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LOCAL AREA TRAFFIC MANAGEMENT STUDY
OLD GOSFORD ROAD, WAMBERAL

FINAL REPORT

Prepared for
Gosford City Council

transportation | traffic | engineering | planning

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1 INTRODUCTION

Roads & Maritime Services (formally Roads and Traffic Authority) are currently upgrading The Entrance Road (Central Coast Highway) from the existing two-lane arrangement to a corridor that includes four lanes with improvements to intersection configurations. As part of the Roads & Maritime Services (RMS) upgrade works, it has been identified that the T-intersection at Old Gosford Road will be upgraded to a four-way two lane roundabout incorporating the realignment and connection with Okanagan Close.

The local community are concerned that the intersection upgrade will encourage vehicles to connect between The Entrance Road and Ocean View Drive via Old Gosford Road which may impact the surrounding amenity and safety for local residents.

Gosford City Council (GCC) and Roads & Maritime Services are equally funding a Local Area Traffic Management (LATM) study for Old Gosford Road, Wamberal, to investigate the traffic impact of the roundabout to local residential area. Cardno were commissioned by Gosford City Council (GCC) to undertake the LATM study.

The purpose of this study is to address the road safety issues raised by Wamberal Action Group (WAG) (included at **Appendix A**) and provide recommendations to improve safety, moderate through traffic volumes and reduce speeds along Old Gosford Road.

1.1 PROJECT OBJECTIVE

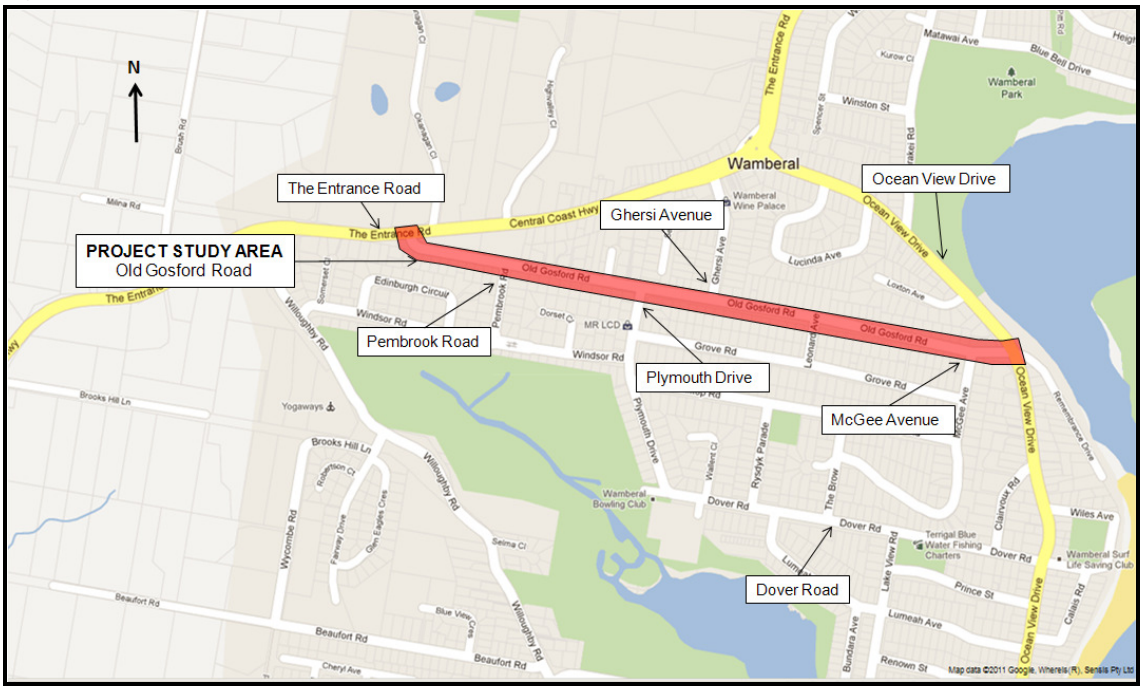
The project objectives for this study are to:

- Objective 1, Incorporate Wamberal Action Group safety and amenity concerns.
- Objective 2, Identify any traffic impacts along Old Gosford Road due to the proposed intersection upgrade of The Entrance Road/Old Gosford Road.
- Objective 3, Provide measures and to mitigate any impacts demonstrated to be caused by RMS works along Old Gosford Road and maintain the functional performance of the local street.
- Objective 4, Enhanced where practical amenity and safety for local residents.
- Objective 5, Review sight distance at the intersections along Ocean View Drive with Old Gosford Road and Dover Road.

1.2 STUDY AREA

Figure 1.1 indicates the study area along Old Gosford Road as well as the adjacent road network including The Entrance and Ocean View Drive.

Figure 1.1 Study Area



1.3 REFERENCE DOCUMENTS

In order to fully understand and complete this study the following documents have been referenced:

- Wamberal Action Group, Submission to Gosford City Council Traffic Committee, 28 July 2011.
- Wamberal Action Group, *Review of Wamberal LATM Study Few Proposal*, 26 September 2011.
- Austroads, *Guide to Traffic Management Part 8: Local Area Traffic Management*, 2008.
- Gosford City Council, *Wamberal LATM Scheme*, 1996
- Red Bus Company, Alternative Route Survey (for Red Bus 22) Meeting Minutes, 23 August 2011.
- Various traffic survey data provided by Gosford City Council and Roads and Maritime Services.
- SkyHigh Traffic Surveyors, *Traffic Survey Data*, October 2011
- Roads & Maritime Services, *Design Plans The Entrance Road upgrade* (0030.184.RC.5292 AC29 – AC33), 31 March 2010.

Extracts of selected documents are included at **Appendix B**.

2 LOCAL AREA TRAFFIC MANAGEMENT

2.1 FUNCTIONAL CLASSIFICATION

The road hierarchy system classifies roads according to their functions and capacities. According to Austroads Part 8 (2008) publication, typically roads are to incorporate the following characteristics:

- Arterial Road - is a main road carrying in excess of 15,000 vehicles per day and over 1,500 vehicles per hour in the peak period. They predominantly carry traffic from one region to another, forming principal avenues of communication for metropolitan traffic movements.
- Sub-Arterial Road – is a secondary road carrying between 5,000 and 20,000 vehicles per day and over 500 and 2,000 vehicles per hour in the peak period. They predominantly carry traffic from one sub-region to another forming secondary inter-regional transport links.
- Collector Road – is a minor road carrying between 2,000 and 10,000 vehicles per day and over 250 and 1,000 vehicles per hour in the peak period. They provide a link between local areas and regional road carrying low traffic volumes. At volumes greater than 5,000 vehicles per day, residential amenity begins to decline noticeably.
- Local Road – is a local street carrying less than 2,000 vehicles per day and 250 vehicles per hour in the peak period. They provide immediate access to individual houses and carry low traffic volumes.

2.2 LATM CONSIDERATIONS

> *The primary objective of LATM is to change driver behaviour, both directly by physical influence on vehicle operation and indirectly by influencing the driver's perceptions of what is the appropriate behaviour in that street. The objective is to reduce traffic volumes and speeds in local streets to increase liveability and improve safety and access for local residents, pedestrians and cyclists.* (Austroads, 2008)

In terms of various LATM measures, **Table 2.1** presents a summary of potential LATM measures which can be utilised to calm traffic and change driver behaviour throughout the study area.

Table 2.1 Summary of LATM measures

LATM Measures	Purpose	Examples
Vertical Deflection Devices	› Vertical deflection devices involve changing the vertical path or course of a vehicle by using a physical feature on the road to reduce speed and at times discourage traffic along the road section	› Road Humps › Road Cushions › Flat top road humps › Raised Pavements
Horizontal Deflection Devices	› Horizontal Deflection devices change the horizontal path or course of a vehicle by using a physical feature on the road to reduce traffic volume, speed and conflicts between pedestrians, cyclists and motorists.	› Lane narrowings/kerb extensions › Slow points. › Centre Blister Islands › Mid-block median treatments › Roundabouts

Table 2.1 Summary of LATM measure (cont.)

LATM Measures	Purpose	Examples
Diversion Devices	› Diversion Devices are used to redirect traffic through the use of physical obstructions on the roadway in conjunction with regulatory signage. The measures obstruct specific vehicle movements at intersections and mid-block locations to discourage short cutting or through traffic.	› Full road closure › Half road closure › Traffic Islands (to channel left-in/left-out)
Signs Line marking and other treatments	› Signs, line marking and other treatments are used to regulate traffic movements and/or calm traffic. It may discourage speeding, prevent vehicle conflicts, and prevent through traffic from short-cutting along a street. The aim of signs and line marking are to aid in the safe and orderly movement of traffic.	› Signs (speed limits, prohibited traffic movements give-way, stop-signs) › Marked pedestrian crossings › Shared zones and school zones › Bus and Bicycle Facilities

Table 2.2 shows the advantages and disadvantages of specific LATM devices highlighting appropriateness of use in various situations.

Table 2.2 Advantages and Disadvantages of LATM Devices

Devices	Description	Advantages	Disadvantages
Vertical Deflection Devices			
Road Humps	› Speed reduction device in the form of a raised curved profile extending across the roadway. › Typically 70mm to 120mm high with total length of 3m to 4m › Effectiveness can be increased when used in combination with kerb extensions/lane narrowing and median treatments	› Significant reduction in vehicle speeds in the vicinity of the road hump › Reduce speeds over the length of the street when used in series › Low cost to install and maintain › Discourage through traffic	› Traffic noise level may increase due to braking either side of the hump › Divert traffic to nearby streets › Uncomfortable for vehicle passengers › Inappropriate to use for bus and designated cycle routes unless a sympathetic design is used
Road Cushions	› Another form of road hump that occupies only a part of the roadway › Have minimum gaps of 750mm between the base of the cushions and kerb and also between adjacent cushions to accommodate cyclists and busses. › Constructed 3m long and 1.6m to 1.9m wide with a height of 70 to 80mm	› Reduce vehicle speeds in the vicinity of the cushion › Reduce speeds over the length of the street when used in series › Low cost to install and maintain › Designed to not inconvenience buses, commercial vehicles and cyclists	› Traffic noise level may increase due to braking either side of the cushion › Less effective in slowing vehicles with a wide track › Less effective in slowing motorcyclists › Can prevent cyclists using kerbside gap on on-street parking › Can reduce their effect by traversing the cushions with only two wheels

Table 2.2 Advantages and Disadvantages of LATM Devices (cont.)

Devices	Description	Advantages	Disadvantages
Vertical Deflection Devices			
Flat Top Road Humps (Raised Table)	› Raised surface approximately 75-100mm high and typically with a 2 to 6m long platform ramped up from the normal level of the street › Raised section is flat instead of curved like road humps	› Significant reduction in vehicle speeds in the vicinity of the road hump › Reduce speeds over the length of the street when used in series › Low cost to install and maintain › Discourage through traffic	› Traffic noise level may increase due to braking either side of the hump › Divert traffic to nearby streets › Uncomfortable for vehicle passengers › May increase vehicular-pedestrian conflict if the priority to vehicles is unclear (sometimes believed to be a pedestrian crossing by pedestrians)
Raised Pavements	› Raised section of roadway approximately 90-100mm high ramped up from the normal level of the street with a platform extending over more than a standard car length › Located at either a mid-block or across the apron of an intersection › Allows a vehicle to bring both sets of wheels up onto the platform simultaneously	› Significant reduction in vehicle speeds in the vicinity of the road hump › Reduce speeds over the length of the street when used in series › Highlights the presence of an intersection	› Traffic noise level may increase due to braking either side of the pavement › Divert traffic to nearby streets › Uncomfortable for vehicle passengers › May adversely affect access for buses, commercial vehicles and emergency vehicles › Require care that ramp markings are not confused with intersection control markings when located at an intersection
Devices	**Description**	**Advantages**	**Disadvantages**
Horizontal Deflection Devices			
Lane Narrowings/ Kerb Extensions	› Narrowing of trafficable carriageway by extending the kerbs inwards or via other forms of kerb modifications › Also achieved through the introduction of on-street parking	› Shorter crossing distance for pedestrians › Improve visibility of pedestrians and vehicles › Reduce vehicle speeds › Low cost › Helps delineate and protect parking spaces › Less disruptive to local traffic	› Reduces the amount of available kerbside parking › Drivers may mistake an empty kerbside parking lane for a traffic lane › May introduce squeeze points and increase the conflict between motorists and bicycles › Less effective than other horizontal displacement devices in reducing speed › May increase congestion
Slow Points	› Series of kerb extensions on alternating or opposite sides of a roadway which narrow and/or angle the roadway	› Reduce vehicle speeds near the device › When used in series can reduce speeds over a section of the road length › Shorter distance to cross the street for pedestrians › Discourage through traffic › Minimal inconvenience on local residents › Landscaping opportunity to increase aesthetic appeal	› Restricts emergency vehicles and buses › Possible increase in traffic noise › Removal of on-street parking › One lane devices may result in lack of clarity to which road-user has right of way › May be hazardous for cyclists › Landscaping needs to be maintained so as not to reduce visibility

Table 2.2 Advantages and Disadvantages of LATM Devices (cont.)

Devices	Description	Advantages	Disadvantages
Horizontal Deflection Devices (cont.)			
Centre Blister islands	› Concrete island positioned at the centreline (median) of a street that has a wide oval plan shape that narrows the lanes › Often installed where a slow point is required › Design of the islands should ensure that the width and length are not less than 2 or 3 metres respectively	› Reduce vehicle speeds › Prevent overtaking of vehicles › Provides a refuge for pedestrians and cyclists crossing the street › Flexibility in design allows buses and commercial traffic to be accommodated › Landscaping opportunity to increase aesthetic appeal	› Prohibits or limits access from driveways › Reduces on-street parking adjacent to the islands › May create a bicycle squeeze point › May require kerb and footpath realignment (narrow streets) › Not effective in reducing through traffic › Expensive device
Mid-block median treatments	› Raised or flush island positioned at the centreline (median) of a street that narrows lanes	› Refuge for pedestrians and cyclists crossing the street › Separation of vehicles in opposing traffic lanes may reduce head-on collisions › Flexibility in design allows buses and commercial traffic › Reduce vehicle speeds › Prevent overtaking of vehicles › Flush treatments do not generally restrict vehicle movements › Landscaping opportunity to increase aesthetic appeal	› Removal of significant amounts of parking to be removed › May create a bicycle squeeze point › Have limited speed and traffic reduction benefits › If raised treatments are used they may prohibit or limit access and movement from driveways
Roundabouts	› Form of channelization that incorporates a circular central island › Effective form of intersection control that can be installed on both four-leg and three-leg intersections	› Reduce vehicle conflict points at intersections › Reduce vehicle speeds (on approach and through the intersection) › Uninterrupted control of traffic movement › Increase visibility of the intersection › Clarification of the priority of traffic movements › Landscaping opportunity to increase aesthetic appeal	› Restrict larger service and emergency vehicles/buses unless roundabout is mountable › Relatively expensive especially if land acquisition is required › Traffic noise level may increase due to braking › Reduce the availability of on-street parking › Difficult to negotiate for cyclists and pedestrians

Table 2.2 Advantages and Disadvantages of LATM Devices (cont.)

Devices	Description	Advantages	Disadvantages
Diversion Devices			
Full road Closure	› Closure of a street to two-way traffic › Can be located at either an intersection or mid-block	› Reduce traffic volumes › Reduce conflict points when used at an intersection › Increase pedestrian safety › Eliminate non-local traffic › Accommodate pedestrian, cyclist and bus access › Landscaping opportunity to increase aesthetic appeal	› May restrict or reduce accessibility for local residents › Traffic may be diverted to other adjacent local streets without closure potentially resulting in congestion › May restrict access by emergency vehicles › Increase travel times for some road users › Reduce on-street parking availability
Half road closure	› Restrict entry or exit to local areas by kerb arrangement and regulatory control to one direction only › May be located either at intersections or mid-block	› Reduce traffic volumes › Reduce conflict points when used at an intersection › Reduce through traffic › Increase in pedestrian safety if used at an intersection › Landscaping opportunity to increase aesthetic appeal	› May restrict or reduce accessibility for local residents › Traffic may be diverted to other adjacent local streets without closure potentially resulting in congestion › May restrict access by emergency vehicles › Increase travel times for some road users › Reduce on-street parking availability › Potential for violation of restrictions
Left-in/left-out islands	› Raised triangular island at an intersection to limit right and through movements › Form of partial road closure similar in effect to half road closure	› Reduce traffic volumes › Reduces the number of conflict points › Refuge for pedestrians and cyclists › Reinforces the need for vehicles crossing the centre line to give way › Landscaping opportunity to increase aesthetic appeal	› May restrict or reduce accessibility for local residents › May create a squeeze point for cyclists › Traffic may be diverted to other adjacent local streets without restriction potentially resulting in congestion › Compliance may be an issue if a central median island is not incorporated

Table 2.2 Advantages and Disadvantages of LATM Devices (cont.)

Devices	Description	Advantages	Disadvantages
Signs and Lines			
Signs and line marking	› Signs are categorised into regulatory signs (legal requirement), guide signs (inform and advise), warning signs and temporary signs › Primary aim of line marking and sigs are to aid the safe and orderly movement of traffic	› Reduce speed of traffic › Low cost to install and maintain › Signs restricting traffic movements can reduce traffic volumes › Increase safety for all road users	› Acceptance depends on the user and will be less effective if they seem illogical or where convenient alternatives are not available › May require regular police enforcement to achieve compliance (speed limit signs in particular) › If not designed and implemented logically can be unsafe for road users
Other treatments (Shared Zones, School Zones, Threshold Treatments)	› On-road and off-road facilities for road users such as pedestrians, cyclists, public transport and emergency vehicles › Often dedicated or shared facilities for defined road user groups	› Increase in the safety of pedestrians, cyclists and school children › Reduction in the speed environment of the street › Creates awareness for motorists	› Require education and enforcement to encourage understanding and compliance › Motorists may not observe restrictions

2.3 ENVIRONMENTAL CAPACITY

The **RTA's *Guide to Traffic Generating Developments 2002*** gives the most recent guidance on the environmental capacity of residential streets as set out in **Table 2.3**. The Guide also states that speed is an important contributor to environmental capacity:

> ***The Environmental Capacity of a street can be increased through a reduction in speed. For example, on an existing residential street where traffic volumes reach the Environmental Capacity maximum (and a proposed development could cope with the volume over the standard), traffic speed may be reduced by the introduction of traffic calming methods.....***

In existing residential environments, 40km/h is an acceptable speed objective, usually achieved by LATM schemes e.g. adjusting existing roadways with retrofitted design items such as speed humps and slow points.

Table 2.3 Environmental Capacity Performance Standards on Residential Streets

Road class	Road type	Maximum Speed	Maximum peak hour volume (veh/h)
Local	Access way	25 km/h	100
	Street	40 km/h	200 environmental goal
			300 maximum
Collector	Street	50 km/h	300 environmental goal
			500 maximum

Note: Maximum speed relates to the appropriate design maximum speeds in new residential developments. In existing areas maximum speed relates to 85th percentile speed.

From the traffic surveys as discussed herein, **Table 2.4** summarises the peak hour mid-block two-way volumes during the AM, PM as well as Saturday peak hours.

Table 2.4 Peak Hour Mid-Block Volumes

Location	AM Peak Volumes (2-way)	PM Peak Volumes (2-way)	Saturday Peak Volumes (2-way)	Satisfy the Environmental Capacity Criteria?
Old Gosford Road East of Pembrook Road	195 vehicles	149 vehicles	144 vehicles	Yes
Old Gosford Road East of Plymouth Drive	190 vehicles	165 vehicles	160 vehicles	Yes
Old Gosford Road East of Ghersi Avenue	142 vehicles	120 vehicles	114 vehicles	Yes

The above table indicates that there are less than 200 vehicles per hour travelling on Old Gosford Road in the peak hours which satisfies the environmental capacity performance in terms of traffic volumes for a collector road.

It is noted that while the existing traffic volumes are below the functional classification of a Collector Road (250 vehicles per hour and above), Old Gosford Road provides an important link between the local areas and the regional road network.

3 EXISTING SITUATION

3.1 EXISTING LAND USE

Within and surrounding the study area, low density residential detached dwellings have direct access to the road network. The surrounding area also includes retail outlets located to the north of the site along Ocean View Drive and The Entrance Road as well as the Wamberal Breakers Club and Wamberal Life Saving Club located to the south and east.

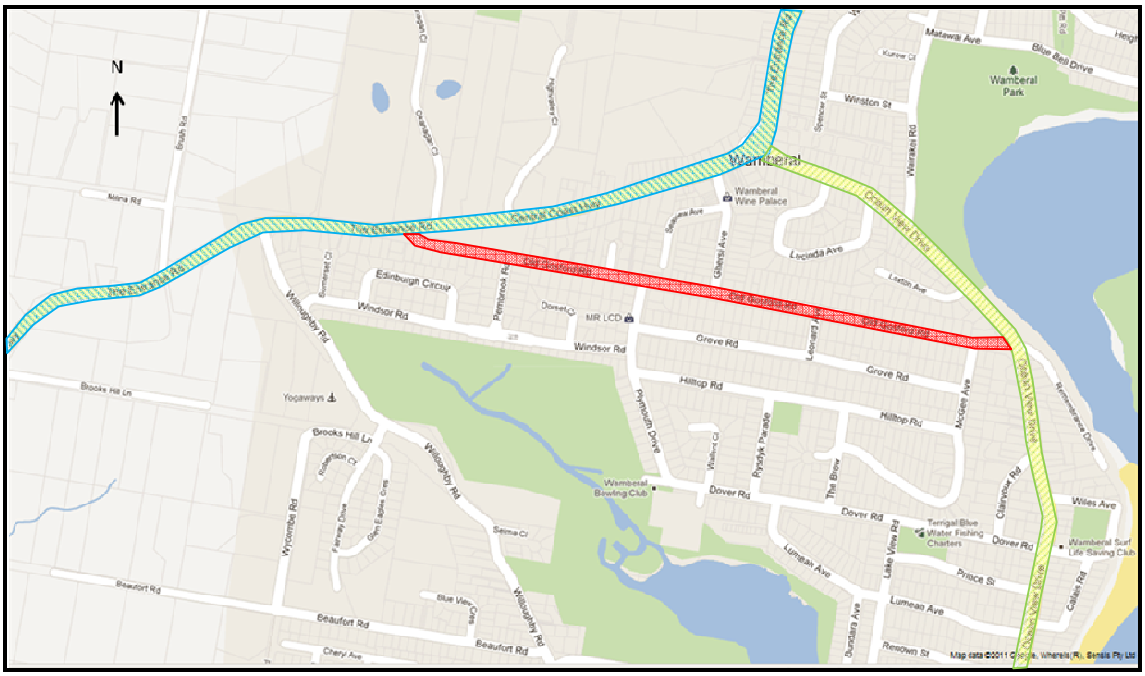
Additionally, recreational areas are located to the south-west and east within the study area.

3.2 EXISTING ROAD NETWORK

As indicated on **Figure 3.1**, the key existing road network within the study area includes the following roads:

- The Entrance Road (Central Coast Highway) (presented in blue).
- Ocean View Drive (presented in green).
- Old Gosford Road (presented in red).

Figure 3.1 Existing Road Network



3.2.1 The Entrance Road

The Entrance Road (Central Coast Highway) is classified as an *Arterial Road*. Between Old Gosford Road and Ghersi Avenue, The Entrance Road is a two lane divided road which widens to a four lanes with a median divide up to Ocean View Drive. The posted speed limit for this section is 60km/h however due to construction works (at the time of this document) speed is reduced to 40km/h.

The Entrance Road provides a north-south connection within the Central Coast area linking East Gosford, Erina, Wamberal, Bateau Bay and The Entrance.

3.2.2 Ocean View Drive

Ocean View Drive is classified as an Arterial Road and is posted at 50km/h. The road cross section comprises a two lane two way road incorporating direct property and controlled intersection arrangements. Additionally, a pedestrian path is provided along the full length (paths on both sides of the road are located in isolated areas).

Ocean View drive provides the major link between Terrigal and the suburbs north of Gosford. **Photo 3.1**, looking northbound toward Old Gosford Road, illustrates traffic islands incorporating pedestrian refuges at desired locations.

Photo 3.1 Ocean View Drive Typical Cross Section

3.2.3 Old Gosford Road

Old Gosford Road connects between The Entrance Road and Ocean View Drive, and according to Council is classified as a *Collector Road*. The cross section for Old Gosford Road comprises a two lane undivided road pedestrian footpaths on the northern side for brief sections of the road (west of Plymouth Drive for 200m and east of McGee Avenue for 50m). The road corridor incorporates priority controlled intersections with direct property access. Additionally, four sets of bus stops are located along Old Gosford Road servicing both the local resident and school demand.

Photo 3.2, direction westbound near Ghersi Avenue, illustrates the undulating terrain as well as the typical provision of a bus stop along Old Gosford Road.

