.405	11.9	LOS B	9.4	57.4	0.46	0.74	45.3
5	T	152	1.3	0.720	49.3	LOS D	12.7	77.3	1.00	0.87	24.1
6	R	176	2.3	0.720	61.1	LOS E	12.7	77.3	1.00	0.87	22.7
Approach		711	2.1	0.720	32.0	LOS C	12.7	77.3	0.71	0.80	31.7
North: Brighton Road [N] RN6604											
7	L	48	4.2	0.417	29.7	LOS C	18.2	115.7	0.61	0.97	34.3
8	T	857	6.4	0.418	17.8	LOS B	18.2	115.7	0.61	0.55	38.6
9	R	42	11.9	0.511	50.4	LOS D	3.2	21.2	0.89	0.81	25.3
Approach		947	6.5	0.510	19.9	LOS B	18.2	115.7	0.62	0.59	37.5
West: Whyte Road [W]											
10	L	20	20.0	0.588	49.3	LOS D	11.5	71.0	0.92	0.85	26.8
11	T	210	1.0	0.586	41.2	LOS D	11.5	71.0	0.93	0.77	26.8
12	R	119	4.2	0.586	56.4	LOS E	9.0	55.9	0.98	0.81	23.7
Approach		349	3.2	0.586	46.8	LOS D	11.5	71.0	0.94	0.79	25.6
All Vehicles		3845	3.7	0.724	24.7	LOS C	32.2	198.9	0.75	0.72	34.7

### MOVEMENT SUMMARY Brighton Rd / Whyte St / Oaklands Rd PM Peak

**Site: ts105pm Count Date  
08/03/2007 {Verify Phasing &  
Variable Parameters-Ban Ped.  
Movement Definitions fo**

Brighton Road RN6604 - Oaklands Road RN6464      08/03/07 \* TS105PM \*  
I/S105 PM - TG737243 - Somerton Park      4 ARM-1[ N]2[ E]3[ S]4[ W]5[ ]  
Signals - Fixed Time    Cycle Time = 110 seconds (User-Given Cycle Time)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
							Vehicles veh	Distance m			
South: Brighton Road [S] RN6604											
1	L	48	2.1	0.463	23.8	LOS C	17.3	109.2	0.64	0.94	37.8
2	T	942	5.7	0.463	15.6	LOS B	17.3	109.2	0.64	0.57	40.1
3	R	253	4.3	0.794	48.4	LOS D	15.4	96.4	0.94	0.95	25.8
Approach		1243	5.3	0.794	22.6	LOS C	17.3	109.2	0.70	0.66	36.0
East: Oaklands Road [E] RN6464											
4	L	403	2.5	0.495	23.9	LOS C	15.5	95.5	0.77	0.89	36.5
5	T	164	3.0	0.717	48.3	LOS D	13.3	81.7	1.00	0.87	24.4
6	R	194	1.5	0.717	59.9	LOS E	13.3	81.7	1.00	0.87	22.9
Approach		761	2.4	0.717	38.3	LOS D	15.5	95.5	0.88	0.88	29.1
North: Brighton Road [N] RN6604											
7	L	92	7.6	0.657	32.9	LOS C	27.4	169.6	0.76	0.97	33.0
8	T	1340	2.7	0.659	21.2	LOS C	27.4	169.6	0.76	0.70	36.1
9	R	23	4.3	0.115	30.5	LOS C	1.2	7.6	0.65	0.73	32.7
Approach		1455	3.0	0.659	22.1	LOS C	27.4	169.6	0.76	0.72	35.8
West: Whyte Road [W]											
10	L	41	4.9	0.504	47.9	LOS D	10.0	62.1	0.90	0.83	26.8
11	T	138	2.9	0.504	39.6	LOS D	10.0	62.1	0.90	0.74	27.2

## Brighton Road - Draft Road Management Plan

12	R	175	0.0	0.797	63.6	LOS E	11.7	70.3	1.00	0.92	21.9
Approach		354	1.7	0.797	52.4	LOS D	11.7	70.3	0.95	0.84	24.2
All Vehicles		3813	3.5	0.797	28.3	LOS C	27.4	169.6	0.78	0.74	32.9