Photo 3.2 Old Gosford Road Typical Cross Section

3.2.4 Other Study Roads

The remaining roads are all local roads connecting with Old Gosford Road. Each of the following local roads have similar geometric characteristics of a two lane undivided road with a posted speed limit of 50km/h:

- Ghersi Avenue (local road) connecting The Entrance Road and Old Gosford Road.
- Plymouth Drive (local road) connecting Old Gosford Road and Dover Road.
- Dover Road (collector road) connecting Ocean View Drive and Plymouth Drive.
- Pembrook Road (local road) providing access to residences.
- McGee Avenue (local road) providing access to residences.

3.3 EXISTING INTERSECTIONS

For the following existing intersections within and surrounding the study area, a summary is provided of the location and arrangement:

- The Entrance Road (Central Coast Highway)/Old Gosford Road.
- Ocean View Drive/Old Gosford Road.
- Ocean View Drive/The Entrance Road (Central Coast Highway).
- Ocean View Drive/Dover Road.

Additional intersections also considered herein are:

- Old Gosford Road/Pembrook Road.
- Old Gosford Road/Plymouth Drive.
- Old Gosford Road/Ghersi Avenue.
- Old Gosford Road/McGee Avenue.

It is noted that each of the four intersections above connect to Old Gosford Road via a priority controlled arrangement with single approach and departure lanes.

3.3.1 The Entrance Road/Old Gosford Road

The intersection at the Entrance Road/Old Gosford Road, as illustrated on **Figure 3.2** (prior to commencement of RMS works), comprises the following characteristics:

- Give way controlled T-intersection.
- All legs have two lanes (one lane in each direction).
- No right or left turn lanes are provided at this intersection.

Figure 3.2 The Entrance Road/Old Gosford Road Intersection Layout

3.3.2 Ocean View Drive/Old Gosford Road/Remembrance Drive

The Ocean View Drive/Old Gosford Road intersection, as illustrated on **Figure 3.3**, comprises the following:

- Four way give way controlled intersection.
- Northern Leg (Ocean View Drive):
  - One approach and departure lane.
  - 20m right turn lane into Old Gosford Road.
- Eastern leg (Remembrance Drive):
  - One approach and departure lane.
- Southern Leg (Ocean View Drive):
  - One approach and departure lane.
  - 20m right turn lane into Remembrance Drive.
- Western leg (Old Gosford Road):
  - Formally one approach and departure lane. It is noted from on site observations due to space availability the approach operates as a left as well as a through and right lane.

Figure 3.3 Ocean View Drive/Old Gosford Road/Remembrance Drive Intersection Layout

3.3.3 Ocean View Drive/The Entrance Road (Central Coast Highway)

Ocean View Drive/The Entrance Road intersection is not directly within the study area however The Entrance Road and Ocean View Drive are the main routes accessing the surrounding area.

The Ocean View Drive/The Entrance Road intersection comprises the following characteristics:

- Three-way roundabout arrangement with an island diameter of approximately 20m.
- All three legs have two approach lanes.
- Two departure lanes exist for The Entrance Road legs (south-western leg and north-eastern leg) with Ocean View Drive exhibiting a single departure lane.

3.3.4 Ocean View Drive/Dover Road

As above, Ocean View Drive/Dover Road intersection is not within the study area however is part of a major connection to the Breakers Club as well as the Surf Life Saving Club.

The intersection incorporates the following elements:

- Priority controlled intersection.
- All legs of the intersection include two lanes (one approach and one departure lane).

3.4 EXISTING PEDESTRIAN FACILITIES

It is noted during the site inventory that footpaths exists at the following locations along Old Gosford Road:

- Northern side between Lot 102 and Lot 94 near Pembrook Road.
- Northern side between McGee Avenue and Ocean View Drive.
- There are no dedicated facilities e.g. crossings or refuge islands for pedestrians to assist pedestrians crossing Old Gosford Road.

3.5 EXISTING PUBLIC TRANSPORT

3.5.1 Bus Routes

Bus route 22 services between Gosford and The Entrance as well as the Wamberal community by routing through Old Gosford Road and Ocean View Drive (north of Old Gosford Road). Buses are available during weekdays and weekends and generally exhibit a frequency of around one bus per hour between:

- Weekdays:
  - 7am – 8pm (westbound).
  - 7am – 9pm (eastbound).
- Weekends:
  - 7am – 7pm (westbound).
  - 7am – 8.30pm (eastbound).

Various school bus routes also use Old Gosford Road to drop off and pick up students.

3.5.2 Bus Stops

Bus stops are located at a number of locations along Old Gosford Road and are presented on **Figure 3.4**.

Figure 3.4 Location of Bus Stops along Old Gosford Road

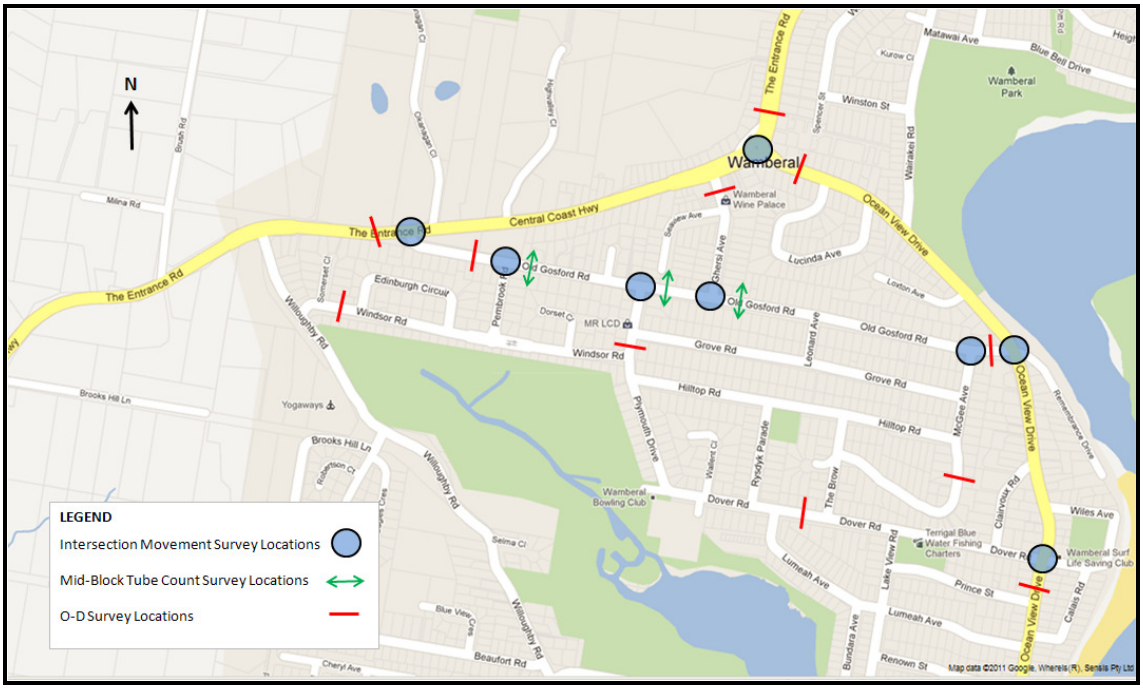
4 TRAFFIC DEMAND ASSESSMENT

To determine the existing traffic demand on the road network within the study area, the following traffic surveys were undertaken:

- Intersection Counts.
- Mid-Block Tube Counts.
- Origin-Destination Surveys.

Locations for all traffic surveys are indicated on **Figure 4.1** and included in **Appendix C, D** and **E**.

Figure 4.1 Traffic Survey Locations



4.1 INTERSECTION COUNTS

Full intersection movement counts were undertaken at the following locations on Thursday, 27 October 2011, during the AM peak period (6am-10am), PM peak period (3pm-7pm) and on Saturday, 29 October, 8am-1pm:

- The Entrance Road/Ocean View Drive.
- The Entrance Road/Old Gosford Road.
- Old Gosford Road/Pembrook Road.
- Old Gosford Road/Plymouth Drive.
- Old Gosford Road/Ghersi Avenue.
- Old Gosford Road/McGee Avenue.
- Old Gosford Road/Ocean View Drive.
- Ocean View Drive/Dover Road.

The traffic peak hours identified from the surveys were between 8.005am – 9.00am and 3.00pm – 4.00pm for Thursday and 11.00am-12.00pm for Saturday.

4.2 MID-BLOCK TUBE COUNTS

Mid-block 24 hour tube counts were collected during the period from 24 October 2011 to 30 October 2011 at the following locations:

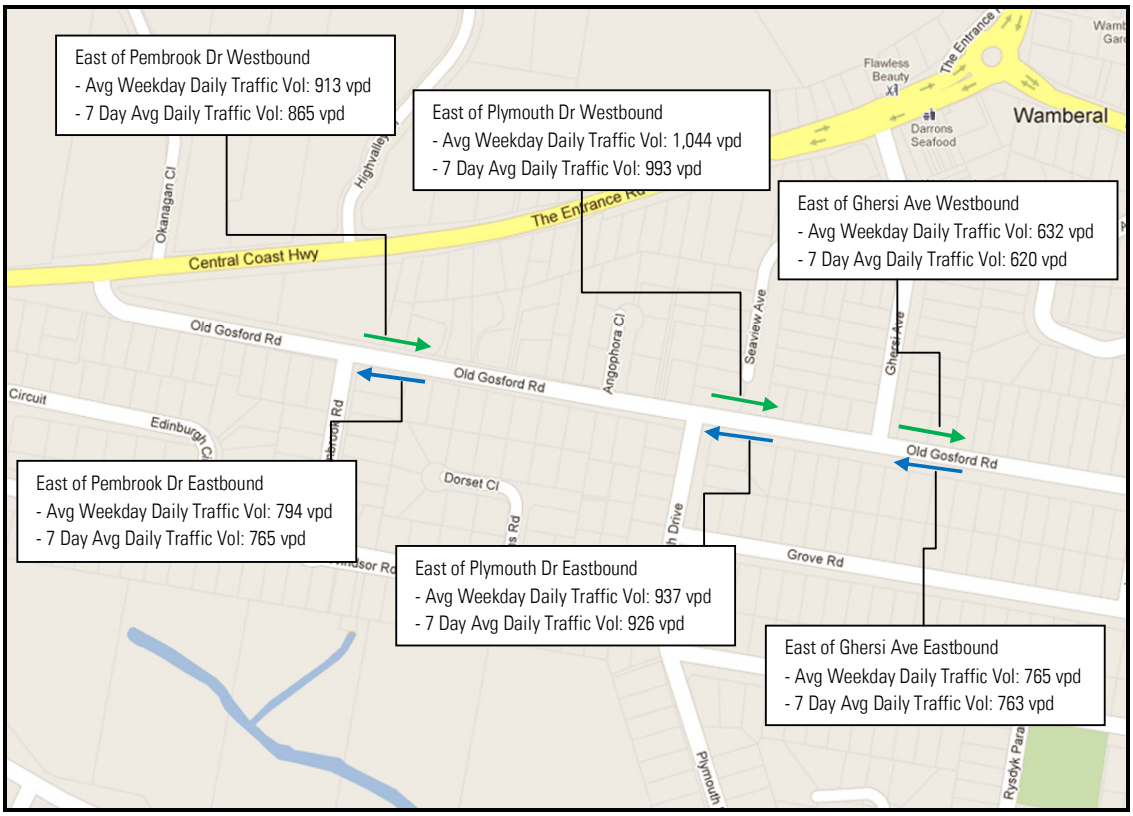
- Old Gosford Road east of Pembrook Drive.
- Old Gosford Road east of Plymouth Drive.
- Old Gosford Road east of Ghersi Street.

4.3 MID-BLOCK TRAFFIC VOLUMES

A summary of the mid-block tube counts for Old Gosford Road are indicated on **Figure 4.2**. As summarised the average daily traffic volumes along Old Gosford Road results in average weekday daily traffic demand of around:

- Old Gosford Road east of Pembrook Drive 1,710 vehicles per day.
- Old Gosford Road east of Plymouth Drive 1,980 vehicles per day.
- Old Gosford Road east of Ghersi Street 1,400 vehicles per day.

Figure 4.2 Mid-Block Traffic Volumes



4.4 ORIGIN-DESTINATION SURVEYS

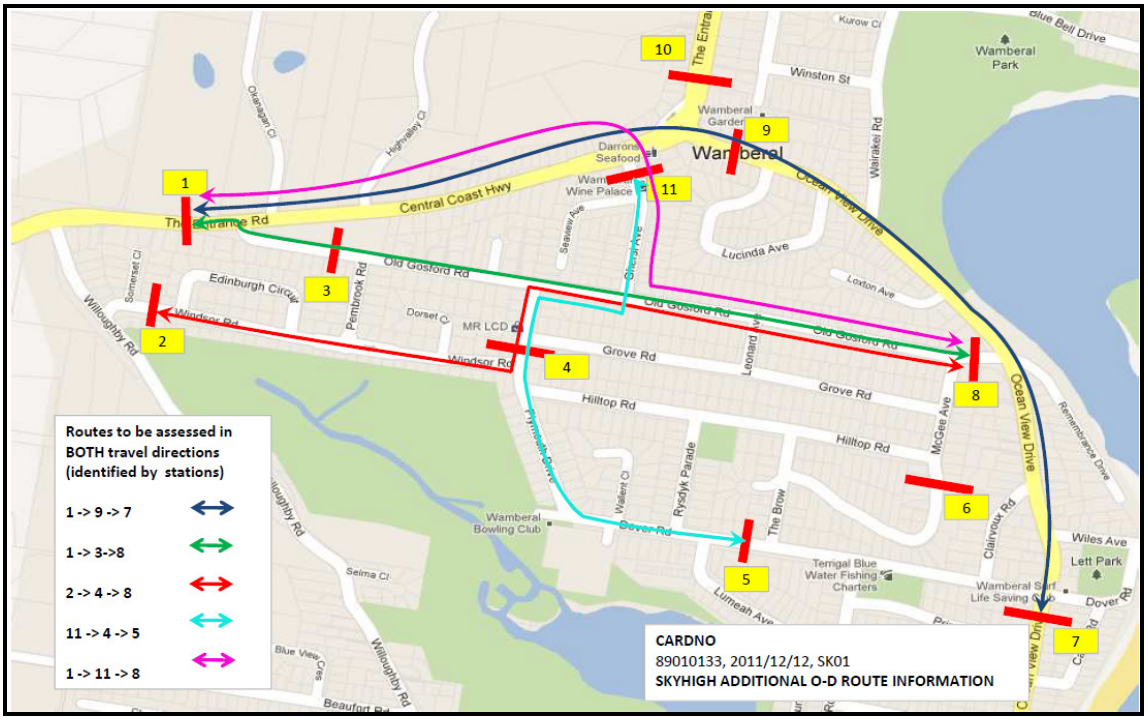
As part of the study, origin-destination surveys were carried out at various locations as specified on **Figure 4.1**. The surveys were undertaken on Thursday, 27 October 2011 during AM peak period (6am-10am) and PM peak period (3pm-7pm) as well as Saturday, 29 October 2011 between 8am-1pm.

The purpose of the surveys was to understand traffic demands and moments at various points within the road network to identify scenarios of traffic changes resulting from the proposed roundabout.

Figure 4.3 illustrates from the O-D survey five routes which are considered as potential traffic demands that may divert to Old Gosford Road after the construction of the proposed roundabout. Further the stations for which each route passes is also listed.

- Route 1 – The Entrance Road (Central Coast Highway) -> Ocean View Drive (stn , 1->9->7).
- Route 2 – The Entrance Road (Central Coast Highway) -> Old Gosford Road (stn 1->3->8).
- Route 3 – Windsor Road -> Old Gosford Road (stn 2->4->8).
- Route 4 – Ghersi Avenue -> Pymouth Drive (stn 11->4->5).
- Route 5 – The Entrance Road (Central Coast Highway) -> Ghersi Avenue -> Old Gosford Road (stn 1->11->8).

Figure 4.3 O-D Survey Identified Routes



According to above, **Tables 4.1** to **4.3** summaries the traffic volumes for each route during the AM, PM and Saturday surveyed periods.

Table 4.1 AM Peak Hour O-D Route Demand

Routes	AM Hour Intervals				AM Total
	6:00-7:00	7:00-8:00	8:00-9:00	9:00-10:00	
Route 1 – The Entrance Road (Central Coast Highway) -> Ocean View Drive					
1->9->7	4	13	16	14	47
7->9->1	7	13	17	21	58
Route 2 – The Entrance Road (Central Coast Highway) -> Old Gosford Road					
1->3->8	0	3	3	11	17
8->3->1	5	10	25	7	47
Route 3 – Windsor Road -> Old Gosford Road					
2->4->8	0	0	4	5	9
8->4->2	0	5	8	3	16
Route 4 – Ghersi Avenue -> Plymouth Drive					
11->4->5	2	1	2	4	9
5->4->11	1	3	0	1	5
Route 5 – The Entrance Road (Central Coast Highway) -> Ghersi Avenue -> Old Gosford Road					
1->11->8	0	1	5	0	6
8->11->1	1	0	1	2	4

For the existing demand, during the AM peak hour between 8am-9am, 16 vehicles travelled from The Entrance Road (Central Coast Highway) to Ocean View Drive while 17 vehicles travelled in the reverse direction. It is noted this demand travels around study area, therefore it is assumed that this demand may utilise Old Gosford Road after installation of the roundabout. Further, the potential increase in volumes during the AM peak hour is 33 vehicles (16 vehicles + 17 vehicles). According to the tube count data the AM peak hour adjustment factor to daily traffic is around 11%, therefore the peak volume equates to approximately 300 vehicles per day. It is this traffic volume which the proposed LATM measures are designed to discourage.

For Route 2 there is an existing peak demand of 3 vehicles eastbound and 25 vehicles westbound that currently travels along Old Gosford Road, connecting between The Entrance Road (Central Coast Highway) to Ocean View Drive. Due to the road classification and function of Old Gosford Road (being a Collector Road) the current demand is not deemed as 'rat running' however is considered as local traffic demand.

From above vehicles that utilise Windsor Road to connect with Ocean View Drive (Route 3) is around 4 vehicles eastbound and 8 westbound. The survey suggests that the existing demand does not result in a high proportion of vehicles connecting between The Entrance Road (Central Coast Highway) to Ocean View Drive. Additionally, it is considered that the upgrade works in the area will not modify the identified current demand.

For Route 4, only a total of 2 vehicles were observed. It is not considered that this be a significant route choice after the installation of the roundabout.

As indicated above, vehicles travelling on Route 5 bypass The Entrance Road/Old Gosford Road intersection and utilise Ghersi Avenue to connect with Ocean View Drive. From observations it is noted that only 6 vehicles travelled this route, therefore this is not considered significant to add to the Old Gosford Road demand.

Table 4.2 PM Peak Hour O-D Route Demand

Routes	PM Hour Intervals				PM Total
	15:00-16:00	16:00-17:00	17:00-18:00	18:00-19:00	
Route 1 – The Entrance Road (Central Coast Highway) -> Ocean View Drive					
1->9->7	23	22	13	13	71
7->9->1	22	13	15	9	59
Route 2 – The Entrance Road (Central Coast Highway) -> Old Gosford Road					
1->3->8	10	6	2	4	22
8->3->1	9	3	5	5	22
Route 3 – Windsor Road -> Old Gosford Road					
2->4->8	4	6	3	3	16
8->4->2	1	3	6	2	12
Route 4 – Ghersi Avenue -> Plymouth Drive					
11->4->5	2	4	4	7	17
5->4->11	2	3	6	3	14
Route 5 – The Entrance Road (Central Coast Highway) -> Ghersi Avenue -> Old Gosford Road					
1->11->8	0	1	1	1	3
8->11->1	0	1	0	0	1

For the PM peak hour, between 3pm-4pm, 23 vehicles travelled along Route 1 from The Entrance Road (Central Coast Highway) to Ocean View Drive while 22 vehicles travelled in the reverse direction. Similar to the AM results the installation of the roundabout may encourage the PM peak hour demand to utilise Old Gosford Road. Therefore a potential increase in volumes during the PM peak hour is around 45 vehicles (23 vehicles + 22 vehicles). According to the tube count data the PM peak hour adjustment factor to daily traffic is around 9%, therefore the peak volume equates to approximately 500 vehicles per day. It is this traffic volume which the proposed LATM measures are designed to discourage.

For Route 2 there is an existing peak demand of 19 vehicles for both east and west bound directions. Again, due to the road classification and function of Old Gosford Road (being a Collector Road) the current demand is not deemed as 'rat running' however is considered as local traffic demand.

From above vehicles that utilise Windsor Road to connect with Ocean View Drive (Route 3) is around 3 vehicles eastbound and 6 westbound. The survey suggests that the existing demand does not result in a high proportion of vehicles connecting between The Entrance Road (Central Coast Highway) to Ocean View Drive. Additionally, it is considered that the upgrade works in the area will not modify the identified current demand.

For Route 4, a total of 10 vehicles were observed. It is not considered that this be a significant route choice after the installation of the roundabout.

As indicated above, vehicles travelling on Route 5 bypass The Entrance Road/Old Gosford Road intersection and utilise Ghersi Avenue to connect with Ocean View Drive. From observations it is noted that only 1 vehicle chose this route, therefore this is not considered significant to add to the Old Gosford Road demand.

Table 4.3 Saturday O-D Route Demand

Routes	Saturday Hour Intervals				Saturday Total
	8:00-9:00	9:00-10:00	10:00-11:00	11:00-12:00	
Route 1 – The Entrance Road (Central Coast Highway) -> Ocean View Drive					
1->9->7	20	40	26	39	126
7->9->1	17	16	45	39	131
Route 2 – The Entrance Road (Central Coast Highway) -> Old Gosford Road					
1->3->8	2	12	5	11	31
8->3->1	8	6	1	6	24
Route 3 – Windsor Road -> Old Gosford Road					
2->4->8	3	11	5	7	27
8->4->2	3	5	2	5	17
Route 4 – Ghersi Avenue -> Plymouth Drive					
11->4->5	2	1	6	6	15
5->4->11	4	3	4	1	12
Route 5 – The Entrance Road (Central Coast Highway) -> Ghersi Avenue -> Old Gosford Road					
1->11->8	2	1	2	1	6
8->11->1	0	0	1	1	3

For the Saturday peak hour between 11am-12pm, 39 vehicles travelled in both directions along Route 1 from The Entrance Road (Central Coast Highway) to Ocean View Drive (and vice versa). Similar to the AM and PM peak hour results, the installation of the roundabout may encourage Saturday traffic demand to travel along Old Gosford Road, therefore a potential increase in volumes during the AM peak hour is 78 vehicles (39 vehicles + 39 vehicles). It is this traffic volume which the proposed LATM measures are designed to discourage.

For Route 2 there is an existing demand of 11 vehicles and 6 vehicles in the east and west bound directions respectively. Again, due to the road classification of Old Gosford Road (being a Collector Road) the current demand is not deemed as 'rat running' however is considered as local traffic demand.

From above vehicles that utilise Windsor Road to connect with Ocean View Drive (Route 3) is around 7 vehicles eastbound and 5 westbound. The survey suggests that the existing demand does not result in a high proportion of vehicles connecting between The Entrance Road (Central Coast Highway) to Ocean View Drive. Additionally, it is considered that the upgrade works in the area will not modify the identified current demand.

For Route 4, a total of 7 vehicles were observed. It is not considered that this be a significant route choice after the installation of the roundabout.

As indicated above, vehicles travelling on Route 5 bypass The Entrance Road/Old Gosford Road intersection and utilise Ghersi Avenue to connect with Ocean View Drive. From observations it is noted that only 2 vehicles chose this route, therefore this is not considered significant to add to the Old Gosford Road demand.

4.5 SPEED SURVEYS

At each of the mid-block tube count locations, vehicles speeds were recorded for the same duration. **Table 4.4** evaluates the speed data and provides the 85th percentile as well as the average speed along Old Gosford Road.

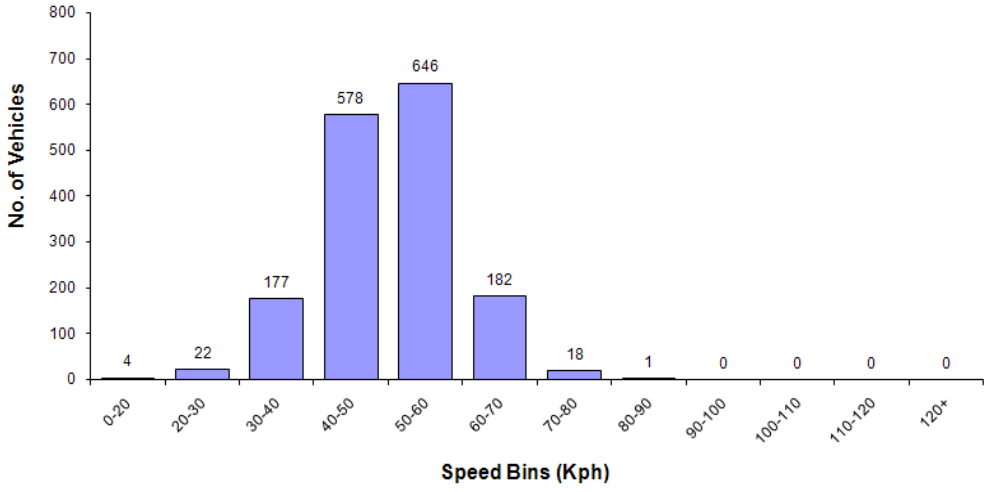
As summarised below the 85th percentile speeds at the survey locations are higher than the 50km/h posted speed Old Gosford Road.

Table 4.4 Speed Survey Summary

Location	85th Percentile Speed (km/h)	Average Speed (km/h)
Old Gosford Rd East of Pembrook Road	58.5	50.2
Old Gosford Rd East of Plymouth Drive	52.0	40.3
Old Gosford Rd East of Ghersi Avenue	54.5	44.2

Further, **Figure 4.4** to **Figure 4.6** indicates the number of vehicles travelling at each 10km/h speed increment along Old Gosford Road.

Figure 4.4 Speed Surveys – Old Gosford Road east of Pembrook Road

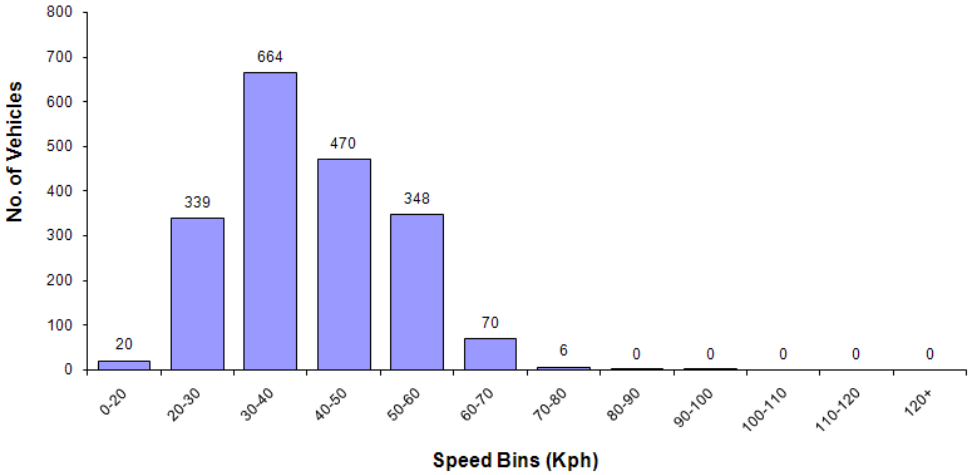


For the recorded speeds along Old Gosford Road east of Pembrook Road, the following is summarised:

- 85th percentile speed was 58.5km/h.
- Average speed was 50.2km/h.
- 48% of surveyed vehicles travelled below the posted speed limit.
- 52% of surveyed vehicles travelled above the posted speed limit.

It noted that the majority of vehicle speeds at this section of Old Gosford Road are in excess of the 50km/h posted limit.

Figure 4.5 Speed Surveys – Old Gosford Road east of Plymouth Drive

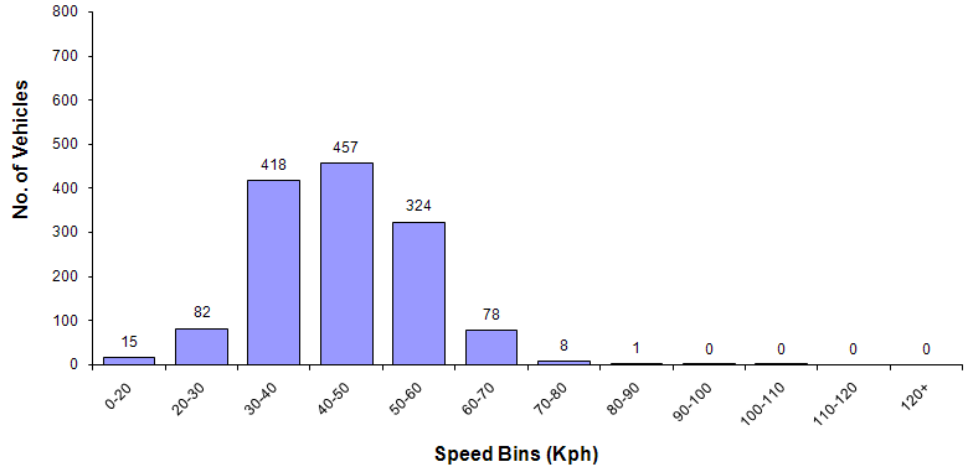


For the recorded speeds along Old Gosford Road east of Plymouth Drive, the following is summarised:

- 85th percentile speed was 52.0km/h.
- Average speed was 40.3km/h.
- 78% of surveyed vehicles travelled below the posted speed limit.
- 22% of surveyed vehicles travelled above the posted speed limit.

It noted that the majority of vehicle speeds at this section of Old Gosford Road are below the 50km/h posted limit.

Figure 4.6 Speed Surveys – Old Gosford Road east of Ghersi Avenue



For the recorded speeds along Old Gosford Road east of Ghersi Avenue, the following is summarised:

- 85th percentile speed was 54.5km/h.
- Average speed was 44.2km/h.
- 70% of surveyed vehicles travelled below the posted speed limit.
- 30% of surveyed vehicles travelled above the posted speed limit.

It noted that the majority of vehicle speeds at this section of Old Gosford Road are below the 50km/h posted limit.

4.6 TRAFFIC DEMAND SUMMARY

From the above traffic demand assessment, the following is noted:

- Traffic volumes taken from mid-block tube counts along Old Gosford Road recorded an average weekday demand of around 1,400 to 1,980 vehicles per day.
- Route 1 may divert to Old Gosford Road after the installation of four-way roundabout, at The Entrance Road (Central Coast Highway)/Old Gosford Road. The potential increase in traffic volumes is around 400 vehicles per day (average of 300 vehicles per day during the AM peak hour and 500 vehicle per day during the PM peak hour).
- Old Gosford Road may exhibit a traffic demand of 2,480 vehicles per day after the construction of the roundabout. The potential demand is at the minimum carrying capacity for Collector Roads (between 2,000 and 10,000 vehicles per day as discussed in **Section 2.1**). **It is therefore noted that the traffic volumes along Old Gosford Road do not equate to a significant demand for this road classification.**
- The recorded 85th percentile speeds along Old Gosford Road, east of Pembrook Road are greater than the posted speed limit of 50km/h. The remaining sections of Old Gosford Road exhibit average speeds less than 50km/h.

5 ROAD NETWORK ASSESSMENT

5.1 ROAD NETWORK ASSESSMENT CRITERIA

The existing operation of the surveyed intersections was assessed using the SIDRA 5.1 software package to determine the degree of saturation (DoS), average delay (AVD) in seconds and level of service (LoS) at each intersection. The key indicator of intersection performance is LoS, where results are placed on a continuum from 'A' to 'F', as summarised in **Table 5.1.**

Table 5.1 Intersection Level of Service

LoS	Traffic Signal / Roundabout	Give Way / Stop Sign / T-Junction control
A	Good operation	Good operation
B	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	Satisfactory	Satisfactory, but accident study required
D	Operating near capacity	Near capacity & accident study required
E	At capacity, at signals incidents will cause excessive delays	At capacity, requires other control mode
F	Unsatisfactory and requires additional capacity, Roundabouts require other control mode	At capacity, requires other control mode

The AVD provides a measure of the operational performance of an intersection as indicated below, which relates AVD to LOS. The AVD's should be taken as a guide only as longer delays could be tolerated in some locations (i.e. inner city conditions) and on some roads (i.e. minor side street intersecting with a major arterial route).

For traffic signals, the average delay over all movements should be taken. For roundabouts and priority control intersections the critical movement for LoS assessment should be the movement with the highest AVD.

Table 5.2 Intersection Average Delay (AVD)

LoS	AVD per Vehicles (seconds/vehicle)
A	Less than 14
B	15 to 28
C	29 to 42
D	43 to 56
E	57 to 70
F	>70

The DoS is another measure of the operational performance of individual intersections. For intersections controlled by traffic signals both queue length and delay increase rapidly as DoS approaches 1.0. It is common practice to ensure DoS is less than 0.9. DoS up to 0.8 generally represents satisfactory intersection operation; when DoS exceeds 0.9 the junction is considered to be approaching capacity, queues usually occur and mitigation maybe required.

5.2 INTERSECTION ASSESSMENT

5.2.1 Existing Intersection Assessment

The following existing intersection assessment (together with the future intersection assessment) addresses the following project objective.

- Project Objective 2, Identify any traffic impacts along Old Gosford Road due to the proposed intersection upgrade of The Entrance Road/Old Gosford Road.

The SIDRA results for the existing intersection assessment are summarised in **Table 5.3** to **Table 5.5** below with detailed movement summaries included in **Appendix G**.

Table 5.3 Existing 2011 AM Peak Intersection Performance

Intersection	Existing				
	Degree of Saturation	Average Delays (s)	Level of Service	Queue Length (m)	Worst Movement
The Entrance Rd/Old Gosford Rd	0.60	30.4	C	22	Old Gosford Rd (S) - Left
The Entrance Rd/Ocean View Dr	0.56	19.7	B	38	Ocean View Drive (E) - Right
Ocean View Dr/Old Gosford Rd	0.45	95.6	F	2	Old Gosford Rd (W) - Right
Dover Road/Ocean View Dr	0.16	44.0	D	4	Dover Rd (E) - Left
Old Gosford Rd/Pembrook Rd	0.04	8.6	A	1	Pembrook Rd (S) - Right
Old Gosford Rd/Plymouth Dr	0.07	10.9	A	2	Plymouth Dr (S) - Right
Old Gosford Rd/Ghersi Ave	0.07	11.2	A	2	Ghersi Ave (N) - Left
Old Gosford Rd/McGee Ave	0.03	8.30	A	1	McGee Ave (S) - Left

Table 5.4 Existing 2011 PM Peak Intersection Performance

Intersection	Existing				
	Degree of Saturation	Average Delays (s)	Level of Service	Queue Length (m)	Worst Movement
The Entrance Rd/Old Gosford Rd	0.67	19.9	B	16	The Entrance Rd (W) - Right
The Entrance Rd/Ocean View Dr	0.68	17.1	B	54	The Entrance Rd (SW) - Right
Ocean View Dr/Old Gosford Rd	0.31	51.3	D	9	Old Gosford Rd (W) - Right
Dover Road/Ocean View Dr	0.11	33.0	C	3	Dover Rd (E) - Left
Old Gosford Rd/Pembrook Rd	0.02	7.9	A	1	Pembrook Rd - Left
Old Gosford Rd/Plymouth Dr	0.06	10.6	A	2	Plymouth Dr (S) - Left
Old Gosford Rd/Ghersi Ave	0.08	10.4	A	3	Ghersi Ave (N) - Left
Old Gosford Rd/McGee Ave	0.03	8.3	A	2	Old Gosford Rd (W) - Right

Table 5.5 Existing 2011 Saturday Peak Intersection Performance

Intersection	Existing				
	Degree of Saturation	Average Delays (s)	Level of Service	Queue Length (m)	Worst Movement
The Entrance Rd/Old Gosford Rd	0.20	19.5	B	83	The Entrance Rd (S) - Right
The Entrance Rd/Ocean View Dr	0.41	16.2	B	22	Ocean View Dr (E) - Right
Ocean View Dr/Old Gosford Rd	0.39	58.8	E	9	Old Gosford Rd (W) - Right
Dover Road/Ocean View Dr	0.23	32.0	C	7	Dover Rd (W) - Left
Old Gosford Rd/Pembrook Rd	0.02	7.9	A	1	Pembrook Rd (S) - Left
Old Gosford Rd/Plymouth Dr	0.07	10.5	A	2	Plymouth Dr (S) - Left
Old Gosford Rd/Ghersi Ave	0.07	10.5	A	2	Ghersi Ave (N) - Left
Old Gosford Rd/McGee Ave	0.03	8.0	A	1	Old Gosford Rd (W) - Right

As summarised in the above tables, SIDRA suggests that at the current traffic demand each intersection operates at a LoS D or higher during all peak periods except for Ocean View Drive/Old Gosford Road/Remembrance Drive.

The 'Worst Movement' at Ocean View Drive/Old Gosford Road/Remembrance Drive during all three assessment periods is the right turn out of Old Gosford Road onto Ocean View Drive. The intersection delay is a result of the difficulty for motorists to turn right due to sight distance constraints, southbound along Ocean View Drive.

5.2.2 Future Intersection Assessment

The following future intersection assessment (together with the previous intersection assessment) addresses the following project objective:

- Project Objective 2, Identify any traffic impacts along Old Gosford Road due to the proposed intersection upgrade of The Entrance Road/Old Gosford Road.

The future intersection assessment is undertaken to investigate the performance of the existing road network should the upgrade of the roundabout facilitate diverted traffic (as discussed in **Section 4.4)** that will utilise Old Gosford Road to connect between The Entrance Road (Central Coast Highway) and Ocean View Drive.

The assessment herein, combines the existing traffic volumes with Route 1 traffic demands (identified as a potential demand to divert to Old Gosford Road). The SIDRA results for the future intersection assessment are summarised in **Table 5.6** to **Table 5.8** below with detailed movement summaries included in **Appendix G**.

It is noted that for the future intersection assessment The Entrance Road/Old Gosford Road intersection incorporates the proposed roundabout arrangement. All remaining intersections have been assessed in their current form.

Table 5.6 Future AM Peak Intersection Performance

AM Peak	Existing				
Intersection	**Degree of Saturation**	**Average Delays (s)**	**Level of Service**	**Queue Length (m)**	**Worst Movement**
The Entrance Rd/Old Gosford Rd	0.32	4.9	A	13	The Entrance Rd (N) – Left
The Entrance Rd/Ocean View Dr	0.58	13.1	A	41	The Entrance Rd (W) – Right
Ocean View Dr/Old Gosford Rd	0.69	4.7	F	18	Old Gosford Rd (W) – Right
Dover Road/Ocean View Dr	0.16	44.0	D	4	Dover Rd (E) - Left
Old Gosford Rd/Pembrook Rd	0.09	2.1	A	1	Pembrook Rd (S) - Right
Old Gosford Rd/Plymouth Dr	0.09	3.8	A	1	Plymouth Dr (S) - Right
Old Gosford Rd/Ghersi Ave	0.08	4.7	A	1	Ghersi Ave (N) - Left
Old Gosford Rd/McGee Ave	0.06	2.2	A	1	McGee Ave (S) - Left

Table 5.7 Future PM Peak Intersection Performance

Intersection	Existing				
	Degree of Saturation	**Average Delays (s)**	**Level of Service**	**Queue Length (m)**	**Worst Movement**
The Entrance Rd/Old Gosford Rd	0.34	4.5	A	16	The Entrance Rd (W) - Right
The Entrance Rd/Ocean View Dr	0.73	11.7	A	7	The Entrance Rd (SW) - Right
Ocean View Dr/Old Gosford Rd	0.58	3.7	D	13	Old Gosford Rd (W) - Right
Dover Road/Ocean View Dr	0.11	33.0	C	3	Dover Rd (E) - Left
Old Gosford Rd/Pembrook Rd	0.05	1.8	A	2	Pembrook Rd - Left
Old Gosford Rd/Plymouth Dr	0.06	5.1	A	2	Plymouth Dr (S) - Left
Old Gosford Rd/Ghersi Ave	0.08	5.4	A	2	Ghersi Ave (N) - Left
Old Gosford Rd/McGee Ave	0.04	3.1	A	2	Old Gosford Rd (W) - Right

Table 5.8 Future Saturday Peak Intersection Performance

Intersection	Existing				
	Degree of Saturation	Average Delays (s)	Level of Service	Queue Length (m)	Worst Movement
The Entrance Rd/Old Gosford Rd	0.27	4.7	A	12	The Entrance Rd (S) - Right
The Entrance Rd/Ocean View Dr	0.67	10.9	A	31	Ocean View Dr (E) - Right
Ocean View Dr/Old Gosford Rd	0.72	5.8	F	22	Old Gosford Rd (W) - Right
Dover Road/Ocean View Dr	0.23	32.0	C	7	Dover Rd (W) - Left
Old Gosford Rd/Pembrook Rd	0.05	1.5	A	2	Pembrook Rd (S) - Left
Old Gosford Rd/Plymouth Dr	0.08	4.5	A	2	Plymouth Dr (S) - Left
Old Gosford Rd/Ghersi Ave	0.08	4.7	A	2	Ghersi Ave (N) - Left
Old Gosford Rd/McGee Ave	0.05	2.2	A	2	Old Gosford Rd (W) - Right

As summarised in the above future assessment tables, and similar to the existing assessment, all intersections operate within acceptable capacity limits except for Ocean View Drive/Old Gosford Road/Remembrance Drive.

The 'Worst Movement' at Ocean View Drive/Old Gosford Road/Remembrance Drive during all three assessment periods is the right turn out of Old Gosford Road onto Ocean View Drive. The intersection delay is a result of the difficulty for motorists to perform the right turn manoeuvre due to sight distance constraints, southbound along Ocean View Drive.

It is noted that the potential increase in traffic from the construction of the roundabout will not adversely impact the existing road network.

5.2.3 Road Network Recommendations

The road network recommendations component of the report addresses Project Objective 3, *Provide measures and to mitigate any impacts demonstrated to be caused by RMS works along Old Gosford Road and maintain the functional performance of the local street.*

As noted within the existing intersection assessment all locations operate within acceptable capacity limits apart Ocean View Drive/Old Gosford Road/Remembrance Drive. By comparing the existing assessment with the future assessment, it is understood that the potential additional traffic diverting to Old Gosford Road (Route 1 from **Section 4.4**) due to the construction of the roundabout will not adversely impact on the existing road network.

Therefore no road network capacity improvement infrastructure works are required to mitigate the traffic effects of the proposed roundabout.

5.3 SIGHT DISTANCE ASSESSMENT

The following sight distance assessment addresses the following project objective:

- Project Objective 2, Review sight distance at the intersections along Ocean View Drive with Old Gosford Road and Dover Road.

Sight distance on the road network is essential to ensure a safe environment for all road users. Within the study area Old Gosford Road comprises an undulating profile where available sight distance varies considerably for all road users.

According to the Austroads *Guide to Road Design Part 4A*, two sight distance criteria shall be considered for assessment, Safe Intersection Sight Distance (SISD) as well as Approach Sight Distance (ASD). For Old Gosford Road, with a posted speed of 50km/h, the following desirable criterion applies for a 2.0 second driver reaction time, as indicated in **Table 5.9**

Table 5.9 Sight Distance Criteria

Sight Distance Criteria	Required Sight Distance
Safe Intersection Sight Distance	97m
Approach Sight Distance	55m

The specific concerns about sight distance for each of the following intersections within the study area are described in the following sections:

- Ocean View Drive/Old Gosford Road.
- Ocean View Drive/ Dover Road.
- Old Gosford Road/Pembrook Road.
- Old Gosford Road/Plymouth Drive.
- Old Gosford Road/Ghersi Avenue.
- Old Gosford Road/McGee Avenue.

5.3.1 Ocean View Drive/Old Gosford Road

From onsite observations, the Ocean View Drive/Old Gosford Road/Remembrance Drive intersection has sight distance limitations south of the intersection along Ocean View Drive. The concern at this location is for motorists turning right from Old Gosford Road. **Photo 5.1**, looking south from Old Gosford Road, illustrates the sight distance constraints.

Sight distance is affected by both the geometry of Ocean View Drive as well as Old Gosford Road being located on the inside of the curve. Sight distance (southbound) at this location was measured at 76m which is less than the desired distance from Austroads.

Photo 5.1 Ocean View Drive/Old Gosford Road Sight Distance Constraints

5.3.2 Ocean View Drive/Dover Road

From onsite observations, the Ocean View Drive/Dover Road intersection has sight distance limitations north of the intersection along Ocean View Drive. The concern at this location is for motorists exiting Dover Road and connecting with or crossing Ocean View Drive.

Sight distance is affected by both the geometry of Ocean View Drive as well as the property boundary fence located on north-western corner of the intersection. Sight distance (northbound) at this location was measured at 68m which is less than the desired distance from Austroads.

5.3.3 Old Gosford Road/Pembrook Road

At the intersection of Old Gosford Road/Pembrook Road there is a maximum sight distance of 70m in both eastbound and westbound directions which affects turning movements in and out of Pembrook Drive.

The **Photos 5.2** and **5.3**, looking west and east from Pembrook Road, illustrate the sight distance constraints along Old Gosford Road.

Photo 5.2 Old Gosford Road/Pembrook Road Sight Distance Constraints (westbound)

Photo 5.3 Old Gosford Road/Pembrook Road Sight Distance Constraints (eastbound)

5.3.4 Old Gosford Road/Plymouth Drive

For Old Gosford Road/Plymouth Drive intersection the sight distance is limited to approximately 60m in the eastbound direction due to vertical geometry. Accordingly the left and right turn movements out of Plymouth Drive onto Old Gosford Road are both affected. **Photo 5.4**, looking east from Plymouth Drive, illustrates the sight distance constraints along Old Gosford Road.

The available SISD is below that required by Austroads, therefore works to improve safety is recommended.

Photo 5.4 Old Gosford Road/Plymouth Drive Sight Distance Constraints

5.3.5 Old Gosford Road/Ghersi Avenue

At the intersection of Old Gosford Road/Ghersi Avenue, the sight distance is constrained due to the grade of Old Gosford Road. It is the in and out turning manoeuvres at Ghersi Avenue that are of concern. **Photo 5.5**, looking west from Ghersi Avenue, illustrates the sight distance constraints along Old Gosford Road.

Photo 5.5 Old Gosford Road/Ghersi Avenue Sight Distance Constraints

5.3.6 Old Gosford Road/McGee Avenue

The sight distance at Old Gosford Road/McGee Avenue is limited in the westbound direction due to the vertical geometry.

Photo 5.6, looking west from McGee Avenue, illustrates the sight distance conditions along Old Gosford Road.

Photo 5.6 Old Gosford Road/McGee Avenue Sight Distance Constraints (westbound)

Additionally, sight distance is restricted eastbound approaching the intersection with McGee Avenue. Specifically the intersection of Ocean View Drive/Old Gosford Road is not visible until 60m from the intersection.

Photo 5.7, looking east from McGee Avenue, illustrates the sight distance conditions along Old Gosford Road.

Photo 5.7 Old Gosford Road/McGee Avenue Sight Distance Constraints (eastbound)

5.4 ROAD NETWORK SUMMARY

From the above assessment it is noted that the following deficiencies exist within the existing road network:

- Old Gosford Road/Ocean View Drive intersection, right turn operates at LoS F.
- Old Gosford Road/Ocean View Drive intersection, insufficient sight distance.
- Old Gosford Road/Pembrook Road intersection, insufficient sight distance.
- Old Gosford Road/Plymouth Drive intersection, insufficient sight distance.
- Old Gosford Road/Ghersi Avenue intersection, insufficient sight distance.
- Old Gosford Road/McGee Avenue intersection, insufficient sight distance.

Additional notes regarding the road user provisions are:

- Pedestrian facilities - footpaths and crossing locations are insufficient to accommodate safe separation between road users.
- Bus stops - along Old Gosford Road does provide adequate serviceability within the residential area however no formal areas are provided.

5.5 ROAD NETWORK RECOMMENDTAIONS

To address the above road network deficiencies the following infrastructure improvements are recommended:

- Provide pedestrian refuge crossing facilities to improve pedestrian safety.
- Provide pedestrian footpaths along Old Gosford Road.
- Enhance awareness for local intersections to improve safety at each location.
- Provide slow points to reduce vehicle speeds and impede additional traffic demand along Old Gosford Road.
- Formalise bus stops to incorporate connection to footpaths and crossing facilities, formalise waiting areas and semi-indent bus bays.

6 CRASH ASSESSMENT

A review of reported crash data for the Wamberal area was undertaken for a five year period between 2006 and 2011. Summary of the crash data is presented in **Table 6.1** with all detailed outputs included at **Appendix F**.

Table 6.1 Wamberal Crash Statistics 2006 to 2011

Location	Between / From	Fatal Crashes	Injury Crashes	No Injury/Tow Away Crashes	Total Crashes
Dover Rd	Ocean View Dr & Plymouth Dr	0	1	2	3
Ocean View Dr	The Entrance Rd to Dover Rd	0	15	10	25
Old Gosford Rd	The Entrance Rd to Ocean View Dr	0	0	1	1
Plymouth Drive	Dover Rd to Old Gosford Rd	0	1	4	5
The Entrance Rd	Willoughby Rd & Ocean View Dr	0	15	29	44
Windsor Rd	Willoughby Rd to Plymouth Drive	0	0	3	3
Total		***0***	***32***	***49***	***81***

From above, of the total 81 crashes occurring within the past five year period:

- 49 crashes result in no injury/tow away situations.
- 32 crashes result in injuries.
- No fatalities were recorded.
- The most common crash type, up to 30% of the total, was rear end collisions (vehicles travelling in the same direction - DCA Code: 301).

Note, the crash data only includes incidents for which Police officers attend. All self reported crashes are not recorded within the RMS database.