Brighton Road - Draft Road Management Plan

**MOVEMENT SUMMARY**  
**Brighton Rd / The Crescent AM Peak**

**Site: ts445am Count Date**  
**06/07/2005 {Verify Phasing &**  
**Variable Parameters-Ban Ped.**  
**Movement Definitions fo**

\* BEHAVES AS 3-ARM \* Brighton Rd RN6604-Addison Rd 06/07/05 \* TS445AM \*  
I/S445 AM - TG738226 - Hove / Brighton 4 ARM-1[ N]2[ E]3[ S]4[ W]5[ ]  
Signals - Fixed Time Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
							Vehicles veh	Distance m			
South: Brighton Road [S] RN6604											
1	L	15	6.7	0.974	90.9	LOS F	62.0	384.7	1.00	1.38	17.8
2	T	1591	3.4	0.973	81.7	LOS F	69.8	433.2	1.00	1.33	17.9
Approach		1606	3.4	0.973	81.8	LOS F	69.8	433.2	1.00	1.33	17.9
East: Addison Road [E]											
4	L	6	0.0	0.009	31.9	LOS C	0.3	2.1	0.65	0.64	31.9
Approach		6	0.0	0.009	31.9	LOS C	0.3	2.1	0.65	0.64	31.9
North: Brighton Road [N] RN6604											
7	L	37	0.0	0.952	84.5	LOS F	43.2	278.4	1.00	1.23	18.6
8	T	1043	8.0	0.952	76.5	LOS E	43.2	278.4	1.00	1.24	18.7
9	R	89	1.1	0.708	74.6	LOS E	7.2	43.6	1.00	0.92	19.6
Approach		1169	7.2	0.952	76.6	LOS E	43.2	278.4	1.00	1.21	18.8
West: The Crescent [W]											
10	L	140	0.7	0.170	29.6	LOS C	6.4	38.9	0.64	0.77	33.0
Approach		140	0.7	0.170	29.6	LOS C	6.4	38.9	0.64	0.77	33.0
All Vehicles		2921	4.8	0.973	77.1	LOS E	69.8	433.2	0.98	1.26	18.7

**MOVEMENT SUMMARY**  
**Brighton Rd / The Crescent PM Peak**

**Site: ts445pm Count Date**  
**06/07/2005 {Verify Phasing &**  
**Variable Parameters-Ban Ped.**  
**Movement Definitions fo**

\* BEHAVES AS 3-ARM \* Brighton Rd RN6604-Addison Rd 06/07/05 \* TS445PM \*  
I/S445 PM - TG738226 - Hove / Brighton 4 ARM-1[ N]2[ E]3[ S]4[ W]5[ ]  
Signals - Fixed Time Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
							Vehicles veh	Distance m			
South: Brighton Road [S] RN6604											
1	L	4	0.0	0.724	41.7	LOS D	25.7	157.2	0.90	1.05	29.4
2	T	1139	1.8	0.727	32.7	LOS C	28.5	174.4	0.90	0.84	29.9
Approach		1143	1.8	0.727	32.7	LOS C	28.5	174.4	0.90	0.84	29.9
East: Addison Road [E]											
4	L	18	0.0	0.040	44.6	LOS D	1.2	7.4	0.79	0.70	26.9
Approach		18	0.0	0.040	44.6	LOS D	1.2	7.4	0.79	0.70	26.9
North: Brighton Road [N] RN6604											
7	L	44	0.0	1.026	141.7	LOS F	94.6	572.3	1.00	1.59	12.5
8	T	1658	0.9	1.022	133.7	LOS F	94.6	572.3	1.00	1.60	12.6
9	R	93	0.0	0.426	51.1	LOS D	6.8	40.7	0.97	0.82	24.9
Approach		1795	0.8	1.022	129.6	LOS F	94.6	572.3	1.00	1.56	12.9
West: The Crescent [W]											
10	L	56	0.0	0.064	26.7	LOS C	2.6	15.7	0.58	0.73	34.6
Approach		56	0.0	0.064	26.7	LOS C	2.6	15.7	0.58	0.73	34.6
All Vehicles		3012	1.2	1.022	90.4	LOS F	94.6	572.3	0.95	1.26	16.8