6.1.1 Crash Assessment of Specific Locations

Further from above, the following analyses the historical data to identify patterns in crash locations, types themes and/or timeframes. This assessment will provide the base to recommend infrastructure to improve safety.

Ocean View Drive (From The Entrance Road to Dover Road)

- 25 crashes occurred comprising of 15 injury types, 10 no injury/tow away and 17 occurred during daylight hours
- The most prevalent crash type was rear end collisions (DCA codes: 301,302,303,309) totalling 36%. Of the rear end collisions 6 were injury crashes and 4 occurred at the Ocean View Drive/Wairakei Road intersection.
- Other common types of crashes involved vehicles approaching from adjacent approaches at intersections (DCA codes: 101, 104) and also crashes involving vehicles approaching from opposing directions (DCA codes: 201, 202).

Old Gosford Road (From The Entrance Road to Ocean View Drive)

- 1 crash occurred at this location. The crash involved a vehicle which veered left off Old Gosford Road into an object (DCA code: 703). The crash occurred at the intersection of Old Gosford Road/Ghersi Avenue and took place at night during inclement weather.

Plymouth Drive (From Dover Road to Old Gosford Road)

- 5 crashes occurred comprising of 1 injury crash and 4 no injury/tow away.
- 80% of the total crashes involved vehicles veering of the straight path (DCA Code: 703) or a curved path (DCA Code: 803). All these crashes occurred during the night period.
- The injury crash occurred when a vehicle veered left of a straight section of the carriageway into vegetation.

The Entrance Road (Between Willoughby Road and Ocean View Drive)

- 44 crashes occurred comprising of 15 injury crashes, 29 no injury/tow away and 30 occurred during daylight hours.
- 55% (24 crashes) of the total number of crashes were of a rear end type (DCA Code: 301, 303) resulting in 14 people being injured.
  - 21 of these crashes involved the vehicle being in the same lane travelling in the same direction (DCA Code: 301).
  - 67% of these crashes involved 3 or more vehicles indicating serious collisions.
  - 3 crashes involved rear end collisions with vehicles waiting to turn right (DCA Code: 303) into off-streets.
- The other common type of crash were vehicles veering off the road (DCA Code: 703,704,706,803,804) which accounted for 25% (11 crashes) of the total number recorded.

Windsor Road (From Willoughby Road to Plymouth Drive)

- 3 crashes occurred with all of them being either a no injury or tow away.
- 2 out of the 3 accidents involved vehicles veering left off the carriageway into parked vehicles (DCA Code: 703). The other crash occurred at the T-intersection of Windsor Road and Willoughby Road where the through vehicle collided with the vehicle turning left out of Windsor Road (DCA Code: 107).

Dover Road (Between Ocean View Drive and Plymouth Drive)

- 3 crashes occurred comprising of 1 injury crash and 2 no injury/tow away crashes.
- The injury crash occurred at night involving a pedestrian. The pedestrian approached from the far side at the intersection (DCA code: 3) of Wallent Close and Dover Street attempting to cross Dover Street when the crash occurred.
- The other two crashes involved veering off the road and striking objects on the side of the road.

6.2 CRASH ASSESSMENT SUMMARY

From the crash assessment for the study area the following is noted:

- No crash patterns were evident along Old Gosford Road.
- No fatalities were recorded during the five year period.
- Most prevalent crash type was rear end incidents, which occurred along The Entrance Road and Ocean View Drive.

7 OLD GOSFORD ROAD LATM

The Local Area Traffic Management scheme for Old Gosford Road has been developed considering the above traffic demand, road network and crash and safety assessments.

It is noted that this section of the report, addresses the following project objectives:

- Project Objective 1, Incorporate Wamberal Action Group safety and amenity concerns.
- Project Objective 4, Enhanced where practical amenity and safety for local residents.

Acknowledging the above study objectives two options are considered for Old Gosford Road:

- Option 1 Bus only access Old Gosford Road.
- Option 2 Old Gosford Road Local Roundabouts
- Option 3 Old Gosford Road LATM

7.1 OPTION 1 BUS ONLY ACCESS OLD GOSFORD ROAD

Option 1, has been formulated from comments made by the residential action group (WAG) where acceptance has been expressed to close Old Gosford Road at the proposed roundabout to all vehicles except for bus access.

This option provides measures, as listed below, to accommodate bus only entry/exit however restricts general vehicle access:

- Install kerb and traffic islands to narrow and constrict the entry to Old Gosford Street (from The Entrance Road).
- Provide signs at the roundabout informing motorists of the road closure except for buses.
- Provide advanced warning signs north and south of the roundabout along The Entrance Road informing motorist of the restricted access to Old Gosford Road except for buses.
- Provide warning signs along Old Gosford Road at the Pembrook Road intersection informing motorists of the 'No Through Road'.

It is noted that the advantages and disadvantages of restricting Old Gosford Road to a Bus Only Access are:

- Advantages –
  - Perceived 'rat running' (potential increase in traffic demand) will be removed due to vehicle restrictions.
  - Bus access and serviceability is maintained within the residential area.
  - Addresses WAG's safety and amenity concerns regarding increases in traffic volumes.
- Disadvantages –
  - Operation of the road conflicts with the functional class of Old Gosford Road (Collector Road).
  - Reduces permeability of the local road network to connect with high order roads.
  - Diverts existing traffic demand to other local (lower order) streets (eg. Willoughby Rd, Ghersi Ave).
  - Vehicles may not comply with the road closure and travel through the bus only access.
  - Infrastructure required to maintain bus only access (i.e. boom gates, enforcement).
  - Queuing and storage concerns which may affect the operation of The Entrance Road due to the restricted access.

7.2 OPTION 2 OLD GOSFORD ROAD LOCAL ROUNDABOUTS

Option 2, is taken from consultation where it was proposed to convert the existing T-intersections along Old Gosford Road to a series of roundabouts.

The roundabout option is proposed at the following locations:

- Old Gosford Road/Pembrook Road.
- Old Gosford Road/Plymouth Drive.
- Old Gosford Road/Ghersi Avenue.
- Old Gosford Road/Leonard Avenue.
- Old Gosford Road/McGee Avenue.

It is noted that in order for this option to accommodate for all existing vehicle demands and movements. The following infrastructure elements required are:

- Undertake localised kerb works for the raised centre traffic island as well as to maintain adequate travel lane widths.
- Provide advanced 'Roundabout Ahead' warning signs prior to each roundabout on all approach streets.
- Provide roundabout 'Give Way' signs at each intersection location.
- Provide line marking detailing the Give Way lines.

All works are proposed within the available road cross section therefore no property resumptions are proposed for this option.

It is noted that the advantages and disadvantages of converting the local T-intersections to roundabouts are:

- Advantages –
  - Addresses concerns relating to slow points along Old Gosford Road to reduced travel speeds.
  - May provide safer and increased amenity for local residents.
- Disadvantages –
  - Changes intersection priority from Old Gosford Road to the minor roads, which conflicts with the Collector Road classification.
  - Existing traffic volume exhibits unbalanced demands at each intersection (greater demand exists along Old Gosford Road compared to local streets).
  - Major road vehicles may not complying with the roundabout arrangement (vehicles not giving way at the roundabout).
  - Sight distance (as discussed in **Section 5.3**) to and from each intersection remain a concern.

7.3 OPTION 3 OLD GOSFORD ROAD LATM

For Option 3, a LATM scheme is proposed to improve safety, moderate through traffic volumes and reduce speeds along Old Gosford Road.

The LATM option will accommodate for all existing vehicle demands and movements. The following infrastructure elements required are:

- Provide pedestrian refuge islands at all bus stop locations, as follows -
  - west of Pembrook Road.
  - west of Ghersi Avenue.
  - east of Leonard Avenue.
  - west of McGee Avenue.
- Provide pedestrian path along Old Gosford Road connecting bus stops and the local community.
- Provide edge of pavement kerb (at the pedestrian islands) to narrow the effective width of the road.
- Provide advanced warning signs informing motorist of pedestrian crossings ahead.
- Upgrade bus stops to incorporate formalised footpaths, waiting areas and semi-indent bus bays.
- Provide a threshold treatment at the entry to Old Gosford Road at both The Entrance Road and Ocean View Drive, including –
  - The use of contrasting pavement colour to highlight the community area.
  - Install 50km/h speed signs as well as Local Area signs.
- Provide at The Entrance Road a centre traffic island and edge of pavement kerb to reduce travel width along Old Gosford Road.
- Provide at Ocean View Drive a centre traffic island to restrict Old Gosford Road to a left turn out only (restrict right turn to Ocean View Drive as well as the through movement to Remembrance Drive).
- Modify local intersections to restrict lane widths.

It is important to note that the installation of the proposed LATM works is subject to the locations of existing driveways, service utilities and road furniture.

It is noted that the advantages and disadvantages of the LATM are:

- Advantages –
  - Addresses safety and amenity concerns along Old Gosford Road.
  - Provides an entry statement for the community which highlights the road as a 50km/h area.
  - Incorporates pedestrian crossing facilities with traffic calming devices.
  - Reduces road speeds at critical locations (at crossing, bus stop and intersection locations) to improve pedestrian safety as well as throughout the hilly terrain.
  - Addresses sight distance concerns at the intersections by reducing speeds at local roads.
  - Provides constrictions points to discourage through vehicle movement.
  - Maintains bus serviceability and improves bus stop facilities along Old Gosford Road.
  - Restricts the right out to Ocean View Drive and through to Remembrance Drive from Old Gosford Road to discourage 'rat running' as well as mitigates the sight distance concern at this location.
- Disadvantages –
  - Effectiveness of the LATM installations maybe effected by existing driveways, service utilities as well as and road furniture locations.

7.4 RECOMMENDED OPTION

From considering the above options, the traffic demand, road network, safety considerations, crash assessment as well as community concerns, the recommended for Old Gosford Road is Option 3.

The figures below indicatively illustrate the treatment elements proposed for Option 3 Old Gosford Road LATM.

- **Figure 7.1** indicatively illustrates the proposed pedestrian refuge island and road width restriction at each Bus Stop location.
- **Figure 7.2** indicatively illustrates the proposed entry threshold to be installed on Old Gosford Road at The Entrance Road.
- **Figure 7.3** indicatively illustrates the proposed entry threshold to be installed on Old Gosford Road at Ocean View Drive.
- **Figure 7.4** indicatively illustrates the proposed intersection treatment reducing travel lane widths.

Figure 7.1 Proposed Pedestrian Refuge Island at Each Bus Stop Location

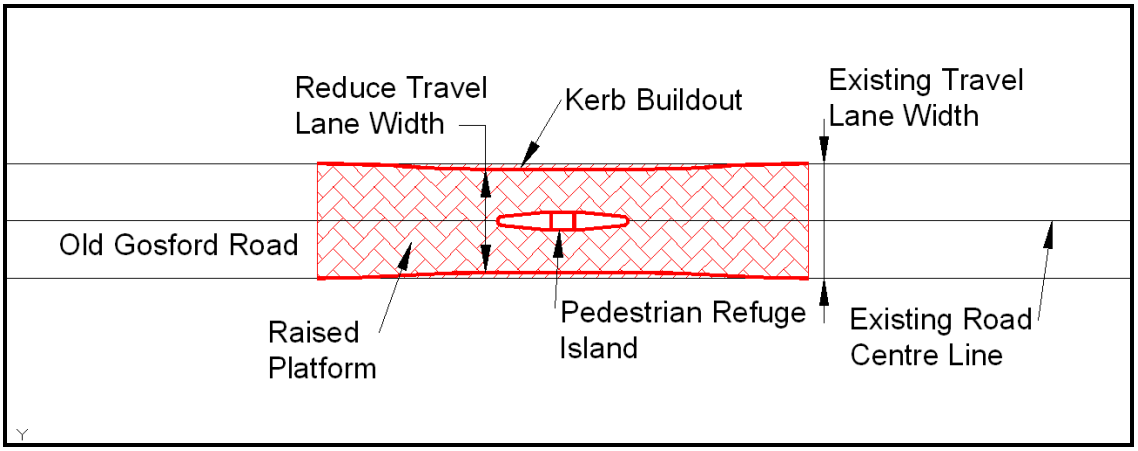


Figure 7.2 Proposed Entry Threshold Treatment at The Entrance Road

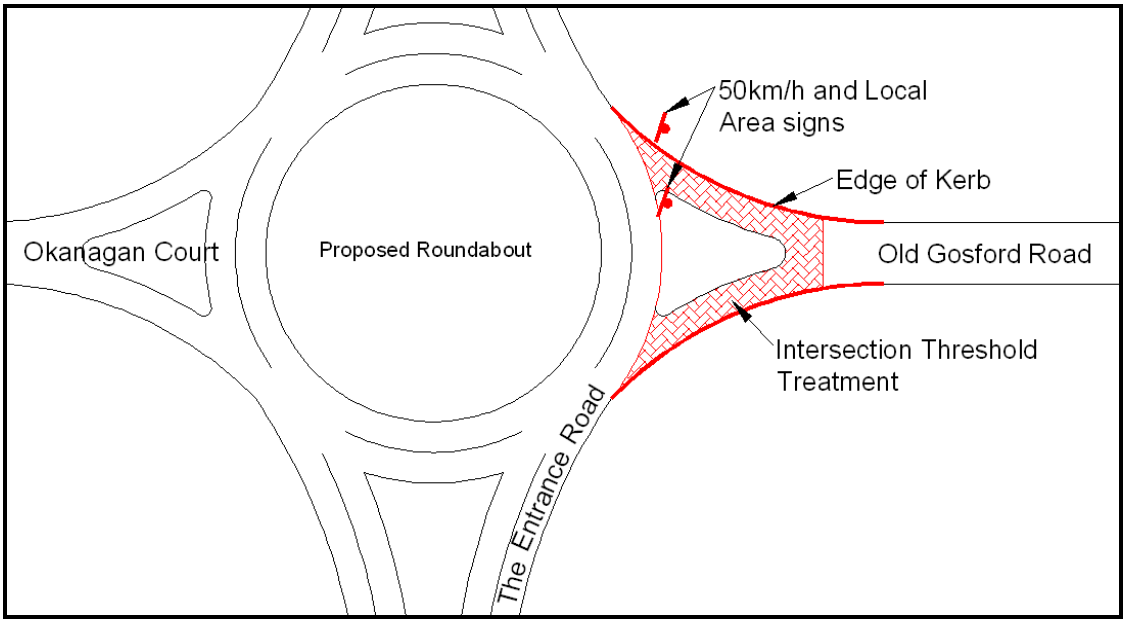


Figure 7.3 Proposed Entry Threshold Treatment at Ocean View Drive

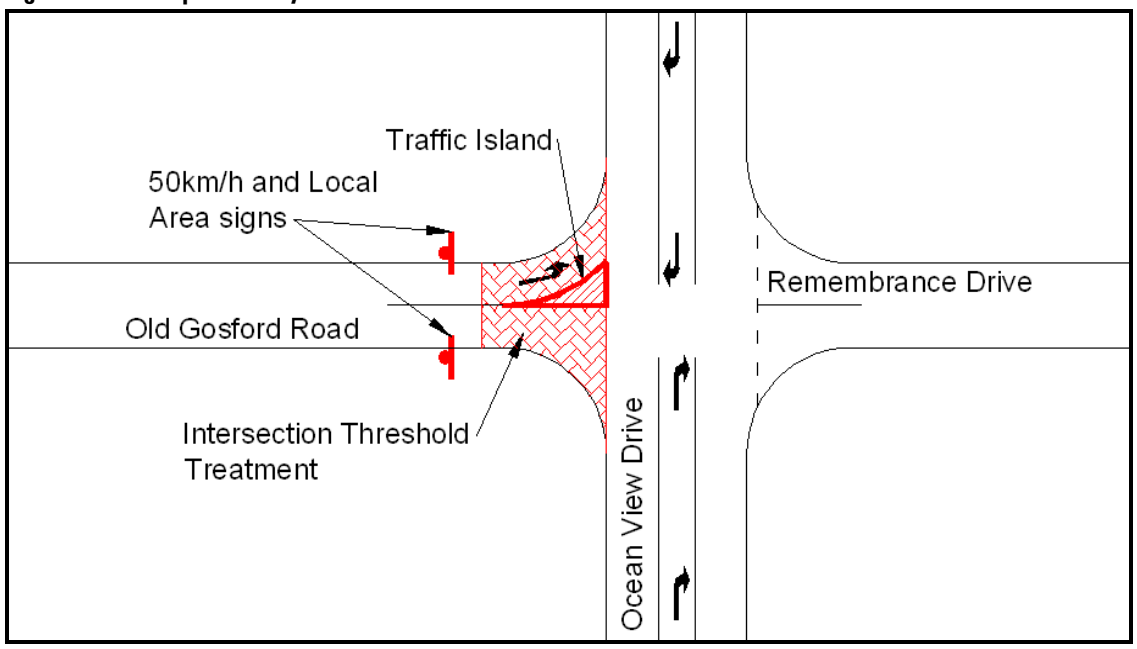
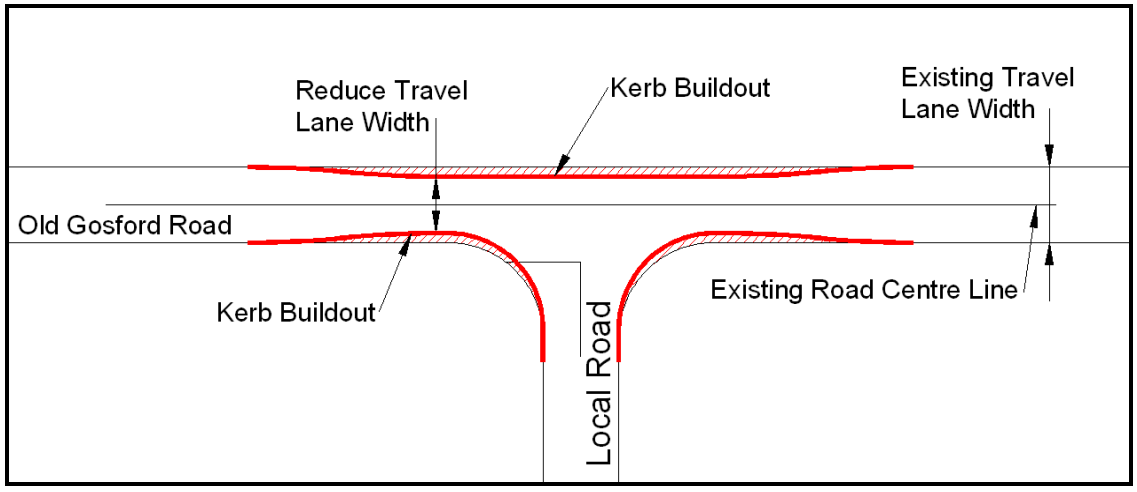


Figure 7.4 Proposed Local Intersection Treatment



It is noted that future monitoring of the above recommended measures along Old Gosford Road should be undertaken to assess the improvements to local amenity and road user safety.

8 CONCLUSION

Gosford City Council (GCC) and Roads & Maritime Services are equally funding a Local Area Traffic Management (LATM) study for Old Gosford Road, Wamberal, to investigate the traffic impact to the local residential area of a proposed roundabout on The Entrance Road. Cardno were commissioned by Gosford City Council (GCC) to undertake the LATM study.

This study is in response to community concerns regarding the upgrade to The Entrance Road particularly the installation of a roundabout at Old Gosford Road and the potential increased traffic volumes and reduced amenity within the local area.

The following summarises the key elements from the study:

- Old Gosford Road is classified and functions as a Collector Road.
- It was identified that insufficient pedestrian facilities are provided along Old Gosford Road.
- Existing traffic along Old Gosford Road results in an average weekday demand of around 1,400 to 1,980 vehicles per day.
- Vehicles that currently travel along the route The Entrance Road (Central Coast Highway) -> Ocean View Drive (Route 1) has been identified as a potential demand to divert to Old Gosford Road after the construction of the proposed roundabout. This demand equates to around an average of 400 vehicles per day.
- Speed surveys suggest that the 85th percentile speed is above the posted limit.
- All intersections operate within acceptable capacity limits for the existing traffic demands, except for Ocean View Drive/Old Gosford Road intersection. It is the right turn to Ocean View Drive that yields in reduced performance.
- No adverse impacts are identified on the existing road network by applying the potential diverted traffic to Old Gosford Road. Therefore mitigations works are not required to the proposed intersection upgrade of The Entrance Road/Old Gosford Road.
- Sight distance constraints are evident at most intersections within the study area.
- No crash patterns or fatalities were evident along Old Gosford Road. The most prevalent crash type was rear end incidents, which occurred along The Entrance Road and Ocean View Drive.
- Three options for Old Gosford Road were assessed against project objectives, with the preferred option being the series of LATM works which provides for improved pedestrian safety, discourages through traffic movements and reduces travel speeds.

APPENDICES

Appendix A

Wamberal Action Group Documents

WAMBERAL ACTION GROUP

Health Safety Community

PO Box 3191, WAMBERAL NSW 2260 postmaster@wamberalactiongroup.org.au

Peter Wilson
General Manager
Gosford City Council
49 Mann Street
GOSFORD 2250

26 September 2011

Attention: David Medcalf, Project Officer, Engineering Services.

Subject: Wamberal Local Area Traffic Management Study Fee Proposal 2.

Dear Sir

The Wamberal Action Group is very concerned about the serious shortcomings and inconsistencies in the proposed scope for the 'Wamberal Local Area Traffic Management Study Fee Proposal 2' from Cardno dated 19 September 2011.

Local area traffic management (LATM) studies are concerned with the planning and management of road space usage within a local area to:

1. reduce traffic volumes and speeds in local streets
2. to increase amenity and improve safety and access for residents especially pedestrians and cyclists.

As stated previously, it is very disappointing that the RTA did not do any study on the impact of the significant and obvious changes their design and works would have on the local road network, particularly as the roundabout at Old Gosford Road does not meet the RTA's own *Network and Corridor Planning Practice Notes*, *Practice Note 2* (RTA/Pub. 08.413) which is based on the AustRoads standards publication, *Guide to Traffic Management 2007, Part 4*, and would obviously increase through traffic along a road that Gosford City Council has repeatedly identified as having many serious safety issues.

Clearly the RTA's design fails the test of good planning and management in that it will clearly:

1. increase traffic volumes and speeds
2. harm the amenity and significantly increase the risk for pedestrians and cyclists.

WAMBERAL ACTION GROUP

Health Safety Community

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The RTA's design has generated extremely high levels of community concern which to date have not been addressed.

The Wamberal Action Group was hoping that a new LATM study might generate some positive solutions that satisfy the safety needs of the community.

However, we feel the scope of works as quoted in the 'Wamberal Local Area Traffic Management Study Fee Proposal 2' is fundamentally flawed and seriously deficient to the extent that any outcomes from the report would lack any credibility.

Some of our concerns are:

- the scope of works does not reference any standard, particularly the AustRoads Guide *to Traffic Management Part 8: Local Area Traffic Management* (Publication no: AGTM08-08)
- the scope of works does not articulate or reference which, if any, risk management methodology will be used to assess safety issues for pedestrians, cyclists and local residential traffic
- the absence of objectives for the LATM study
- sight distances on Old Gosford Road are not included in the scope of works. This is a fundamental and obvious issue affecting pedestrian safety on Old Gosford Road and the surrounding network.

Other issues and questions arising from the scope of works (in order) include:

- will the survey results, resident comments and submissions from the Wamberal Action Group be included in the document review?
- the source of historical crash statistics are provided by the RTA not Council. There is also no caveat that these accidents statistics are fundamentally under recorded and unreliable.
- will representatives from the Wamberal Action Group be given the opportunity to attend the inception meeting and subsequent site inspections to:
    - ensure the objectives of the LATM meet the needs of the community
    - provide detailed local area knowledge of the existing traffic issues
    - the constraints on Old Gosford Road and other local roads?
- the absence of a review of sight distances on Old Gosford Road and other local Roads particularly Dover Road, Plymouth Road, Ghersi Avenue and Seaview Road
- the Wamberal Action Group would welcome the opportunity for the wider community input into the LATM
- the choice of some traffic data survey locations needs clarification

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- the Wamberal Action Group would appreciate more information about the methodology used for, and adequacy of, 'spreadsheet modelling' for this LATM with the new roundabout in place
- the reduction in current traffic numbers during roadwork (and by default the LATM period) does not appear to be accounted for and no methodology has been articulated as to how this
- will be accommodated in any analysis. If this is not done rigorously, then the credibility of the study will be seriously undermined.
- the three scenarios are not articulated and appear insufficient given the failure of the RTA's design to constrain traffic on the Central Coast Highway and direct traffic onto the appropriate regional roads. In addition to making right hand turns into Old Gosford Road easier and more efficient for 'rat runners' to avoid Ocean View Drive, there are additional scenarios impacting on the local road network that need to be considered as well. Of particular concern is the impact of:
    - traffic light phasing and timing at Willoughby Road on the local road network. Different scenarios measuring the impact on the local road network need to be addressed.
    - Willoughby Road (regional road) traffic avoiding the long wait for a right hand onto the Central Coast Highway by using Windsor Road, Pembrook Road and Old Gosford Road. We understand it was the intent of the RTA to force regional road traffic through Windsor Road in its original design however, any increase in through traffic on Windsor Road would be strongly opposed by the community. Again traffic light phasing is critical issue in addressing safety in the community.
    - the length of queuing on the Central Coast Highway at Willoughby Road and the extent to which this would encourage traffic to use the local road network via Old Gosford Road to access Willoughby Road to Terrigal
    - currently traffic is severely restricted from any attempt to turn right out of Old Gosford Road due to the road work. If the roundabout is constructed, it will increase traffic through this intersection as motorists can make the right hand turn from Old Gosford Road more easily and efficiently (for them). This scenario needs to be included as well as the impact from the expansion of the Breakers Country Club.
- with respect to the LATM strategies
    - clarity is required around the objectives of maintaining the level of traffic service on adjacent roads
    - clarity is needed on the objectives increasing the route length through especially 'length' on Old Gosford Road

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  - the inclusion of specific solutions before the LATM has reviewed any qualitative and quantitative data seriously undermines the credibility and rigour that should be associated with a study of this type
  - the lack of emphasis on pedestrian safety and how this will be measured and assessed.
- what quantitative data will be used and how will it be assessed? For example, will the community be able to comment on a draft report and these comments incorporated in the final report?

Issues with the traffic surveys include:

- the impact of the current road works on survey results
- the lag impact of Energy Australia's closure of Old Gosford Road
- the impact of the current restrictions from the road works in turning right into Old Gosford Road
- no reference has been made to correlate all previous traffic survey data (including traffic data form the current LATM) and compare it with any new results using a trend analysis
- the rationale of the survey times is not explained or justified particularly Saturday morning.

We would also appreciate being provided a copy of the *Request for Quotation* prepared for Cardno to assist in understanding the background to this situation.

The Wamberal Action requests the issues outlined above to be addressed as well as the following issues:

- that the LATM study explicitly state the following aim which is consistent with AustRoads Standards: all planning and management of road usage and pedestrian safety within the local residential precinct is to:
  - reduce traffic volumes and speeds in local streets
  - to increase amenity and improve safety and access for residents especially pedestrians and cyclists
- recognition that all traffic management and pedestrian safety improvements be designed, developed and managed with reference to the area being a residential precinct
- outline the principles the LATM study will take to influence driver behaviour in this residential precinct by physical changes to the environment and indirectly by influencing driver perceptions of what is appropriate behaviour

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- outline the principles to be used for the selection, design, application and effectiveness of traffic control measures in the area and for individual streets including their impacts on the local road networks.
- that a priority ranking be provided for each improvement to measure implementation of any suggested improvements
- that the LATM study be undertaken to a professionally recognised standard and methodology such as the AustRoads *Guide to Traffic Management Part 8: Local Area Traffic Management.*

We believe these improvements will deliver a significantly more robust and rigorous study that will benefit the community and reflect positively on both Gosford City Council and the RTA.

We look forward to your assistance and cooperation in addressing these issues with the agreed purpose of community safety being the prime intent of this study rather than a simplistic review of traffic numbers.

Kind regards

R Wells

Richard Wells
President
Wamberal Action Group

WAMBERAL ACTION GROUP 28 July 2011

Environment Health Safety Community

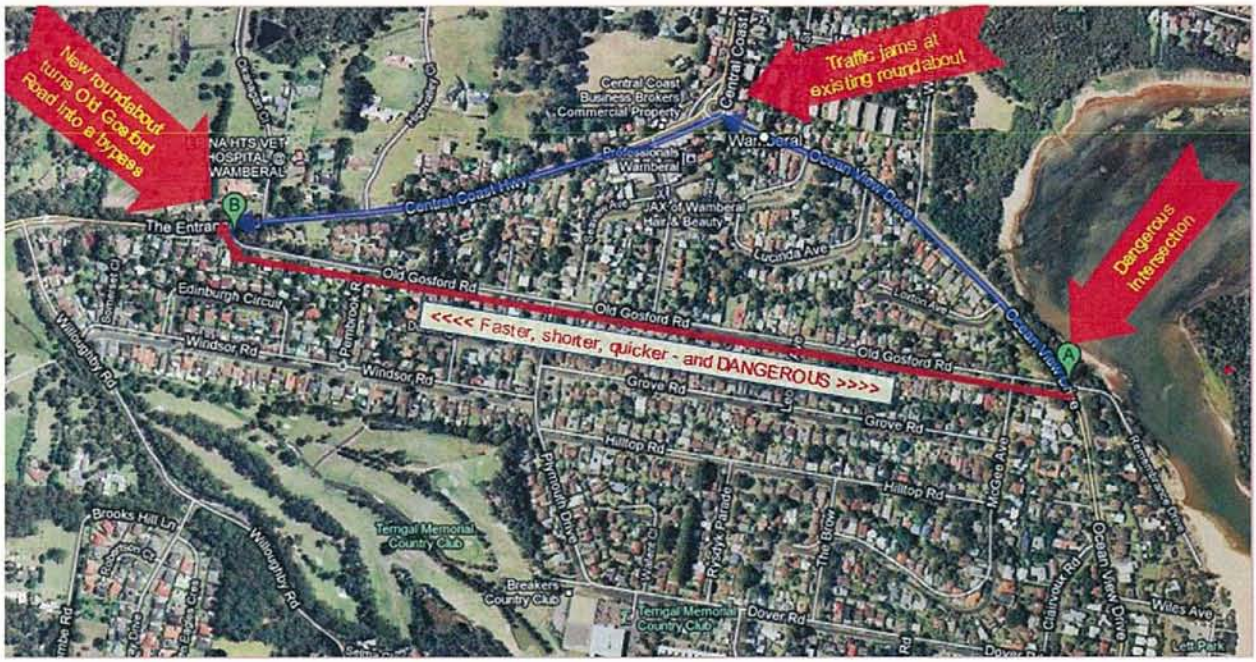

Image of the affected local traffic area.

Submission to Gosford City Council Traffic Committee

Proposal to change to traffic arrangements around Old Gosford Road, Wamberal to improve safety and provide accessible bus services.

PO Box 3191, Wamberal NSW 2260 - postmaster@wamberalactiongroup.org.au - www.wamberalactiongroup.org.au

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Background

Road safety issues

Safety on Old Gosford Road is a longstanding issue in the community. The road is poorly constructed and has many intractable safety issues making it an identified dangerous road. The known issues of high vehicle speed from through traffic and 'rat runners' is compounded by the:

- Narrow blind crests
- Dangerous intersections
- Numerous hidden driveways
- Absence of safe pedestrian crossings
- Absence of footpaths
- Undefined bus stops
- Poor surface condition
- Poor line of sight due to the hilly terrain.

It is the concern of many that it is only a matter of time before a fatality or serious injury occurs on this road.

A 2005 Council report showed traffic in the 85th percentile travelling at 65 km/hr and 63 km/hr and recommended action to address speed on Old Gosford Road. Council spent 'Black Spot Funding' from the Australian Government allocated for this road on other projects and no action has occurred to date. A new roundabout will significantly increase the volume of traffic.

With the Roads and Traffic Authority (RTA) expanding the Central Coast Highway, these long-standing road safety issues have been brought into sharp focus.

The planned roundabout at Old Gosford Road and the Central Coast Highway will significantly and substantially change traffic flows on Old Gosford Road. The roundabout would:

1. Turn Old Gosford Road into a de-facto facto bypass of the Central Coast Highway.
2. Encourage main road traffic onto dangerous and substandard local roads.
3. Force traffic on the Central Coast Highway to stop and give way to every vehicle turning into Old Gosford Road.
4. Make it easier for through traffic to turn into Old Gosford Road because through traffic and 'rat runners' would have an absolute right of way over main road traffic.

5. Provide easier access to a shorter, faster and more direct route to access Ocean View Drive and the busy Wamberal and Terrigal beaches, lagoons and shops.

6. Encourage speeding, drunk and/or drug affected motorists and heavy vehicles to avoid detection by using Old Gosford Road as a short cut; effective enforcement is unrealistic given the topography.

7. Increase traffic as satellite navigation systems direct more motorists, particularly visitors, along the shortest route, i.e. to bypass the Central Coast Highway by using Old Gosford Road.

The roundabout would significantly compound the many and intractable safety issues on Old Gosford Road especially for pedestrians. Old Gosford Road is a 'pedestrian'-centred road and experiences high levels of pedestrian activity from many pedestrians accessing the nearby Wamberal Lagoon, beach, clubhouse, shops and nearby parks and reserves. Any increase in traffic flow would create a demonstrable and unacceptable risk to residents and pedestrians.

In addition, a letter from the RTA's CEO Mr. Bushby strongly implied the RTA's intent to use Old Gosford Road as a feeder road for the Central Coast Highway thus taking pressure off the capacity constrained roundabout at Ocean View Drive by using Old Gosford Road to give *'... additional access options to the Central Coast Highway'!*

Given this roundabout does not meet the RTA's *Network and Corridor Planning Practice Notes* and the Austroads, *Guide to Traffic Management* standards the conclusion drawn by many is that the RTA intends to use Old Gosford Road as a de-facto sub-arterial road to take pressure from its own responsibilities – at the expense of the community and ratepayers.

Community response

The RTA's intention to build a roundabout at the intersection of Old Gosford Road and the Central Coast highway has galvanised the local Wamberal community to take action about a proposal that will make road safety in the area significantly worse.

In response to the strong and widespread concerns about community safety on Old Gosford Road and the ongoing lack of response to these issues since January 2008 (when the RTA released its design), the Wamberal Action Group passed a unanimous motion after the Annual General Meeting calling on the RTA to not construct the roundabout and for Old Gosford Road to be closed off at the intersection with the Central Coast Highway.

In addition, a comprehensive community survey demonstrated overwhelming support for the closure of Old Gosford Road at the intersection with the Central Coast Highway.

Impacts for local residents

At the suggestion of RTA and Gosford City Council representatives on 15 February 2011, the Wamberal Action Group prepared a formal submission to Gosford City Council for the closure of the intersection at Old Gosford Road and the Central Coast Highway.

The submission analysed all the possible routes for local residents to access the Central Coast Highway from the local road network. The analysis empirically demonstrated the intersection with Old Gosford Road at the Central Coast Highway:

- Does not function as an effective 'collector road'
- Provides no benefit to 65% of local road users
- Closure would have no impact on any businesses in the Wamberal neighbourhood centre near Ghersi Avenue nor the Breakers Memorial Club as using Old Gosford Road is a longer route to both destinations
- The impact of a closure on the local road users who may be affected is inconsequential with:
    - 26.9 % travelling less than 200 metres
    - 6.4 % travel less than 400 metres
    - 1.9% travel less than 50 metres.

At 40 km/h, the net saving in time by using the intersection is 18 seconds, 36 seconds and 5 seconds respectively. Furthermore, these local road users are all concentrated on or near Old Gosford Road.

Access to and from the Central Coast Highway via Willoughby Road is considerably safer and quicker for most road users due to the higher standard of roads and footpaths and the absence of dangerous crests and intersections.

The intersection of Old Gosford Road at the Central Coast Highway provides no net benefit to local road users and the closure will significantly improve safety, particularly in the high risk areas on Old Gosford Road

The RTA has advised that access to Old Gosford Road from this roundabout is no longer necessary.

Impacts for motorists

The roundabout is poorly planned and unjustified. It will frustrate main road users as the roundabout provides no benefit and serves no critical purpose to road users on the Central Coast Highway.

The claim by the RTA that the roundabout is critical to service access roads is unsubstantiated by the evidence.

This roundabout does not meet:

- The RTA's *Network and Corridor Planning Practice Notes* (RTA/Pub. 08.413)
- The Austroads, *Guide to Traffic Management* (2007, p10) standards.

These documents state that local roads (such as Old Gosford Road) "*Should connect where practicable, only to sub-arterial roads.*" In this case, the closest sub-arterial road is Willoughby Road a distance of only 300 metres away.

With two other major intersections within the short distance between Willoughby Road and Ocean View Drive, the roundabout will be an unnecessary hazard to normal traffic flow.

Community survey

Area surveyed

Comprehensive surveys were delivered to 223 households mostly on Old Gosford Road, Plymouth Drive, Ghersi Avenue and Windsor Road but with some random sampling in greater Wamberal area to gain a balanced view.

Analysis of results

86 responses were received, most of whom answered all the questions in the survey. The individual comments from residents and the statistical results are in *Appendix A* and *Appendix B* respectively.

The results of the survey and the comments supplied by residents make it clear that the majority of local residents consulted consider:

- Old Gosford Road to be an extremely unsafe road environment, especially for mothers and children.
- Traffic volumes and vehicle speeds are already unacceptably high.
- The condition of the road and its surrounds is poor and a safety hazard to pedestrians.
- Old Gosford Road to be a residential street, not a 'collector road' or 'rat run' for motorists trying to cut a few minutes off their journey to or from Terrigal.
- Putting a roundabout at the intersection with the Central Coast Highway will dramatically increase traffic volumes on Old Gosford Road.
- With some exceptions, the majority of respondents favour the proposal of closing Old Gosford Road at the highway (western) end.
- If Old Gosford Road cannot be closed, then the road will require a total overhaul including guttering, footpaths, traffic calming measures, re-surfacing and pedestrian crossings.

Current position

Consultation with the RTA

The RTA has advised that access to Old Gosford Road from this roundabout is no longer necessary. At a meeting with the RTA, Gosford City Council and Wamberal Action Group on 15 February 2011, it was suggested that the Wamberal Action Group prepare a formal submission to Gosford City Council and the RTA for the closure of the intersection at Old Gosford Road and the Central Coast Highway. No formal response from the RTA has been received.

Formal submission presented

On 7 March 2011, a formal submission was made calling for the closure of the intersection at Old Gosford Road and the Central Coast Highway.

The analysis demonstrated the intersection provides no net benefit to local road users and the closure will significantly improve safety, particularly in the high risk areas on Old Gosford Road.

The impact of closing this intersection is inconsequential to local road users:

- Approximately 35 % of residents would be affected with 26.9 % travelling less than 200 metres; 6.4 % travel less than 400 metres and 1.9% travel less than 50 metres. At 40 km/h, the net saving in time by using the intersection is 18 seconds, 36 seconds and 5 seconds respectively.

- Access to and from the Central Coast Highway via Willoughby Road is considerably safer and quicker for this 65% of local road users. The analysis also showed no impact on any businesses in the Wamberal neighbourhood centre near Ghersi Avenue or the Breakers Memorial Club as using Old Gosford Road is a longer route to both destinations.

The analysis clearly demonstrates that the intersection with Old Gosford Road at the Central Coast Highway does not function as an effective 'collector road' and provides no benefit to the overwhelming majority of local road users.

Discussion of bus routes

On 10 May 2011, the RTA arranged a meeting with the Wamberal Action Group. No agenda was set and Gosford City Council and Red Bus Company representatives unexpectedly attended the meeting. Issues around the possible alternative bus routes were discussed. The Wamberal Action Group was very disappointed by the way the RTA conducted this meeting. There was an unwillingness to fulfil previous commitments, particularly given the repeated assurances that "*the design and construction modifications to close Old Gosford Road are relatively simple and can be undertaken quickly*".

On 12 May 2011, a representative of the Wamberal Action Group met with a Red Bus Company representative at the bus depot at Bateau Bay. This meeting was cordial and productive. The bus company is also concerned about safety on Old Gosford Road and issues around the limitations of 14.5 metre wheelchair accessible buses at Wamberal were discussed. This included:

- The difficulty buses have in getting into and out of Old Gosford Road at Ocean View Drive (the eastern end)
- The concern of a union delegate over the turn from Pembrook Road and Windsor Road. (There is a small and ineffectual 'mini' roundabout at this intersection and this would simply require some simple modifications to a small median strip and sign.)
- The turn from Windsor Road to Willoughby Road may require some minor line and/or kerb realignment works to enable a bus to turn more easily into Windsor Road.
- The preferred option for the bus company was to not construct the large roundabout at Old Gosford Road and the Central Coast Highway and simply replace it with a bus only turn in lane into Old Gosford Road and a bus only left turn out of Old Gosford Road. He described a similar arrangement in Wyong and felt this was the easiest solution for them. The representative had already conveyed this preference to the RTA prior to the meeting on 10 May 2011.

Attempts to meet with RTA

On 16 May, An RTA Representative advised they would prepare options for the permanent closure of Old Gosford Road to traffic *while maintaining bus services*, whether via Windsor Road or some other option that meets the needs of the community. The RTA committed to providing some options, but this commitment has not been met.

On 20 May 2011, a planned site meeting with the RTA did not go ahead despite two community representatives being in attendance at the arranged time and location. Both representatives were in a prominent location with high visibility vests. The representatives, including a senior member of the NSW Police Force, were deeply disappointed and frustrated by this meeting not going ahead as planned.

On 3 June 2011, The RTA advised that the *"RTA has been made aware of a representation to the Roads Minister with respect to the closure of Old Gosford Road by a resident. Until RTA is made aware of the result of that representation we are unable to provide any comment".*

However, on 7 June 2011, the RTA advised a resident that the *"RTA is working with Gosford City Council and the Wamberal Action Group (WAG) on this matter. The decision for the closure of Old Gosford Road at the Highway will rest with Gosford Council as Old Gosford Road is under their control. However, it must be noted that all bus services including school buses would not be able to service the area should Old Gosford Road be closed, there is no viable option to re-route these buses. This would then require all school children (as well as any other bus passenger) to cross the Highway to either catch or alight from a school bus. Once Council has decided on a way forward this will be communicated to the WAG".* The Wamberal Action Group believes this response is provocative and contains errors, which provide a false view of the issues, especially as school buses currently can and do use Windsor Road to access the Central Coast Highway.

Further actions

On 15 June 2011, the Wamberal Action Group wrote to the Minster for Roads and Ports requesting a meeting to discuss this issue with respected professional community members.

A recent community survey conducted shows over 84% of residents support the closure of Old Gosford Road.

Another submission to Gosford City Council is to be lodged by a representative of the Minister for the Central Coast, The Hon. Chris Hartcher MP.

Submission detail and analysis

Closure of the Old Gosford Road intersection – key issues

Old Gosford Road poses a series of unique constraints that prevent it from coping safely with changes to the traffic dynamic resulting from the proposed roundabout at the intersection of Old Gosford Road with the Central Coast Highway. The key issues are:

1. As the shortest route to and from Terrigal, Erina and Gosford via Ocean View Drive, Old Gosford Road is the target of drivers who use speed and dangerous driving practices to maximise the time saved by taking this much shorter route.

2. The topography of Old Gosford Road creates a number of high risk areas with the potential for fatalities or serious injuries.

3. Footpaths are not well formed with significant lengths unable to be safely traversed by pedestrians. This forces pedestrians onto the roadway at points where visibility for motorists is very poor.

4. Old Gosford Road experiences high levels of pedestrian activity from many residents using Old Gosford Road to access the nearby Wamberal Lagoon, Wamberal Beach and clubhouse, shops and nearby parks and reserves. A large amount of pedestrian activity coincides with busy peak traffic times and/or periods of difficult lighting in the early mornings, late afternoons (with very bright sunshine) and dusk (low light).

5. The blind crests particularly near Ghersi Avenue and Pembrook Road are severely affected by sun glare.

6. The pavement width is very narrow at the crests of McGee Avenue, Ghersi Avenue and near Pembrook Road.

7. On road parking creates hazards at several key locations with only five short disjointed lengths of kerb and gutter.

8. The lack of setbacks for many properties creates steep driveways with limited visibility. Increasing through traffic significantly reduces the opportunities for safe ingress and egress to these properties.

9. The general condition of Old Gosford Road is particularly unsuitable for heavy vehicles.

10. The topography of Old Gosford Road makes it unlikely the road could be upgraded to fully comply with Gosford City Council standards. An upgrade that did not comply with the relevant standards could create dangerous areas and potential avenues for litigation.

11. Due to the extensive rock shelf between Leonard Avenue and Plymouth Drive, Energy Australia could not lay the 132,000 volt transmission lines to the required depth under the road surface. To counteract this, the line was extensively encased in concrete for most of this section. This will prevent the crest between Plymouth Drive and Ghersi Avenue from being excavated and conversely, this may prevent any fill being placed over the transmission line as any extra coverage will further reduce the ability of heat to dissipate from these massive transmission lines.

These factors, combined with the difficult and dangerous topography, make leaving Old Gosford Road open as a bypass for the Central Coast Highway an unacceptable safety risk to the community.

Roundabout – key issues

The primary concerns with the changed traffic arrangement from the proposed roundabout are:

1. The roundabout will significantly increase through traffic wanting to bypass the Central Coast Highway. This creates an unacceptable risk to the safety of the community. Compared to the Central Coast Highway, Old Gosford Road provides a more direct, shorter, straighter and faster access to and from Ocean View Drive and the busy Wamberal and Terrigal beaches, lagoons and shops. However, Old Gosford Road is potentially very dangerous due to the hilly terrain, narrow blind crests, numerous hidden driveways, dangerous intersections and poor surface condition. Combined with the absence of footpaths and the high speed of through traffic, this change will create a demonstrable and unacceptable risk to residents and pedestrians.

2. The design forces main road traffic heading west on the Central Coast Highway to stop and give way to every car or heavy truck turning into Old Gosford Road. This will encourage many more motorists and heavy vehicles to bypass the Central Coast Highway (and the busy roundabout at Ocean View Drive) by using Old Gosford Road as the shortest route to and from Terrigal, Erina and Gosford.

3. Speeding, drunk and/or drug affected motorists and heavy vehicles can avoid detection by Police by using Old Gosford Road as a short cut as the topography makes effective speed enforcement very difficult.

4. Satellite navigation systems will direct more motorists, particularly visitors, to bypass the Central Coast Highway by using Old Gosford Road.

5. The roundabout provides no benefit to road users on the Central Coast Highway and serves no critical purpose. There is a signalised intersection approximately 300 metres west of the proposed roundabout and another major roundabout a few hundred metres to the east at Ocean View Drive. The roundabout will unnecessarily frustrate road users.

6. This roundabout does not meet the RTA's *Network and Corridor Planning Practice Notes* (RTA/Pub. 08.413) and the Austroads, *Guide to Traffic Management* (2007, p10) standards which state that local roads (such as Old Gosford Road) "*Should connect where practicable, only to sub-arterial roads.*" In this case, the closest sub-arterial road is Willoughby Road a distance of only 300 metres away. With two other major intersections within the short distance between Willoughby Road and Ocean View Drive, the roundabout will be an unnecessary hazard to normal traffic flow.

If this roundabout is constructed and the constraints and safety issues on Old Gosford Road not satisfactorily addressed, then these significant changes will exacerbate and entrench a permanent safety hazard as more motorists and heavy vehicles use Old Gosford Road to bypass the Central Coast Highway.

Effects of the closure - detail

Careful examination and testing of the local road network empirically demonstrates that the intersection of Old Gosford Road and the Central Coast Highway is neither an effective or safe collector road.

Local businesses

The analysis showed no impact on any businesses in the Wamberal neighbourhood centre near Ghersi Avenue.

The closure would not affect any road users accessing the Breakers Memorial Club as using Old Gosford Road is a longer route compared with accessing this facility via Willoughby Road.

The closure would have no impact on access to the Wamberal Beach Surf Life Saving Club.

Local road users

Using the common scenarios for local road users to access the Central Coast Highway and return to their homes, the analysis demonstrates that the closure of Old Gosford Road at the Central Coast Highway will not affect any local road users in the following areas:

- Grove Road
- Hilltop Road
- McGee Avenue
- Eldon Close
- The Brow
- Plymouth Drive
- Dover Road
- Rysdyk Parade
- Ghersi Avenue
- Leonard Avenue
- Windsor Road
- Dorset Close
- Edinburgh Circuit.

For each of these local road user groups:

- The longest route to the Central Coast Highway is via the intersection with Old Gosford Road; and
- Access to all nearby community and commercial facilities would not be affected by the closure.

Significantly, the shortest route to the Central Coast Highway for these road users is also safer and more convenient as all roads on the shortest route have kerb and gutter, clearly delineated footpaths, safer intersections and wider roads with the exception of two short lengths of road servicing 61 residences at the eastern end of Grove Road and Hilltop Road.

The local road user group identified as having the most disadvantages is the group on the western end of Old Gosford Road. Any increase in traffic on Windsor Road, Plymouth Drive and Pembrook Road would be limited to normal road use by local residents.

Community support for the closure of Old Gosford Road

Wamberal Action Group is a large and active non-profit community based association representing over 500 residents. It is dedicated to improving the safety and health of all residents in Wamberal and protecting the environment from poor development and planning decisions.

386 residents live on Old Gosford Road and every household can report many incidents of excessive speed and other dangerous driving along Old Gosford Road. Concern is regularly raised for the safety of the 99 seniors and 106 pre-school and school aged children living along this local road from the dangerous driving practices of motorists and heavy vehicles using Old Gosford Road as a 'rat run' to and from Terrigal, Erina and Gosford.

The 23 member management committee represents the diverse social, occupational and geographic profiles in the area. The Wamberal Action Group management committee unanimously approved the following motion after the 2010 Annual General Meeting:

- Rejecting the construction of the roundabout at Old Gosford Road and the Central Coast Highway; and

- Supporting the closure of Old Gosford Road at the intersection with the Central Coast Highway.