## MOVEMENT SUMMARY Brighton Rd / Jetty Rd (Brighton) AM Peak

Site: ts120am Count Date  
06/05/2008 {Verify Phasing &  
Variable Parameters-Ban Ped.  
Movement Definitions fo

\* 3-ARM \* Brighton Road RN6604 - Jetty Road RN65800 06/05/08 \* TS120AM \*  
I/S120 AM - TG735262 - Glenelg 3 ARM-1[ N]2[ S]3[ W]4[ ]5[#E]  
Signals - Fixed Time Cycle Time = 110 seconds (User-Given Cycle Time)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
							Vehicles veh	Distance m			
South: Brighton Road [S] RN6604											
1	L	132	4.5	0.718	23.1	LOS C	33.1	206.6	0.74	0.94	38.5
2	T	1627	4.0	0.719	14.8	LOS B	33.1	206.6	0.74	0.68	40.4
Approach		1759	4.0	0.719	15.4	LOS B	33.1	206.6	0.74	0.70	40.3
North: Brighton Road [N] RN6604											
8	T	1060	6.5	0.376	5.6	LOS A	12.3	78.5	0.39	0.35	50.4
9	R	75	8.0	0.360	23.3	LOS C	2.9	18.9	0.76	0.77	36.8
Approach		1135	6.6	0.376	6.7	LOS A	12.3	78.5	0.42	0.38	49.2
West: Jetty Road [W]											
10	L	52	9.6	0.443	41.6	LOS D	3.1	20.3	0.79	0.73	28.1
12	R	345	2.0	0.696	56.7	LOS E	12.3	75.5	0.98	0.85	23.5
Approach		397	3.0	0.696	54.7	LOS D	12.3	75.5	0.96	0.83	24.0
All Vehicles		3291	4.8	0.719	17.1	LOS B	33.1	206.6	0.65	0.61	39.5

## MOVEMENT SUMMARY Brighton Rd / Jetty Rd (Brighton) PM Peak

Site: ts120pm Count Date  
06/05/2008 {Verify Phasing &  
Variable Parameters-Ban Ped.  
Movement Definitions fo

\* 3-ARM \* Brighton Road RN6604 - Jetty Road RN65800 06/05/08 \* TS120PM \*  
I/S120 PM - TG735262 - Glenelg 3 ARM-1[ N]2[ S]3[ W]4[ ]5[#E]  
Signals - Fixed Time Cycle Time = 110 seconds (User-Given Cycle Time)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
							Vehicles veh	Distance m			
South: Brighton Road [S] RN6604											
1	L	86	2.3	0.556	25.0	LOS C	22.4	137.2	0.70	0.93	37.1
2	T	1135	1.9	0.556	16.8	LOS B	22.4	137.2	0.69	0.63	39.1
Approach		1221	1.9	0.556	17.3	LOS B	22.4	137.2	0.69	0.65	39.0
North: Brighton Road [N] RN6604											
8	T	1794	0.9	0.681	12.0	LOS B	30.9	187.1	0.67	0.62	43.0
9	R	56	3.6	0.215	19.8	LOS B	1.7	10.7	0.65	0.73	39.0
Approach		1850	1.0	0.681	12.3	LOS B	30.9	187.1	0.67	0.62	42.9
West: Jetty Road [W]											
10	L	58	5.2	0.428	35.1	LOS D	3.1	19.5	0.72	0.73	30.6
12	R	432	1.2	0.665	48.8	LOS D	15.2	92.5	0.93	0.83	25.6
Approach		490	1.6	0.665	47.2	LOS D	15.2	92.5	0.91	0.82	26.1
All Vehicles		3561	1.4	0.681	18.8	LOS B	30.9	187.1	0.71	0.66	38.2

Brighton Road - Draft Road Management Plan

**MOVEMENT SUMMARY  
Brighton Rd / Sturt Rd AM Peak**

**Site: ts121am Count Date  
27/08/2008 {Verify Phasing &  
Variable Parameters-Ban Ped.  
Movement Definitions fo**

\* Behaves as 3-ARM \* Brighton Rd RN6604-Sturt Rd RN6610 27/08/08 \* TS121AM \*  
I/S121 AM - TG739218 - Brighton 4 ARM-1[ N]2[ E]3[ S]4[ W]5[ ]  
Signals - Fixed Time Cycle Time = 110 seconds (User-Given Cycle Time)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
							Vehicles veh	Distance m			
South: Brighton Road [S] RN6604											
1	L	23	4.3	0.699	21.8	LOS C	29.3	184.0	0.70	0.97	39.7
2	T	1666	4.5	0.702	13.4	LOS B	29.4	184.2	0.70	0.65	41.7
3	R	276	3.3	0.775	44.5	LOS D	12.3	76.1	1.00	0.96	27.0
Approach		1965	4.3	0.776	17.9	LOS B	29.4	184.2	0.75	0.70	38.7
East: Sturt Road [E] RN6610											
4	L	156	5.8	0.169	15.9	LOS B	4.7	29.7	0.47	0.71	42.0
5	T	60	0.0	0.505	47.1	LOS D	9.1	55.5	0.96	0.78	24.4
6	R	208	3.8	0.505	55.1	LOS E	9.1	55.5	0.96	0.80	24.0
Approach		424	4.0	0.505	39.5	LOS D	9.1	55.5	0.78	0.76	28.7
North: Brighton Road [N] RN6604											
7	L	203	3.0	0.766	36.0	LOS D	28.5	180.6	0.91	0.90	31.3
8	T	1044	7.0	0.765	27.7	LOS C	28.7	184.1	0.91	0.82	32.2
Approach		1247	6.3	0.765	29.0	LOS C	28.7	184.1	0.91	0.83	32.0
West: Old Beach Road[W](Cycles)											
10	L	1	0.0	0.031	63.3	LOS E	0.3	1.9	0.97	0.63	22.1
11	T	1	0.0	0.031	55.1	LOS E	0.3	1.9	0.97	0.61	22.3
12	R	1	0.0	0.031	63.3	LOS E	0.3	1.9	0.97	0.63	22.2
Approach		3	0.0	0.031	60.6	LOS E	0.3	1.9	0.97	0.62	22.2
All Vehicles		3639	5.0	0.776	24.3	LOS C	29.4	184.2	0.80	0.75	34.8

**MOVEMENT SUMMARY  
Brighton Rd / Sturt Rd PM Peak**

**Site: ts121pm Count Date  
27/08/2008 {Verify Phasing &  
Variable Parameters-Ban Ped.  
Movement Definitions fo**

\* Behaves as 3-ARM \* Brighton Rd RN6604-Sturt Rd RN6610 27/08/08 \* TS121PM \*  
I/S121 PM - TG739218 - Brighton 4 ARM-1[ N]2[ E]3[ S]4[ W]5[ ]  
Signals - Fixed Time Cycle Time = 110 seconds (User-Given Cycle Time)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
							Vehicles veh	Distance m			
South: Brighton Road [S] RN6604											
1	L	9	0.0	0.366	13.4	LOS B	11.3	69.4	0.38	1.01	45.3
2	T	1033	2.3	0.370	5.2	LOS A	11.3	69.4	0.38	0.34	50.9
3	R	187	2.1	0.892	69.6	LOS E	11.9	72.7	1.00	1.10	20.6
Approach		1229	2.3	0.892	15.0	LOS B	11.9	72.7	0.47	0.46	41.5
East: Sturt Road [E] RN6610											
4	L	368	1.4	0.222	8.0	LOS A	2.1	12.8	0.13	0.63	49.0
5	T	43	0.0	0.570	47.7	LOS D	10.1	64.0	0.98	0.79	24.1
6	R	263	1.5	0.571	55.6	LOS E	10.1	64.0	0.97	0.80	23.9
Approach		674	1.3	0.571	29.1	LOS C	10.1	64.0	0.51	0.71	33.3
North: Brighton Road [N] RN6604											
7	L	223	0.4	0.891	35.9	LOS D	54.6	330.4	0.93	1.00	31.5
8	T	1868	1.0	0.891	27.6	LOS C	55.0	333.0	0.93	0.93	32.2
Approach		2091	0.9	0.891	28.5	LOS C	55.0	333.0	0.93	0.94	32.2
All Vehicles		3994	1.4	0.892	24.5	LOS C	55.0	333.0	0.72	0.75	34.8