Given the diverse nature of the Wamberal Action Group, the unanimous vote signifies the strong commitment of the members in supporting this motion.

This motion was communicated in writing to the RTA and Gosford City Council on 8 October 2010.

The survey results and resident comments in the appendices clearly demonstrate the high level of community engagement and support for this issue.

Conclusion

The decision to request closure of Old Gosford Road at its western end has not been taken lightly.

The Wamberal Action Group is disappointed with the RTA's behaviour and false information concerning the bus services.

However, after careful consideration the Wamberal Action Group is committed to seeing this intersection closed for the following reasons:

1. The minimal impact of the closure on 65 percent of local road users.
2. The RTA stating that access to the Central Coast Highway at Old Gosford Road is no longer required.
3. The absence of any impact on local community and commercial facilities.
4. The dramatic and long term increase in through traffic using Old Gosford Road to bypass the Central Coast Highway and Ocean View Drive from the proposed roundabout.
5. The likelihood of an increase in motorists and heavy vehicles using Old Gosford Road to bypass the Central Coast Highway creates an environment of apprehension and unease in the community especially for the elderly and young families.
6. The large number of safety issues and hazards on Old Gosford Road.
7. The constraints imposed by the topography of Old Gosford Road limiting the effectiveness of any upgrade of Old Gosford Road.
8. The strong public support for the closure.

The proposed roundabout is a significant and major change to the existing traffic flow on Old Gosford Road that will also unnecessarily frustrate main road users.

Leaving Old Gosford Road open as a bypass for the Central Coast Highway, combined with the difficult and dangerous topography, creates an unacceptable safety risk to the community, particularly given the narrow blind crests and absence of formed footpaths.

All that is required is for some minor modifications to allow wheelchair accessible buses to access Windsor Road and for the RTA to close off Old Gosford Road (in combination with sensible traffic calming measures). Though the RTA agreed to a temporary closure during construction, they have not been cooperative in arranging for a permanent closure and ensuring accessibility for wheelchair buses.

If this roundabout is constructed as planned and the constraints and safety issues on Old Gosford Road not satisfactorily addressed, then these significant changes will exacerbate and entrench a permanent safety hazard as more motorists and heavy vehicles use Old Gosford Road to bypass the Central Coast Highway.

It is very difficult for people to access the Route 22 bus service as the current bus stops on Old Gosford Road are a long way from the majority of homes. The bus stops are also located in dangerous hilly locations with unstable surfaces unsuitable for mobility impaired users.

Our simple, cost effective proposal would significantly decrease the risk of catastrophic or fatal injuries whilst improving accessibility to bus services for people with disabilities in the area.

Recommendation

It is strongly recommended that:

- Old Gosford Road is closed at its intersection with the Central Coast Highway and that the RTA undertakes this work during its current activities in the area.

- Gosford City Council support compliance with accessibility to buses services as required by the Australian Human Rights Commission in their *Disability Standards for Accessible Public Transport* by facilitating the Route 22 bus to service the Windsor Road area.

- Minor changes to the existing ineffective traffic calming device at the intersection of Pembrook Road and Windsor Road are implemented to accommodate wheelchair accessible buses thus enabling 14.5 metre buses to negotiate this turn more easily. The changes should also make this device more effective.

- Minor realignment changes at the intersection of Willoughby Road and Windsor Road be implemented (if required) to enable 14.5 metre buses to negotiate this turn more easily.

- Council demand the RTA is held to its commitment to fund these works as part of its original commitment to fund and provide traffic calming works on these streets.

- Alternatively, removing or modifying the roundabout at Old Gosford Road to allow for a bus only turn in and out as suggested by the Red Bus Company.

- Council request the RTA to work cooperatively with the community to implement these critical changes to ensure the safety and improve accessibility for all the people in our community.

Appendix A – Resident comments

"Old Gosford Road is already busy enough with speeding cars and a high volume of traffic and extremely difficult/dangerous for our children to play out the front. We love our community, however by not allowing our children to walk and play by the road does not foster a good sense of community."

"Old Gosford Road is a residential area and should have kerb, gutter and path for safety. It is dangerous walking, pushing a pram or riding a bike along this road. Bus stops are on the top of blind hill therefore extremely dangerous for children in the area."

"Our property has issues when it rains due to the lack of curb and gutter. The road needs to be improved ASAP. I was informed by Council that the road will be done next financial year and there will be traffic lights at the end of Old Gosford Road and CC Highway not roundabout. We are all for the road closure!!! Slow points are definitely needed if the road is not closed!!"

"What evidence is there to indicated that more buses along Windsor road would better serve the community? I don't believe that Windsor road is anymore suitable than Old Gosford Road for an increase in traffic flow. While there are problems at present with drivers trying to take shortcuts in order to avoid slow traffic on The Entrance road, this is unlikely to occur once roadworks are completed."

"My husband and I have lived in Old Gosford Road for the past 26 years and raised 4 children. My concerns is not footpaths – early on it was a problem for me with young children in a pram and now a problem for me regularly walking to keep fit and worrying about tripping, sliding and falling over due to lack of footpaths. I hope I will not be pushing future grandchildren over rough terrain on the road!"

"Traffic calming devices on Old Gosford Road are essential whether it is blocked at CCH intersection or not."

"I think the contractors are doing their best despite inclement weather. RTA needs to think about not creating speedways on hilly roads such as Old Gosford Road."

"I've lived in this district for 44 years and have seen the roads in Terrigal and Wamberal become a real nightmare to move around on - they have become a hazard for pedestrians."

"Closure of Old Gosford Road would only pass the strain of traffic to other local roads. Historically Old Gosford Road was the only road as Ocean View Drive was built in the 1960's. Old Gosford Road should be straightened (flatter) and widened with appropriate footpath."

"Lack of footpaths in Old Gosford Road are very dangerous for mothers and children."

"Thank you Wamberal Action Group for taking a stand for the residents of Wamberal. It is obvious that the RTA and Council do not give a damn about the community of Wamberal. If we had wanted to live on a highway we would have bought a house on a highway."

"Old Gosford Road needs a cycle land and pavement, maybe some speed humps to slow traffic down."

"With three children under six, the last thing we want is more traffic on Old Gosford Road. Old Gosford Road is in an appalling condition – potholes, disintegrating edges, lack of paths for all of the road bar one small section. This road cannot have any more traffic on it. To walk with two small children and a pram safely anywhere on this road is near impossible. We support this initiative 100%."

"I actually think the size of the project is quite large and work has progressed consistently and appropriately. Once completed I think it is unlikely there would be any significant flow of non-local traffic along Old Gosford Road. Closure of Old Gosford Road would be an enormous problem to me. (Name supplied)"

"I have no car and the nearest bus route to my home is along Old Gosford Road. I am a pensioner. The option is the 68 bus route."

"Other traffic calming measures should also be considered by the RTA in consultation with the local community. Eg. No right turn at Old Gosford Road and Ocean View Drive."

"Although only a holiday house, we spend a lot of our time at Wamberal and often with our grandchildren. Safety is of prime importance. If we can help let us know."

"Since road work has commenced along Central Coast Highway we have noticed a lot of extra traffic along Old Gosford Road and have also found it more difficult to exit and enter our driveway as a result cars commonly exceed 70kms along the narrow roads and crests to beat traffic. We have had a number of near misses as a result. We have been here for over 17 years and this is the worst we have seen it. Heard all the promises and still waiting for council to fix the road."

"Having two children of my own, I truly worry about their and other children's safety. We have tried a few bus stops for the school and I find all of them extremely unsafe – very dangerous. I simply can't trust my kids to go to the bus stop by themselves or have them ride a bike on this road. Encouraging more bicycles on our roads should be a priority in the interest of the environment, our kids and the whole community."

"It is not that often that there is a simple solution to solve a dangerous problem but here we have one. By closing off Old Gosford Road the safety of pedestrian, cyclists and most importantly hundreds of children will be greatly improved. This road is a high volume of pedestrians and no footpaths, it is also very narrow making walking with prams very unsafe. This road cannot handle any more traffic so please do the simple and easy thing by closing it of from more speeding traffic!"

"I have 2 little boys aged 5 and 6 it is a constant worry for me when there are in the front yard. Old Gosford Road is an absolute race track with traffic obviously travelling well about the speed limit. I therefore cannot allow my boys to walk to their friends homes on their own. It is also difficult and a worry as there are NO FOOTPATHS or even flattened areas for them to walk. Because of the state of Old Gosford Road there is absolutely no on-street parking which is a huge issue re visitors and tradesman."

"I feel that the closure of Old Gosford Road would significantly increase traffic on other local roads that have not been designed for such significant amounts of traffic. The local council considers Old Gosford Road a "collector road" (as of May 2011) and ? therefore better designed than other local roads such as Ghersi Ave and Windsor Road to manage traffic. Is this suggested road closure for the benefit of all residents in Wamberal??"

"As a resident of 2 Old Gosford Road for 5 years we have witnessed the extremely dangerous intersection between Old Gosford Road and Ocean View Drive:

- Traffic skidding down Old Gosford Road into the line of traffic on Ocean View Drive during wet weather.
- Blind right hand turn onto Ocean View Drive with fast on-coming traffic.
- Cars "flying" around the corner of Old Gosford Road and Ocean View Drive up hill – loosing control.
- Many people access the beach, park, cafes via Old Gosford Road – often with small children with already dangerous levels of traffic and only 100m of footpath available.

"Positive and negative of closure of Old Gosford Road. Negative – lose bus services for school/residents unless you did busy and local traffic only route. Positive – would put an end to the endless use of the road as a racetrack and shortcut route making it safer for pedestrians, residents and car users."

"Old Gosford Road is in very poor condition, hate to think what condition will be with influx of traffic from The Entrance Road and Ocean Beach Road when used as a shortcut. Have to continually ring Gosford Council to repair pot holes outside my home, loose gravely from holes spews over road and up my drive way, they will not sweep it up."

"There will be no "more traffic" on Old Gosford Road, due to the RTA's works. Old Gosford Road should not be closed, this brochure makes no sense. Old Gosford Road should remain open – I don't know anyone who walks 700 metres for a bus. How is Old Gosford Road the only pedestrian access to Wamberal lagoon, beach, clubhouse, shops and park. This is just rubbish; there is Dover road, Prince Street etc."

"Recently I was walking behind my 7 year old as she learnt to ride her bike. A 'P Plater' came from the other direction and did not slow down. While there was no accident, there was absolutely no margin for safety. I was extremely angry at the driver and yelled after the car – he just sped off with his mates thinking it was funny. It is only a matter of time until a father is writing a story with a different ending."

"I'm a carer for 40 year old son in wheelchair – cannot take him around the neighbourhood – too dangerous."

"Windsor road is already a speedway for low-slung utes and trail bikes. The 'smart' ones straighten up the road by going on the wrong side of the roundabout at Pembroke. It's a pedestrian hazard."

"Old Gosford Road a disgrace Route 22 would travel on Windsor along with Busways although Windsor is quite narrower."

"Wrote to RTA re concerns over traffic from along Windsor road once the traffic lights went in with no right turn provision at Willoughby rd and Central Coast Highway. Also requesting a footpath for Windsor/Plymouth. The reply was brief as if to say 'not in a million years.' "

"As we will be directly affected by the new roundabout, we feel very strongly that closing off Old Gosford Road would be a much safer option. The RTA have yet to re-assure us adequately that there are enough safety measures in place."

"Bus stop at the new lights on The Entrance Road services 3 blind persons daily. The persons cannot be seen by drivers because of trees and position of the stop. There was NO consultation with bus company about this stop, the bus stops are not numbered when people with vision problems call 131 500 number to get assistance."

"No community consultation is not good enough. No effort to leave trees thus destroying the ambience of the area. Where are the gutters/sidewalks on Old Gosford Road? Pedestrians have to compete with trucks/buses/cars for roadspace."

Appendix B - Survey questions and results

Responses by volume

	Question	Strongly agree	Agree	Disagree	Strongly disagree	No. of responses
1	Old Gosford Road is safe for pedestrians.	2	4	15	65	86
2	Speeding traffic is an issue on Old Gosford Road, Pembrook Road, Plymouth Drive, Windsor Road and Ghersi Avenue.	66	15	3	1	85
3	Old Gosford Road could not safely cope with more traffic.	72	7	3	1	83
4	More bus services along Windsor Road would benefit the community, particularly children, the elderly and disabled.	38	41	1	4	84
5	Small changes to bus routes to service more residents is important.	43	38	4	1	86
6	A roundabout at Old Gosford Road will encourage more through traffic and 'rat runners'.	73	6	5	3	86
7	The closure of Old Gosford Road at Central Coast Highway would have little impact on local residents.	44	21	11	9	85
8	The closure of Old Gosford Road at Central Coast Highway would make a significant improvement to safety.	64	11	5	4	84
9	Ensuring our local road network is only used for local traffic is important.	60	22	2	0	84
10	The RTA should build a safe pedestrian crossing at the Ghersi shops.	56	25	3	0	84
11	The RTA should retain parking at the top Ghersi shops.	52	30	1	0	83
12	The RTA clearly communicated the extent of tree removal.	2	11	31	40	84
13	The RTA has kept me informed about changes in this area.	2	12	35	35	84
14	Frustrated motorists use Old Gosford Road and other local roads to bypass traffic congestion on the Central Coast Highway.	68	15	1	2	86
15	There are too many unnecessary delays on the Central Coast Highway during peak hours.	49	25	7	1	82

16	Construction work on the Central Coast Highway is slow and inconsistent.	36	31	18	1	86

By percentage

		Dominant result	Strongly agree	Agree	Disagree	Strongly disagree
1	Old Gosford Road is safe for pedestrians.	76% strongly disagree	2%	5%	17%	76%
2	Speeding traffic is an issue on Old Gosford Road, Pembrook Road, Plymouth Drive, Windsor Road and Ghersi Avenue.	77% strongly agree	77%	17%	3%	1%
3	Old Gosford Road could not safely cope with more traffic.	84% strongly agree	84%	8%	3%	1%
4	More bus services along Windsor Road would benefit the community, particularly children, the elderly and disabled.	44% strongly agree, 48% agree	44%	48%	1%	5%
5	Small changes to bus routes to service more residents is important.	50% strongly agree, 44% agree	50%	44%	5%	1%
6	A roundabout at Old Gosford Road will encourage more through traffic and 'rat runners'.	84% strongly agree	84%	7%	6%	3%
7	The closure of Old Gosford Road at Central Coast Highway would have little impact on local residents.	51% strongly agree, 10% strongly disagree	51%	24%	13%	10%
8	The closure of Old Gosford Road at Central Coast Highway would make a significant improvement to safety.	74% strongly agree	74%	13%	6%	5%
9	Ensuring our local road network is only used for local traffic is important.	70% strongly agree, 26% agree	70%	26%	2%	0%
10	The RTA should build a safe pedestrian crossing at the Ghersi shops.	65% strongly agree, 29% agree	65%	29%	3%	0%
11	The RTA should retain parking at the top Ghersi shops.	60% strongly agree, 35% agree	60%	35%	1%	0%
12	The RTA clearly communicated the extent of tree removal.	47% strongly disagree, 36% disagree	2%	13%	36%	47%

13	The RTA has kept me informed about changes in this area.	47% strongly disagree, 41% disagree	2%	14%	41%	41%
14	Frustrated motorists use Old Gosford Road and other local roads to bypass traffic congestion on the Central Coast Highway.	79% strongly agree	79%	17%	1%	2%
15	There are too many unnecessary delays on the Central Coast Highway during peak hours.	57% strongly agree, 29% agree	57%	29%	8%	1%
16	Construction work on the Central Coast Highway is slow and inconsistent.	42% strongly agree, 36% agree	42%	36%	21%	1%

Appendix C - Change benefit analysis

	User group	Number of residences	Destination	Route	Distance to Central Coast Highway	Benefit by using OGR intersection
Grove Road from McGee to Leonard Avenue	A	37	Erina via the Central Coast Highway	Grove / Plymouth/ Windsor/ Willoughby	1.6 kms	No
				Grove / Leonard / Old Gosford Road	1.6 kms	No
				Grove / Plymouth / Old Gosford Road	1.6 kms	No
				Grove / McGee / Old Gosford Road / Ocean View Drive	2.0 kms	No
				Grove / Leonard / Old Gosford Road / Ghersi	1.9 kms	No
Grove Road from Leonard Avenue to Plymouth Drive	B	38	Erina via the Central Coast Highway	Grove / Plymouth/ Windsor/ Willoughby	1.3 kms	No
				Grove / Leonard / Old Gosford Road	1.3 kms	No

				Grove / Plymouth / Old Gosford Road	1.3 kms	No
				Grove / McGee / Old Gosford Road / Ocean View Drive	2.3 kms	No
				Grove / Leonard / Old Gosford Road / Ghersi	1.6 kms	No
Hilltop to The Brow	C	24	Erina via the Central Coast Highway	Hilltop / Plymouth/ Windsor/ Willoughby	1.6 kms	No
				Hilltop / Plymouth / Old Gosford Road	1.7 kms	No
				Hilltop / McGee / Old Gosford Road / Ghersi	1.8kms	No
				Hilltop / McGee / Old Gosford Road / Ocean View Drive	2.1 kms	No
Hilltop between The Brow and Rysdyk Parade	D	12	Erina via the Central Coast Highway	Hilltop / Plymouth/ Windsor/ Willoughby	1.4 kms	No
				Hilltop / Plymouth / Old Gosford Road	1.5 kms	No
				Hilltop / McGee / Old Gosford	2.3 kms	No

				Road / Ghersi		
				Hilltop / McGee / Old Gosford Road / Ocean View Drive	2.3 kms	No
Hilltop between Rysdyk Parade and Plymouth	E	28	Erina via the Central Coast Highway	Hilltop / Plymouth/ Windsor/ Willoughby	1.2 kms	No
				Hilltop / Plymouth / Old Gosford Road	1.3 kms	No
				Hilltop / McGee / Old Gosford Road / Ghersi	2.4 kms	No
				Hilltop / McGee / Old Gosford Road / Ocean View Drive	2.4 kms	No
Mc Gee from Hilltop to The Brow	F	43	Erina via the Central Coast Highway	McGee / Hilltop / Plymouth / Windsor / Willoughby	2.0 kms	No
				McGee / The Brow / Hilltop / Plymouth / Windsor /Willoughby	1.5 kms	No
				McGee / Grove / Plymouth / Windsor / Willoughby	2.2 kms	No
				McGee / Old Gosford Road / Ghersi	2.4 kms	No

				McGee / Old Gosford Road	1.8 kms	No
Eldon Close	G	8	Erina via the Central Coast Highway	Eldon Close / The Brow / Hilltop / Plymouth / Windsor / Willoughby	1.6 kms	No
				Eldon Close / The Brow / Hilltop / Plymouth / Old Gosford Road	1.6 kms	No
The Brow	H	9	Erina via the Central Coast Highway	The Brow / Hilltop / Plymouth/ Windsor/ Willoughby	1.6 kms	No
				The Brow / Hilltop / Plymouth / Old Gosford Road	1.7kms	No
				The Brow / Hilltop / McGee/ Old Gosford Road / Ghersi	2.4 kms	No
				The Brow / Hilltop / McGee / Old Gosford Road / Ocean View Drive	2.6 kms	No
Plymouth Drive between Old Gosford Road and Windsor Road	I	8	Erina via the Central Coast Highway	Plymouth/ Windsor/ Willoughby	1.0 kms	Yes
				Plymouth / Old Gosford Road	.95 kms	Yes

Plymouth between Dover Road and Windsor Road	J	22	Erina via the Central Coast Highway	Plymouth/ Windsor/ Willoughby	1.2 kms	No
				Plymouth / Old Gosford Road	1.3 kms	No
Rysdyk Parade	K	25	Erina via the Central Coast Highway	Rysdyk / Hilltop / Plymouth/ Windsor/ Willoughby	1.4 kms	No
				Rysdyk / Hilltop / Plymouth / Old Gosford Road	1.5 kms	No
Old Gosford Road from Ocean View Drive to Leonard Avenue	L	34	Erina via the Central Coast Highway	Old Gosford Road / Leonard / Grove / Plymouth / Windsor / Willoughby	1.8 kms	No
				Old Gosford Road / Plymouth / Windsor / Willoughby	1.8 kms	No
				Old Gosford Road	1.6 kms	Yes
				Old Gosford Road / Ghersi	1.8 kms	No
				Old Gosford Road / Ocean View Drive	1.8 kms	No
Old Gosford Road between Leonard Avenue and Ghersi	M	24	Erina via the Central Coast	Old Gosford Road / Plymouth / Windsor / Willoughby	1.4 kms	No

Avenue			Highway			
				Old Gosford Road / Pembrook / Windsor / Willoughby	1.5 kms	No
				Old Gosford Road / Ghersi	1.5 kms	No
				Old Gosford Road	1.2 kms	Yes
				Old Gosford Road / Ocean View Drive	1.8 kms	No
Old Gosford Road between Ghersi Avenue and Plymouth Road	N	12	Erina via the Central Coast Highway	Old Gosford Road	1.0 kms	Yes
				Old Gosford Road / Plymouth / Windsor / Willoughby	1.2 kms	No
				Old Gosford Road / Ghersi	1.4 kms	No
				Old Gosford Road / Pembrook / Windsor / Willoughby	1.2 kms	No
Old Gosford Road from Plymouth Drive to Pembrook Road	O	27	Erina via the Central Coast Highway	Old Gosford Road / Pembrook / Windsor / Willoughby	1.1 kms	No
				Old Gosford Road / Plymouth / Windsor / Willoughby	1.1 kms	No
				Old Gosford Road / Ghersi	1.7 kms	No

				Old Gosford Road	.85 kms	Yes
Angophora Close	P	5	Erina via the Central Coast Highway	Old Gosford Road / Pembrook / Windsor / Willoughby	1.0 kms	No
				Old Gosford Road / Ghersi	1.5 kms	No
				Old Gosford Road	.85 kms	Yes
Old Gosford Road from Pembrook Road to the Central Coast Highway	Q	27	Erina via the Central Coast Highway	Old Gosford Road / Pembrook / Windsor / Willoughby	.95 kms	No
				Old Gosford Road	.55 kms	Yes
Pembrook Road	R	12	Erina via the Central Coast Highway	Pembrook / Windsor / Willoughby	.8 kms	No
				Old Gosford Road	.6 kms	Yes
Ghersi Avenue and Seaview Avenue	S	41	Erina via the Central Coast Highway	Ghersi / Central Coast Highway	1.1 kms	No
				Ghersi / Old Gosford Road	1. 2 kms	No
				Ghersi / Old Gosford Road /	1.4 kms	No

				Plymouth / Windsor / Willoughby		
				Ghersi / Old Gosford Road / Pembrook / Windsor / Willoughby	1.4 kms	No

END

Appendix B

Reference Documents

Red Bus 22 – alternative route survey

Background

On Tuesday 23 August, members of the Wamberal Action Group (WAG) met representatives of the Roads and Maritime Services (RMS), Department of Transport (DOT) and the Red Bus Company to examine the potential impacts on Bus Route 22 of closing Old Gosford Road at the Central Coast Highway (western) end.

Attending

WAG:	Tanya Kelly and Will Belford
RMS:	Craig Leckie and three support staff
DOT:	John Brodie
Red Bus:	David Bain and driver

Craig Leckie noted that representatives of Gosford Council had been invited, but they did not attend.

Route surveyed

Starting near the western end of Old Gosford Road facing east, the bus took the following route:

R	Pembrook Road
R	Windsor Road
R	Willoughby Road
L	Central Coast Highway, up the hill, around the roundabout and back
R	Willoughby Road
L	Windsor Road
L	Pembrook Road
R	Old Gosford Road
R	Plymouth Road
R	Edinburgh Crescent
L	Windsor Road
L	Plymouth Road
R	Old Gosford Road

Issues identified

Windsor Road roundabout

Turning right from Plymouth into Windsor was difficult because of the roundabout; the driver commented that he was on full lock and if a car were parked opposite the roundabout it would probably block the turn. Craig Leckie said that the RTA could fund the council to remove the roundabout if necessary.

Sight lines

The sight lines along the proposed route were not good and there are many tight turns. Turning right from Plymouth Road onto Old Gosford Road was dangerous

because the crests, especially the one to the east, allowed no warning of oncoming traffic. Craig Leckie noted that this crest was too high to make the turn safely.

Trip time

The addition of numerous corners to the route would increase the trip time by several minutes; David Bain and John Brodie noted that this could have a knock-on effect across the bus fleet that could necessitate another bus and drivers.

Conclusion

David Bain and John Brodie agreed that changing the route would not be ideal as it created a number of new issues, including difficult corners, poor sight lines and increased trip times.

Solution proposed

John Brodie recommended that the route be kept as it is, but that there was no reason why the connection of Old Gosford Road to the Central Coast Highway couldn't be made a bus-only exit/entrance. This would solve the issue of increased car traffic on Old Gosford Road while maintaining the route.

Will Belford noted that WAG would be perfectly happy with this solution.

Craig Leckie said that this option could be considered, but that the problem was enforcement.

John Brodie suggested a range of options that would ensure enforcement, including a 'bus-only link' using a boom gate controlled by transponders or an in-road sensor that only buses would activate. He said he had seen plenty of cases where this had been done and compliance by other road users was very good. He cited an example in Butu Wargun Drive in Pemulwuy (Sydney) where this approach had been successful. He also noted that, without other cars queuing at the highway intersection, bus trip times would drop.

Will Belford asked whether a set of lights tripped by a bus-only sensor could be installed if the boom gate wasn't feasible for any reason.

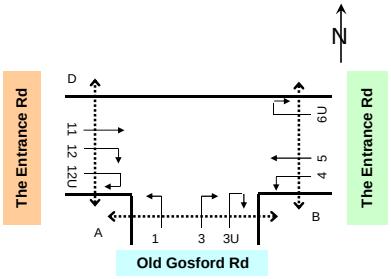
Craig Leckie said all these options could be considered, but that ultimately Old Gosford Road was a council road, so the council would have to make the decision.

Appendix C

Traffic Survey – Intersection Movement Surveys

Job No. : N693
Client : Cardno
Suburb : Wamberal
Location : 1. The Entrance Rd / Old Gosford Rd

Day/Date : Sat, 29th October 2011
Weather : Fine
Description : Classified Intersection Count
: Hourly Summary



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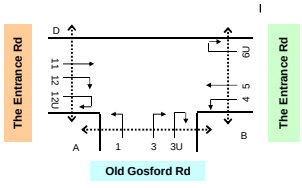
Approach	Old Gosford Rd									The Entrance Rd								
Direction	Direction 1 (Left Turn)			Direction 3 (Right Turn)			Direction 3U (U Turn)			Direction 4 (Left Turn)			Direction 5 (Through)			Direction 6U (U Turn)		
Time Period	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total
8:00 to 9:00	59	1	**60**	2	0	**2**	0	0	**0**	9	0	**9**	675	26	**701**	0	0	**0**
8:15 to 9:15	59	1	**60**	1	0	**1**	0	0	**0**	9	0	**9**	697	21	**718**	0	0	**0**
8:30 to 9:30	72	1	**73**	2	1	**3**	0	0	**0**	9	0	**9**	685	20	**705**	0	0	**0**
8:45 to 9:45	65	1	**66**	3	1	**4**	0	0	**0**	7	0	**7**	674	20	**694**	0	0	**0**
9:00 to 10:00	62	1	**63**	3	1	**4**	0	0	**0**	6	0	**6**	671	18	**689**	0	0	**0**
9:15 to 10:15	67	1	**68**	3	1	**4**	0	0	**0**	4	0	**4**	729	21	**750**	0	0	**0**
9:30 to 10:30	54	1	**55**	1	0	**1**	0	0	**0**	3	0	**3**	774	20	**794**	0	0	**0**
9:45 to 10:45	62	1	**63**	0	0	**0**	0	0	**0**	4	0	**4**	827	22	**849**	0	0	**0**
10:00 to 11:00	74	1	**75**	0	0	**0**	0	0	**0**	4	0	**4**	845	24	**869**	0	0	**0**
10:15 to 11:15	63	1	**64**	0	0	**0**	0	0	**0**	5	0	**5**	833	20	**853**	0	0	**0**
10:30 to 11:30	66	1	**67**	0	0	**0**	0	0	**0**	8	0	**8**	838	19	**857**	0	0	**0**
10:45 to 11:45	59	1	**60**	0	1	**1**	0	0	**0**	10	0	**10**	823	21	**844**	0	0	**0**
11:00 to 12:00	55	1	**56**	0	1	**1**	0	0	**0**	11	0	**11**	826	19	**845**	0	0	**0**
11:15 to 12:15	60	1	**61**	0	1	**1**	0	0	**0**	15	0	**15**	825	20	**845**	0	0	**0**
11:30 to 12:30	62	1	**63**	0	1	**1**	0	0	**0**	11	0	**11**	821	20	**841**	0	0	**0**
11:45 to 12:45	60	1	**61**	0	0	**0**	0	0	**0**	11	0	**11**	832	16	**848**	0	0	**0**
12:00 to 13:00	45	1	**46**	0	0	**0**	0	0	**0**	12	0	**12**	805	15	**820**	0	0	**0**
Totals	**295**	**5**	**300**	**5**	**2**	**7**	**0**	**0**	**0**	**42**	**0**	**42**	**3822**	**102**	**3924**	**0**	**0**	**0**

Approach	The Entrance Rd								
Direction	Direction 11 (Through)			Direction 12 (Right Turn)			Direction 12U (U Turn)		
Time Period	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total
8:00 to 9:00	318	25	**343**	19	1	**20**	0	0	**0**
8:15 to 9:15	347	17	**364**	19	1	**20**	0	0	**0**
8:30 to 9:30	395	17	**412**	23	1	**24**	0	0	**0**
8:45 to 9:45	423	16	**439**	22	1	**23**	0	0	**0**
9:00 to 10:00	433	19	**452**	20	1	**21**	0	0	**0**
9:15 to 10:15	502	21	**523**	28	1	**29**	1	0	**1**
9:30 to 10:30	530	24	**554**	31	1	**32**	1	0	**1**
9:45 to 10:45	585	23	**608**	38	1	**39**	1	0	**1**
10:00 to 11:00	601	15	**616**	45	1	**46**	1	0	**1**
10:15 to 11:15	629	18	**647**	52	1	**53**	0	0	**0**
10:30 to 11:30	643	17	**660**	49	2	**51**	0	0	**0**
10:45 to 11:45	711	15	**726**	46	2	**48**	1	0	**1**
11:00 to 12:00	799	18	**817**	41	2	**43**	1	0	**1**
11:15 to 12:15	854	16	**870**	33	2	**35**	1	0	**1**
11:30 to 12:30	870	14	**884**	34	1	**35**	1	0	**1**
11:45 to 12:45	838	22	**860**	37	1	**38**	0	0	**0**
12:00 to 13:00	811	22	**833**	42	1	**43**	0	0	**0**
Totals	**2962**	**99**	**3061**	**167**	**6**	**173**	**2**	**0**	**2**

Job No. : N693
Client : Cardno
Suburb : Wamberal
Location : 1. The Entrance Rd / Old Gosford Rd

Day/Date : Thu, 27th October 2011
Weather : Fine
Description : Classified Intersection Count
: Hourly Summary



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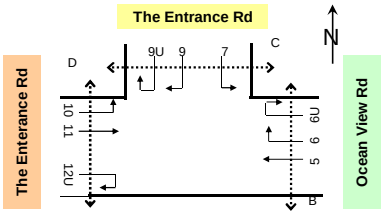
Approach	Old Gosford Rd									The Entrance Rd								
Direction	Direction 1 (Left Turn)			Direction 3 (Right Turn)			Direction 3U (U Turn)			Direction 4 (Left Turn)			Direction 5 (Through)			Direction 6U (U Turn)		
Time Period	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total
6:00 to 7:00	45	3	**48**	3	0	**3**	0	0	**0**	3	1	**4**	608	36	**644**	0	0	**0**
6:15 to 7:15	50	2	**52**	3	0	**3**	0	0	**0**	5	1	**6**	675	37	**712**	0	0	**0**
6:30 to 7:30	51	3	**54**	4	0	**4**	0	0	**0**	4	1	**5**	765	40	**805**	0	0	**0**
6:45 to 7:45	67	3	**70**	4	0	**4**	0	0	**0**	6	2	**8**	826	42	**868**	0	0	**0**
7:00 to 8:00	81	4	**85**	1	0	**1**	0	0	**0**	6	1	**7**	889	46	**935**	0	0	**0**
7:15 to 8:15	101	6	**107**	2	0	**2**	0	0	**0**	4	2	**6**	976	45	**1021**	0	0	**0**
7:30 to 8:30	129	5	**134**	1	0	**1**	0	0	**0**	6	3	**9**	964	51	**1015**	0	0	**0**
7:45 to 8:45	132	5	**137**	1	0	**1**	0	0	**0**	4	2	**6**	936	51	**987**	0	0	**0**
8:00 to 9:00	115	3	**118**	2	0	**2**	0	0	**0**	3	2	**5**	895	51	**946**	0	0	**0**
8:15 to 9:15	100	2	**102**	2	1	**3**	0	0	**0**	3	1	**4**	836	53	**889**	0	0	**0**
8:30 to 9:30	74	2	**76**	2	1	**3**	0	0	**0**	3	0	**3**	843	53	**896**	0	0	**0**
8:45 to 9:45	64	2	**66**	2	1	**3**	0	0	**0**	4	0	**4**	840	48	**888**	0	0	**0**
9:00 to 10:00	57	1	**58**	1	1	**2**	0	0	**0**	4	1	**5**	825	46	**871**	0	0	**0**
AM Totals	**298**	**11**	**309**	**7**	**1**	**8**	**0**	**0**	**0**	**16**	**5**	**21**	**3217**	**179**	**3396**	**0**	**0**	**0**
15:00 to 16:00	44	3	**47**	1	0	**1**	0	0	**0**	14	2	**16**	613	48	**661**	0	0	**0**
15:15 to 16:15	50	3	**53**	1	0	**1**	0	0	**0**	15	1	**16**	621	49	**670**	0	0	**0**
15:30 to 16:30	40	3	**43**	1	0	**1**	0	0	**0**	14	0	**14**	614	48	**662**	0	0	**0**
15:45 to 16:45	34	2	**36**	1	1	**2**	0	0	**0**	13	0	**13**	633	44	**677**	0	0	**0**
16:00 to 17:00	41	2	**43**	0	1	**1**	0	0	**0**	15	0	**15**	597	38	**635**	0	0	**0**
16:15 to 17:15	34	2	**36**	1	1	**2**	0	0	**0**	13	0	**13**	616	29	**645**	0	0	**0**
16:30 to 17:30	44	1	**45**	1	1	**2**	0	0	**0**	14	0	**14**	671	23	**694**	0	0	**0**
16:45 to 17:45	47	1	**48**	2	0	**2**	0	0	**0**	14	0	**14**	660	18	**678**	0	0	**0**
17:00 to 18:00	44	1	**45**	2	0	**2**	0	0	**0**	10	0	**10**	680	14	**694**	0	0	**0**
17:15 to 18:15	45	0	**45**	1	0	**1**	0	0	**0**	13	0	**13**	684	10	**694**	0	0	**0**
17:30 to 18:30	45	1	**46**	2	0	**2**	0	0	**0**	12	0	**12**	642	7	**649**	0	0	**0**
17:45 to 18:45	45	1	**46**	1	0	**1**	0	0	**0**	10	0	**10**	596	7	**603**	0	0	**0**
18:00 to 19:00	40	1	**41**	1	0	**1**	0	0	**0**	9	0	**9**	549	7	**556**	0	0	**0**
PM Totals	**169**	**7**	**176**	**4**	**1**	**5**	**0**	**0**	**0**	**48**	**2**	**50**	**2439**	**107**	**2546**	**0**	**0**	**0**

Approach	The Entrance Rd								
Direction	Direction 11 (Through)			Direction 12 (Right Turn)			Direction 12U (U Turn)		
Time Period	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total
6:00 to 7:00	230	29	**259**	8	0	**8**	0	0	**0**
6:15 to 7:15	281	34	**315**	11	1	**12**	0	0	**0**
6:30 to 7:30	328	47	**375**	15	2	**17**	0	0	**0**
6:45 to 7:45	369	45	**414**	18	2	**20**	0	0	**0**
7:00 to 8:00	396	50	**446**	17	3	**20**	0	0	**0**
7:15 to 8:15	419	51	**470**	19	2	**21**	0	0	**0**
7:30 to 8:30	467	46	**513**	20	1	**21**	0	0	**0**
7:45 to 8:45	503	46	**549**	24	2	**26**	0	0	**0**
8:00 to 9:00	527	52	**579**	32	1	**33**	0	0	**0**
8:15 to 9:15	546	63	**609**	28	1	**29**	0	0	**0**
8:30 to 9:30	529	60	**589**	29	1	**30**	0	0	**0**
8:45 to 9:45	481	52	**533**	26	2	**28**	0	0	**0**
9:00 to 10:00	445	41	**486**	21	2	**23**	0	0	**0**
AM Totals	**1598**	**172**	**1770**	**78**	**6**	**84**	**0**	**0**	**0**
15:00 to 16:00	905	55	**960**	46	6	**52**	2	0	**2**
15:15 to 16:15	952	66	**1018**	47	5	**52**	1	0	**1**
15:30 to 16:30	980	61	**1041**	42	5	**47**	1	0	**1**
15:45 to 16:45	960	57	**1017**	48	5	**53**	1	0	**1**
16:00 to 17:00	1005	53	**1058**	50	1	**51**	1	0	**1**
16:15 to 17:15	1018	44	**1062**	60	1	**61**	1	0	**1**
16:30 to 17:30	1059	40	**1099**	63	2	**65**	1	0	**1**
16:45 to 17:45	1086	35	**1121**	66	1	**67**	1	0	**1**
17:00 to 18:00	1035	24	**1059**	76	3	**79**	0	0	**0**
17:15 to 18:15	968	18	**986**	70	3	**73**	0	0	**0**
17:30 to 18:30	875	16	**891**	76	3	**79**	0	0	**0**
17:45 to 18:45	797	12	**809**	75	3	**78**	0	0	**0**
18:00 to 19:00	723	17	**740**	60	1	**61**	0	0	**0**
PM Totals	**3668**	**149**	**3817**	**232**	**11**	**243**	**3**	**0**	**3**

Job No. : N693
Client : Cardno
Suburb : Wamberal
Location : 2. The Entrance Rd / Ocean View Rd

Day/Date : Sat, 29th October 2011
Weather : Fine
Description : Classified Intersection Count
: Hourly Summary



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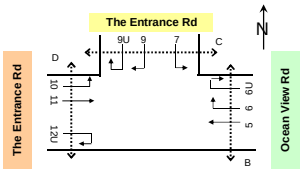
Approach		Ocean View Rd								
Direction		Direction 5 (Through)			Direction 6 (Right Turn)			Direction 6U (U Turn)		
Time Period		Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total
8:00	to 9:00	50	2	**52**	396	9	**405**	0	0	**0**
8:15	to 9:15	53	2	**55**	435	10	**445**	0	0	**0**
8:30	to 9:30	49	2	**51**	429	10	**439**	0	0	**0**
8:45	to 9:45	62	0	**62**	436	12	**448**	0	0	**0**
9:00	to 10:00	67	0	**67**	421	13	**434**	0	0	**0**
9:15	to 10:15	71	0	**71**	425	17	**442**	0	0	**0**
9:30	to 10:30	79	0	**79**	453	19	**472**	1	0	**1**
9:45	to 10:45	76	1	**77**	467	14	**481**	1	0	**1**
10:00	to 11:00	72	1	**73**	482	13	**495**	1	0	**1**
10:15	to 11:15	75	1	**76**	495	11	**506**	1	0	**1**
10:30	to 11:30	71	1	**72**	508	8	**516**	0	0	**0**
10:45	to 11:45	74	0	**74**	504	7	**511**	0	0	**0**
11:00	to 12:00	84	1	**85**	518	6	**524**	0	0	**0**
11:15	to 12:15	77	1	**78**	493	6	**499**	0	0	**0**
11:30	to 12:30	85	1	**86**	491	11	**502**	0	0	**0**
11:45	to 12:45	96	1	**97**	482	15	**497**	0	0	**0**
12:00	to 13:00	92	2	**94**	455	15	**470**	0	0	**0**
Totals		**365**	**6**	**371**	**2272**	**56**	**2328**	**1**	**0**	**1**

Approach		The Entrance Rd									The Enterance Rd								
Direction		Direction 7 (Left Turn)			Direction 9 (Right Turn)			Direction 9U (U Turn)			Direction 10 (Left Turn)			Direction 11 (Through)			Direction 12U (U Turn)		
Time Period		Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total
8:00	to 9:00	343	18	**361**	680	20	**700**	7	1	**8**	331	17	**348**	24	0	**24**	9	3	**12**
8:15	to 9:15	352	18	**370**	683	15	**698**	6	1	**7**	352	14	**366**	32	0	**32**	12	4	**16**
8:30	to 9:30	353	17	**370**	671	16	**687**	10	1	**11**	399	12	**411**	37	0	**37**	15	4	**19**
8:45	to 9:45	339	13	**352**	625	16	**641**	9	0	**9**	420	11	**431**	46	0	**46**	19	5	**24**
9:00	to 10:00	360	14	**374**	631	12	**643**	12	0	**12**	424	11	**435**	52	0	**52**	21	4	**25**
9:15	to 10:15	363	10	**373**	709	15	**724**	12	0	**12**	482	13	**495**	59	1	**60**	19	4	**23**
9:30	to 10:30	394	10	**404**	744	13	**757**	11	0	**11**	493	13	**506**	65	1	**66**	18	5	**23**
9:45	to 10:45	423	11	**434**	799	12	**811**	12	0	**12**	549	14	**563**	65	1	**66**	17	5	**22**
10:00	to 11:00	415	8	**423**	818	18	**836**	10	0	**10**	577	11	**588**	63	1	**64**	15	4	**19**
10:15	to 11:15	441	8	**449**	794	15	**809**	10	0	**10**	611	12	**623**	58	0	**58**	16	4	**20**
10:30	to 11:30	438	7	**445**	804	15	**819**	12	0	**12**	657	13	**670**	49	0	**49**	19	2	**21**
10:45	to 11:45	451	6	**457**	830	16	**846**	13	0	**13**	722	10	**732**	52	0	**52**	20	2	**22**
11:00	to 12:00	474	7	**481**	816	12	**828**	14	0	**14**	806	12	**818**	61	1	**62**	23	2	**25**
11:15	to 12:15	487	6	**493**	816	13	**829**	14	0	**14**	835	14	**849**	70	1	**71**	27	1	**28**
11:30	to 12:30	477	9	**486**	824	12	**836**	12	0	**12**	844	15	**859**	84	1	**85**	28	1	**29**
11:45	to 12:45	456	9	**465**	778	10	**788**	17	0	**17**	829	22	**851**	88	1	**89**	28	1	**29**
12:00	to 13:00	420	8	**428**	796	7	**803**	15	0	**15**	803	23	**826**	78	0	**78**	27	1	**28**
Totals		**2012**	**55**	**2067**	**3741**	**69**	**3810**	**58**	**1**	**59**	**2941**	**74**	**3015**	**278**	**2**	**280**	**95**	**14**	**109**

Job No. : N693
Client : Cardno
Suburb : Wamberal
Location : 2. The Entrance Rd / Ocean View Rd

Day/Date : Thu, 27th October 2011
Weather : Fine
Description : Classified Intersection Count
: Hourly Summary



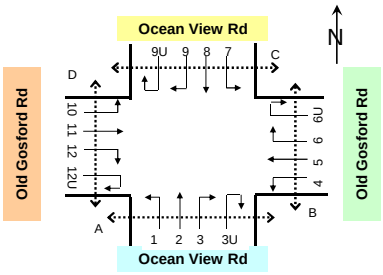
SKYHIGH - THE TRAFFIC SURVEY COMPANY

Approach	Ocean View Rd								
Direction	Direction 5 (Through)			Direction 6 (Right Turn)			Direction 6U (U Turn)		
Time Period	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total
6:00 to 7:00	45	2	**47**	385	12	**397**	0	0	**0**
6:15 to 7:15	53	3	**56**	445	14	**459**	0	0	**0**
6:30 to 7:30	53	3	**56**	505	18	**523**	0	0	**0**
6:45 to 7:45	52	2	**54**	565	19	**584**	0	0	**0**
7:00 to 8:00	47	1	**48**	585	20	**605**	1	0	**1**
7:15 to 8:15	44	1	**45**	628	23	**651**	1	0	**1**
7:30 to 8:30	42	1	**43**	658	24	**682**	1	0	**1**
7:45 to 8:45	49	2	**51**	651	27	**678**	1	0	**1**
8:00 to 9:00	50	3	**53**	651	26	**677**	0	0	**0**
8:15 to 9:15	56	2	**58**	628	23	**651**	0	0	**0**
8:30 to 9:30	59	2	**61**	557	18	**575**	0	0	**0**
8:45 to 9:45	60	1	**61**	497	19	**516**	0	0	**0**
9:00 to 10:00	60	0	**60**	436	25	**461**	0	0	**0**
AM Totals	**202**	**6**	**208**	**2057**	**83**	**2140**	**1**	**0**	**1**
15:00 to 16:00	45	1	**46**	615	23	**638**	1	1	**2**
15:15 to 16:15	55	1	**56**	631	28	**659**	1	1	**2**
15:30 to 16:30	56	0	**56**	596	25	**621**	0	0	**0**
15:45 to 16:45	51	0	**51**	579	23	**602**	0	0	**0**
16:00 to 17:00	60	0	**60**	553	16	**569**	0	0	**0**
16:15 to 17:15	56	0	**56**	519	11	**530**	0	0	**0**
16:30 to 17:30	52	0	**52**	494	14	**508**	0	0	**0**
16:45 to 17:45	60	0	**60**	515	13	**528**	0	0	**0**
17:00 to 18:00	53	0	**53**	481	15	**496**	0	0	**0**
17:15 to 18:15	52	0	**52**	452	14	**466**	0	0	**0**
17:30 to 18:30	57	0	**57**	435	10	**445**	0	0	**0**
17:45 to 18:45	51	0	**51**	391	7	**398**	0	0	**0**
18:00 to 19:00	47	0	**47**	391	4	**395**	0	0	**0**
PM Totals	**205**	**1**	**206**	**2040**	**58**	**2098**	**1**	**1**	**2**

Approach	The Entrance Rd									The Entrance Rd								
Direction	Direction 7 (Left Turn)			Direction 9 (Right Turn)			Direction 9U (U Turn)			Direction 10 (Left Turn)			Direction 11 (Through)			Direction 12U (U Turn)		
Time Period	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total
6:00 to 7:00	273	21	**294**	571	39	**610**	5	0	**5**	256	25	**281**	11	1	**12**	7	1	**8**
6:15 to 7:15	324	29	**353**	643	41	**684**	8	0	**8**	302	30	**332**	17	1	**18**	7	1	**8**
6:30 to 7:30	377	29	**406**	725	42	**767**	11	0	**11**	362	42	**404**	17	0	**17**	8	1	**9**
6:45 to 7:45	407	28	**435**	801	44	**845**	11	0	**11**	398	42	**440**	22	0	**22**	9	0	**9**
7:00 to 8:00	461	29	**490**	885	42	**927**	13	0	**13**	417	40	**457**	22	0	**22**	17	5	**22**
7:15 to 8:15	511	24	**535**	959	44	**1003**	13	0	**13**	460	40	**500**	20	1	**21**	23	9	**32**
7:30 to 8:30	516	29	**545**	972	46	**1018**	10	0	**10**	484	35	**519**	21	1	**22**	26	11	**37**
7:45 to 8:45	517	30	**547**	930	46	**976**	9	0	**9**	508	109	**617**	29	1	**30**	29	13	**42**
8:00 to 9:00	472	24	**496**	883	39	**922**	7	0	**7**	540	120	**660**	29	1	**30**	25	12	**37**
8:15 to 9:15	419	23	**442**	849	31	**880**	6	0	**6**	534	124	**658**	31	0	**31**	21	14	**35**
8:30 to 9:30	401	18	**419**	853	31	**884**	7	0	**7**	531	119	**650**	31	0	**31**	21	16	**37**
8:45 to 9:45	352	14	**366**	840	26	**866**	7	0	**7**	493	37	**530**	19	0	**19**	23	14	**37**
9:00 to 10:00	346	18	**364**	841	31	**872**	7	0	**7**	455	25	**480**	23	1	**24**	20	11	**31**
AM Totals	**1552**	**92**	**1644**	**3180**	**151**	**3331**	**32**	**0**	**32**	**1668**	**210**	**1878**	**85**	**3**	**88**	**69**	**29**	**98**
15:00 to 16:00	532	19	**551**	624	25	**649**	11	0	**11**	906	39	**945**	53	1	**54**	32	10	**42**
15:15 to 16:15	521	15	**536**	619	27	**646**	10	0	**10**	945	47	**992**	57	1	**58**	36	11	**47**
15:30 to 16:30	527	9	**536**	619	25	**644**	12	0	**12**	966	47	**1013**	56	0	**56**	41	10	**51**
15:45 to 16:45	555	8	**563**	625	23	**648**	9	0	**9**	925	44	**969**	58	0	**58**	37	10	**47**
16:00 to 17:00	530	5	**535**	600	21	**621**	8	0	**8**	963	43	**1006**	64	0	**64**	34	8	**42**
16:15 to 17:15	551	6	**557**	636	15	**651**	9	0	**9**	982	37	**1019**	65	0	**65**	28	7	**35**
16:30 to 17:30	560	4	**564**	675	14	**689**	10	0	**10**	1040	30	**1070**	64	0	**64**	22	6	**28**
16:45 to 17:45	536	4	**540**	688	13	**701**	13	0	**13**	1082	28	**1110**	58	0	**58**	22	3	**25**
17:00 to 18:00	538	4	**542**	711	13	**724**	17	0	**17**	1039	18	**1057**	57	0	**57**	22	3	**25**
17:15 to 18:15	524	5	**529**	715	11	**726**	22	0	**22**	964	15	**979**	52	0	**52**	24	0	**24**
17:30 to 18:30	500	6	**506**	687	8	**695**	21	0	**21**	890	15	**905**	51	0	**51**	25	0	**25**
17:45 to 18:45	450	7	**457**	629	9	**638**	19	0	**19**	801	10	**811**	54	0	**54**	24	0	**24**
18:00 to 19:00	422	8	**430**	571	6	**577**	16	0	**16**	728	13	**741**	50	0	**50**	25	0	**25**
PM Totals	**2022**	**36**	**2058**	**2506**	**65**	**2571**	**52**	**0**	**52**	**3636**	**113**	**3749**	**224**	**1**	**225**	**113**	**21**	**134**