**MOVEMENT SUMMARY**  
**Brighton Rd / Seacombe Rd AM Peak**

**Site: ts122am Count Date**  
**22/11/2007 {Verify Phasing &**  
**Variable Parameters-Ban Ped.**  
**Movement Definitions fo**

\* 3-ARM \* Brighton Road RN6604 - Seacombe Road RN6613 22/11/07 \* TS122AM \*  
I/S122 AM - TG740206 - South Brighton 3 ARM-1[ N]2[ E]3[ S]4[ ]5[#W]  
Signals - Fixed Time Cycle Time = 110 seconds (User-Given Cycle Time)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
							Vehicles veh	Distance m			
South: Brighton Road [S] RN6604											
2	T	1879	3.5	0.670	7.5	LOS A	25.8	160.3	0.55	0.52	47.6
3	R	451	3.3	0.700	21.3	LOS C	13.9	86.2	0.89	0.86	38.0
Approach		2330	3.5	0.700	10.2	LOS B	25.8	160.3	0.62	0.58	45.4
East: Seacombe Road [E] RN6613											
4	L	260	7.3	0.145	7.8	NA <sup>9</sup>	NA <sup>9</sup>	NA <sup>9</sup>	NA <sup>9</sup>	0.60	49.8
6	R	262	3.1	0.606	55.6	LOS E	10.3	64.0	0.97	0.80	23.8
Approach		522	5.2	0.606	31.8	LOS C	10.3	64.0	0.48	0.70	32.2
North: Brighton Road [N] RN6604											
7	L	84	7.1	0.089	9.3	LOS A	1.0	6.4	0.24	0.65	48.0
8	T	941	7.8	0.691	31.4	LOS C	22.1	143.1	0.91	0.80	30.8
Approach		1025	7.7	0.691	29.6	LOS C	22.1	143.1	0.85	0.79	31.7
All Vehicles		3877	4.8	0.700	18.2	LOS B	25.8	160.3	0.66	0.65	38.8

**MOVEMENT SUMMARY**  
**Brighton Rd / Seacombe Rd PM Peak**

**Site: ts122pm Count Date**  
**22/11/2007 {Verify Phasing &**  
**Variable Parameters-Ban Ped.**  
**Movement Definitions fo**

\* 3-ARM \* Brighton Road RN6604 - Seacombe Road RN6613 22/11/07 \* TS122PM \*  
I/S122 PM - TG740206 - South Brighton 3 ARM-1[ N]2[ E]3[ S]4[ ]5[#W]  
Signals - Fixed Time Cycle Time = 110 seconds (User-Given Cycle Time)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
							Vehicles veh	Distance m			
South: Brighton Road [S] RN6604											
2	T	1130	2.1	0.400	5.4	LOS A	12.4	76.1	0.39	0.35	50.5
3	R	321	0.8	1.000 <sup>3</sup>	93.2	LOS F	22.4	135.3	1.00	1.21	16.9
Approach		1451	1.8	1.000	24.8	LOS C	22.4	135.3	0.53	0.54	35.1
East: Seacombe Road [E] RN6613											
4	L	525	1.7	0.282	7.7	NA <sup>9</sup>	NA <sup>9</sup>	NA <sup>9</sup>	NA <sup>9</sup>	0.60	49.7
6	R	129	1.6	0.294	53.0	LOS D	5.4	33.1	0.92	0.76	24.5
Approach		654	1.7	0.294	16.6	LOS B	5.4	33.1	0.18	0.63	41.4
North: Brighton Road [N] RN6604											
7	L	177	0.0	0.189	10.3	LOS B	3.1	18.5	0.28	0.66	46.7
8	T	1990	0.9	0.955	58.3	LOS E	73.2	443.0	1.00	1.19	22.2
Approach		2167	0.8	0.955	54.4	LOS D	73.2	443.0	0.94	1.15	23.2
All Vehicles		4272	1.3	1.000	38.5	LOS D	73.2	443.0	0.68	0.86	28.4