Job No. : N693
Client : Cardno
Suburb : Wamberal
Location : 3. Ocean View Rd / Old Gosford Rd

Day/Date : Sat, 29th October 2011
Weather : Fine
Description : Classified Intersection Count
: Hourly Summary



SKYHIGH - THE TRAFFIC SURVEY COMPANY

Approach	Ocean View Rd												Old Gosford Rd											
Direction	Direction 1 (Left Turn)			Direction 2 (Through)			Direction 3 (Right Turn)			Direction 3U (U Turn)			Direction 4 (Left Turn)			Direction 5 (Through)			Direction 6 (Right Turn)			Direction 6U (U Turn)		
Time Period	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total
8:00 to 9:00	24	0	**24**	441	10	**451**	6	1	**7**	0	0	**0**	2	1	**3**	1	0	**1**	4	0	**4**	0	0	**0**
8:15 to 9:15	29	0	**29**	488	11	**499**	5	1	**6**	0	0	**0**	2	2	**4**	2	0	**2**	6	0	**6**	0	0	**0**
8:30 to 9:30	27	1	**28**	492	11	**503**	8	3	**11**	0	0	**0**	4	2	**6**	3	0	**3**	8	0	**8**	0	0	**0**
8:45 to 9:45	32	1	**33**	506	10	**516**	6	3	**9**	0	0	**0**	3	2	**5**	4	0	**4**	9	0	**9**	0	0	**0**
9:00 to 10:00	29	1	**30**	504	12	**516**	5	2	**7**	0	0	**0**	4	1	**5**	3	0	**3**	10	0	**10**	0	0	**0**
9:15 to 10:15	31	1	**32**	500	15	**515**	5	2	**7**	0	0	**0**	5	0	**5**	2	0	**2**	11	0	**11**	0	0	**0**
9:30 to 10:30	35	1	**36**	554	18	**572**	5	0	**5**	0	0	**0**	9	0	**9**	2	0	**2**	12	0	**12**	0	0	**0**
9:45 to 10:45	33	1	**34**	581	13	**594**	8	0	**8**	0	0	**0**	13	1	**14**	1	0	**1**	10	1	**11**	0	0	**0**
10:00 to 11:00	40	1	**41**	580	11	**591**	7	0	**7**	0	0	**0**	13	1	**14**	1	0	**1**	11	1	**12**	0	0	**0**
10:15 to 11:15	44	1	**45**	610	10	**620**	17	0	**17**	1	0	**1**	15	1	**16**	3	0	**3**	10	1	**11**	0	0	**0**
10:30 to 11:30	44	0	**44**	597	6	**603**	18	0	**18**	1	0	**1**	11	1	**12**	3	0	**3**	11	1	**12**	0	0	**0**
10:45 to 11:45	41	0	**41**	588	6	**594**	17	0	**17**	2	0	**2**	7	0	**7**	3	0	**3**	19	0	**19**	0	0	**0**
11:00 to 12:00	36	0	**36**	615	6	**621**	21	0	**21**	3	0	**3**	9	0	**9**	3	0	**3**	16	0	**16**	0	0	**0**
11:15 to 12:15	37	0	**37**	581	6	**587**	11	0	**11**	2	0	**2**	7	0	**7**	3	0	**3**	15	0	**15**	0	0	**0**
11:30 to 12:30	34	0	**34**	594	10	**604**	9	0	**9**	2	0	**2**	9	0	**9**	4	0	**4**	12	0	**12**	0	0	**0**
11:45 to 12:45	30	0	**30**	587	13	**600**	11	0	**11**	1	0	**1**	14	0	**14**	4	0	**4**	6	0	**6**	0	0	**0**
12:00 to 13:00	29	0	**29**	570	14	**584**	7	0	**7**	0	0	**0**	13	0	**13**	4	0	**4**	8	0	**8**	0	0	**0**
Totals	**158**	**2**	**160**	**2710**	**53**	**2763**	**46**	**3**	**49**	**3**	**0**	**3**	**41**	**3**	**44**	**12**	**0**	**12**	**49**	**1**	**50**	**0**	**0**	**0**

Approach	Ocean View Rd												Old Gosford Rd											
Direction	Direction 7 (Left Turn)			Direction 8 (Through)			Direction 9 (Right Turn)			Direction 9U (U Turn)			Direction 10 (Left Turn)			Direction 11 (Through)			Direction 12 (Right Turn)			Direction 12U (U Turn)		
Time Period	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total
8:00 to 9:00	7	0	**7**	423	11	**434**	12	2	**14**	0	0	**0**	20	2	**22**	2	0	**2**	36	0	**36**	0	0	**0**
8:15 to 9:15	9	1	**10**	433	15	**448**	13	2	**15**	0	0	**0**	25	2	**27**	2	0	**2**	33	0	**33**	0	0	**0**
8:30 to 9:30	12	1	**13**	435	16	**451**	11	2	**13**	0	0	**0**	22	2	**24**	3	0	**3**	25	0	**25**	0	0	**0**
8:45 to 9:45	14	1	**15**	448	13	**461**	17	2	**19**	0	0	**0**	28	2	**30**	4	0	**4**	23	0	**23**	0	0	**0**
9:00 to 10:00	13	1	**14**	447	11	**458**	17	1	**18**	0	0	**0**	31	1	**32**	4	0	**4**	27	0	**27**	0	0	**0**
9:15 to 10:15	17	0	**17**	457	9	**466**	21	1	**22**	0	0	**0**	31	1	**32**	6	0	**6**	32	0	**32**	0	0	**0**
9:30 to 10:30	20	0	**20**	494	8	**502**	25	1	**26**	0	0	**0**	32	1	**33**	7	0	**7**	40	0	**40**	0	0	**0**
9:45 to 10:45	19	0	**19**	512	7	**519**	23	2	**25**	0	0	**0**	28	1	**29**	6	0	**6**	42	0	**42**	0	0	**0**
10:00 to 11:00	19	0	**19**	523	4	**527**	28	2	**30**	0	0	**0**	32	1	**33**	5	0	**5**	46	0	**46**	0	0	**0**
10:15 to 11:15	17	0	**17**	539	3	**542**	26	2	**28**	0	0	**0**	33	1	**34**	4	0	**4**	45	0	**45**	0	0	**0**
10:30 to 11:30	12	0	**12**	531	2	**533**	23	2	**25**	0	0	**0**	37	1	**38**	3	0	**3**	43	0	**43**	0	0	**0**
10:45 to 11:45	11	0	**11**	549	3	**552**	22	1	**23**	1	0	**1**	41	1	**42**	2	0	**2**	44	0	**44**	0	0	**0**
11:00 to 12:00	11	0	**11**	574	6	**580**	18	1	**19**	1	0	**1**	40	1	**41**	3	0	**3**	34	0	**34**	0	0	**0**
11:15 to 12:15	10	0	**10**	595	6	**601**	19	1	**20**	1	0	**1**	40	1	**41**	2	0	**2**	33	0	**33**	0	0	**0**
11:30 to 12:30	10	0	**10**	606	6	**612**	20	2	**22**	1	0	**1**	38	1	**39**	1	0	**1**	34	0	**34**	0	0	**0**
11:45 to 12:45	12	0	**12**	578	5	**583**	19	3	**22**	0	0	**0**	37	2	**39**	2	0	**2**	31	0	**31**	0	0	**0**
12:00 to 13:00	12	0	**12**	547	6	**553**	24	2	**26**	0	0	**0**	36	2	**38**	3	0	**3**	34	0	**34**	0	0	**0**
Totals	**62**	**1**	**63**	**2514**	**38**	**2552**	**99**	**8**	**107**	**1**	**0**	**1**	**159**	**7**	**166**	**17**	**0**	**17**	**177**	**0**	**177**	**0**	**0**	**0**

Job No. : N693
Client : Cardno
Suburb : Wamberal
Location : 3. Ocean View Rd / Old Gosford Rd

Day/Date : Thu, 27th October 2011
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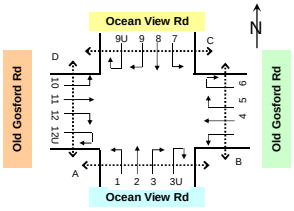
Description : Classified Intersection Count
: Hourly Summary



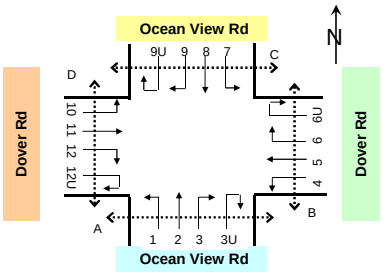
SKYHIGH - THE TRAFFIC SURVEY COMPANY

Approach	Ocean View Rd												Old Gosford Rd											
Direction	Direction 1 (Left Turn)			Direction 2 (Through)			Direction 3 (Right Turn)			Direction 3U (U Turn)			Direction 4 (Left Turn)			Direction 5 (Through)			Direction 6 (Right Turn)			Direction 6U (U Turn)		
Time Period	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total
6:00 to 7:00	9	1	**10**	415	15	**430**	2	0	**2**	0	0	**0**	1	0	**1**	1	0	**1**	3	0	**3**	0	0	**0**
6:15 to 7:15	9	1	**10**	482	18	**500**	4	0	**4**	0	0	**0**	2	0	**2**	2	0	**2**	4	0	**4**	0	0	**0**
6:30 to 7:30	9	1	**10**	538	21	**559**	5	0	**5**	0	0	**0**	1	0	**1**	1	0	**1**	5	0	**5**	0	0	**0**
6:45 to 7:45	15	1	**16**	587	20	**607**	5	0	**5**	0	0	**0**	1	0	**1**	1	0	**1**	5	0	**5**	0	0	**0**
7:00 to 8:00	16	0	**16**	630	20	**650**	5	0	**5**	0	0	**0**	3	0	**3**	3	0	**3**	4	0	**4**	0	0	**0**
7:15 to 8:15	27	0	**27**	682	19	**701**	3	0	**3**	0	0	**0**	2	1	**3**	2	0	**2**	3	0	**3**	0	0	**0**
7:30 to 8:30	37	0	**37**	713	23	**736**	3	0	**3**	0	0	**0**	3	1	**4**	3	0	**3**	2	0	**2**	0	0	**0**
7:45 to 8:45	38	0	**38**	730	26	**756**	2	0	**2**	0	0	**0**	4	1	**5**	4	0	**4**	0	0	**0**	0	0	**0**
8:00 to 9:00	37	0	**37**	723	25	**748**	3	0	**3**	2	0	**2**	2	1	**3**	2	0	**2**	1	0	**1**	0	0	**0**
8:15 to 9:15	32	0	**32**	683	21	**704**	5	0	**5**	2	0	**2**	2	0	**2**	2	0	**2**	2	1	**3**	0	0	**0**
8:30 to 9:30	25	0	**25**	606	15	**621**	4	0	**4**	2	0	**2**	2	0	**2**	2	0	**2**	3	1	**4**	0	0	**0**
8:45 to 9:45	21	0	**21**	544	15	**559**	6	0	**6**	2	0	**2**	1	0	**1**	1	0	**1**	3	1	**4**	0	0	**0**
9:00 to 10:00	16	1	**17**	470	20	**490**	5	0	**5**	0	0	**0**	4	0	**4**	4	0	**4**	2	1	**3**	0	0	**0**
AM Totals	**78**	**2**	**80**	**2238**	**80**	**2318**	**15**	**0**	**15**	**2**	**0**	**2**	**10**	**1**	**11**	**10**	**0**	**10**	**10**	**1**	**11**	**0**	**0**	**0**
15:00 to 16:00	33	1	**34**	682	21	**703**	4	0	**4**	1	0	**1**	0	0	**0**	0	0	**0**	2	0	**2**	0	0	**0**
15:15 to 16:15	37	1	**38**	690	24	**714**	3	0	**3**	1	0	**1**	1	0	**1**	1	0	**1**	4	0	**4**	0	0	**0**
15:30 to 16:30	36	1	**37**	678	22	**700**	2	0	**2**	1	0	**1**	1	0	**1**	1	0	**1**	4	0	**4**	0	0	**0**
15:45 to 16:45	31	0	**31**	645	20	**665**	3	0	**3**	0	0	**0**	1	0	**1**	1	0	**1**	4	0	**4**	0	0	**0**
16:00 to 17:00	32	0	**32**	624	17	**641**	4	0	**4**	0	0	**0**	2	0	**2**	2	0	**2**	4	0	**4**	0	0	**0**
16:15 to 17:15	27	1	**28**	590	12	**602**	8	0	**8**	1	0	**1**	1	0	**1**	1	0	**1**	4	0	**4**	0	0	**0**
16:30 to 17:30	32	1	**33**	558	14	**572**	9	0	**9**	1	0	**1**	2	0	**2**	2	0	**2**	7	0	**7**	0	0	**0**
16:45 to 17:45	34	1	**35**	580	14	**594**	9	0	**9**	1	0	**1**	2	0	**2**	2	0	**2**	8	0	**8**	0	0	**0**
17:00 to 18:00	33	1	**34**	552	14	**566**	9	0	**9**	1	0	**1**	1	0	**1**	1	0	**1**	9	0	**9**	0	0	**0**
17:15 to 18:15	31	0	**31**	523	13	**536**	7	0	**7**	2	0	**2**	1	0	**1**	1	0	**1**	8	0	**8**	0	0	**0**
17:30 to 18:30	31	0	**31**	514	8	**522**	5	0	**5**	2	0	**2**	0	0	**0**	0	0	**0**	6	0	**6**	0	0	**0**
17:45 to 18:45	35	0	**35**	462	5	**467**	5	0	**5**	2	0	**2**	0	0	**0**	0	0	**0**	7	0	**7**	0	0	**0**
18:00 to 19:00	35	0	**35**	455	2	**457**	4	0	**4**	3	0	**3**	0	0	**0**	0	0	**0**	6	0	**6**	0	0	**0**
PM Totals	**133**	**2**	**135**	**2313**	**54**	**2367**	**21**	**0**	**21**	**5**	**0**	**5**	**3**	**0**	**3**	**3**	**0**	**3**	**21**	**0**	**21**	**0**	**0**	**0**

Approach	Ocean View Rd												Old Gosford Rd											
Direction	Direction 7 (Left Turn)			Direction 8 (Through)			Direction 9 (Right Turn)			Direction 9U (U Turn)			Direction 10 (Left Turn)			Direction 11 (Through)			Direction 12 (Right Turn)			Direction 12U (U Turn)		
Time Period	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total
6:00 to 7:00	5	0	**5**	321	20	**341**	8	0	**8**	0	0	**0**	12	0	**12**	0	0	**0**	12	0	**12**	0	0	**0**
6:15 to 7:15	8	0	**8**	381	27	**408**	9	1	**10**	0	0	**0**	19	0	**19**	0	0	**0**	11	0	**11**	0	0	**0**
6:30 to 7:30	8	0	**8**	436	25	**461**	11	1	**12**	0	0	**0**	18	1	**19**	0	0	**0**	10	0	**10**	0	0	**0**
6:45 to 7:45	7	0	**7**	469	27	**496**	13	1	**14**	0	0	**0**	21	2	**23**	1	0	**1**	10	0	**10**	0	0	**0**
7:00 to 8:00	4	0	**4**	541	28	**569**	11	5	**16**	0	0	**0**	22	2	**24**	1	1	**2**	14	0	**14**	0	0	**0**
7:15 to 8:15	1	0	**1**	605	24	**629**	18	6	**24**	0	0	**0**	20	3	**23**	1	1	**2**	16	0	**16**	0	0	**0**
7:30 to 8:30	2	0	**2**	619	29	**648**	32	7	**39**	0	0	**0**	27	3	**30**	1	1	**2**	19	0	**19**	0	0	**0**
7:45 to 8:45	2	1	**3**	629	27	**656**	35	10	**45**	0	0	**0**	29	4	**33**	1	1	**2**	23	0	**23**	0	0	**0**
8:00 to 9:00	1	1	**2**	584	24	**608**	33	6	**39**	0	0	**0**	37	5	**42**	1	0	**1**	21	0	**21**	0	0	**0**
8:15 to 9:15	1	1	**2**	521	23	**544**	29	5	**34**	0	0	**0**	39	5	**44**	1	0	**1**	24	0	**24**	0	0	**0**
8:30 to 9:30	1	1	**2**	490	18	**508**	17	4	**21**	0	0	**0**	37	4	**41**	1	0	**1**	26	0	**26**	0	0	**0**
8:45 to 9:45	1	0	**1**	428	14	**442**	14	1	**15**	0	0	**0**	35	3	**38**	0	0	**0**	24	0	**24**	0	0	**0**
9:00 to 10:00	1	0	**1**	408	18	**426**	18	2	**20**	0	0	**0**	31	3	**34**	0	0	**0**	27	0	**27**	0	0	**0**
AM Totals	**11**	**1**	**12**	**1854**	**90**	**1944**	**70**	**13**	**83**	**0**	**0**	**0**	**102**	**10**	**112**	**2**	**1**	**3**	**74**	**0**	**74**	**0**	**0**	**0**
15:00 to 16:00	4	0	**4**	594	18	**612**	24	4	**28**	0	0	**0**	39	8	**47**	0	0	**0**	26	0	**26**	0	0	**0**
15:15 to 16:15	4	0	**4**	582	16	**598**	27	3	**30**	0	0	**0**	35	8	**43**	0	0	**0**	24	0	**24**	0	0	**0**
15:30 to 16:30	5	0	**5**	591	8	**599**	28	1	**29**	0	0	**0**	43	6	**49**	1	0	**1**	25	0	**25**	0	0	**0**
15:45 to 16:45	5	0	**5**	624	7	**631**	30	1	**31**	1	0	**1**	43	5	**48**	1	0	**1**	28	0	**28**	0	0	**0**
16:00 to 17:00	6	0	**6**	603	5	**608**	29	0	**29**	1	0	**1**	40	1	**41**	1	0	**1**	29	0	**29**	0	0	**0**
16:15 to 17:15	6	0	**6**	623	6	**629**	25	1	**26**	1	0	**1**	44	1	**45**	2	0	**2**	29	0	**29**	0	0	**0**
16:30 to 17:30	6	0	**6**	608	4	**612**	31	1	**32**	1	0	**1**	44	1	**45**	1	0	**1**	29	0	**29**	0	0	**0**
16:45 to 17:45	6	0	**6**	586	4	**590**	26	1	**27**	0	0	**0**	39	0	**39**	1	0	**1**	29	0	**29**	0	0	**0**
17:00 to 18:00	5	0	**5**	586	4	**590**	28	1	**29**	0	0	**0**	36	1	**37**	1	0	**1**	31	0	**31**	0	0	**0**
17:15 to 18:15	4	0	**4**	564	3	**567**	33	0	**33**	0	0	**0**	36	1	**37**	0	0	**0**	31	0	**31**	0	0	**0**
17:30 to 18:30	7	0	**7**	550	3	**553**	28	1	**29**	0	0	**0**	30	2	**32**	1	0	**1**	32	0	**32**	0	0	**0**
17:45 to 18:45	8	0	**8**	495	4	**499**	32	1	**33**	0	0	**0**	34	2	**36**	2	0	**2**	33	0	**33**	0	0	**0**
18:00 to 19:00	7	0	**7**	470	5	**475**	30	1	**31**	0	0	**0**	31	1	**32**	2	0	**2**	31	0	**31**	0	0	**0**
PM Totals	**22**	**0**	**22**	**2253**	**32**	**2285**	**111**	**6**	**117**	**1**	**0**	**1**	**146**	**11**	**157**	**4**	**0**	**4**	**117**	**0**	**117**	**0**	**0**	**0**

Job No. : N693
Client : Cardno
Suburb : Wamberal
Location : 4. Dover Rd / Ocean View Rd

Day/Date : Sat, 29th October 2011
Weather : Fine
Description : Classified Intersection Count
: Hourly Summary



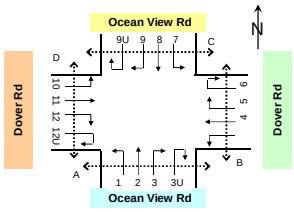
SKYHIGH - THE TRAFFIC SURVEY COMPANY

Approach	Ocean View Rd												Dover Rd											
Direction	Direction 1 (Left Turn)			Direction 2 (Through)			Direction 3 (Right Turn)			Direction 3U (U Turn)			Direction 4 (Left Turn)			Direction 5 (Through)			Direction 6 (Right Turn)			Direction 6U (U Turn)		
Time Period	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total
8:00 to 9:00	8	4	**12**	412	10	**422**	36	0	**36**	0	0	**0**	25	0	**25**	4	0	**4**	15	1	**16**	0	0	**0**
8:15 to 9:15	10	3	**13**	453	11	**464**	36	0	**36**	0	0	**0**	27	0	**27**	4	0	**4**	15	0	**15**	0	0	**0**
8:30 to 9:30	12	4	**16**	473	13	**486**	38	0	**38**	0	0	**0**	27	0	**27**	3	0	**3**	13	0	**13**	0	0	**0**
8:45 to 9:45	16	1	**17**	492	14	**506**	43	0	**43**	0	0	**0**	28	0	**28**	3	0	**3**	14	0	**14**	0	0	**0**
9:00 to 10:00	20	2	**22**	503	15	**518**	46	0	**46**	0	0	**0**	31	0	**31**	3	0	**3**	9	0	**9**	0	0	**0**
9:15 to 10:15	25	2	**27**	506	19	**525**	51	0	**51**	0	0	**0**	29	0	**29**	4	0	**4**	11	0	**11**	0	0	**0**
9:30 to 10:30	27	1	**28**	546	19	**565**	56	0	**56**	0	0	**0**	30	0	**30**	3	0	**3**	10	0	**10**	0	0	**0**
9:45 to 10:45	24	1	**25**	559	14	**573**	55	0	**55**	0	0	**0**	27	0	**27**	2	0	**2**	15	0	**15**	0	0	**0**
10:00 to 11:00	21	0	**21**	571	13	**584**	51	0	**51**	1	0	**1**	20	0	**20**	2	0	**2**	19	0	**19**	0	0	**0**
10:15 to 11:15	17	0	**17**	606	9	**615**	51	0	**51**	1	0	**1**	22	0	**22**	1	1	**2**	19	0	**19**	0	0	**0**
10:30 to 11:30	13	1	**14**	598	6	**604**	43	0	**43**	1	0	**1**	31	0	**31**	3	1	**4**	22	0	**22**	0	0	**0**
10:45 to 11:45	16	1	**17**	606	5	**611**	39	0	**39**	1	0	**1**	31	0	**31**	3	1	**4**	17	0	**17**	0	0	**0**
11:00 to 12:00	20	2	**22**	623	4	**627**	32	0	**32**	1	0	**1**	33	0	**33**	3	1	**4**	14	0	**14**	0	0	**0**
11:15 to 12:15	19	2	**21**	584	6	**590**	27	0	**27**	1	0	**1**	33	0	**33**	3	0	**3**	19	0	**19**	0	0	**0**
11:30 to 12:30	20	2	**22**	580	11	**591**	28	0	**28**	1	0	**1**	24	0	**24**	2	0	**2**	15	0	**15**	0	0	**0**
11:45 to 12:45	20	2	**22**	582	14	**596**	29	0	**29**	2	0	**2**	27	0	**27**	5	0	**5**	12	0	**12**	0	0	**0**
12:00 to 13:00	18	1	**19**	555	16	**571**	32	0	**32**	2	0	**2**	27	0	**27**	4	0	**4**	11	0	**11**	0	0	**0**
Totals	**87**	**9**	**96**	**2664**	**58**	**2722**	**197**	**0**	**197**	**4**	**0**	**4**	**136**	**0**	**136**	**16**	**1**	**17**	**68**	**1**	**69**	**0**	**0**	**0**

Approach	Ocean View Rd												Dover Rd											
Direction	Direction 7 (Left Turn)			Direction 8 (Through)			Direction 9 (Right Turn)			Direction 9U (U Turn)			Direction 10 (Left Turn)			Direction 11 (Through)			Direction 12 (Right Turn)			Direction 12U (U Turn)		
Time Period	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total
8:00 to 9:00	22	0	**22**	412	16	**428**	8	0	**8**	0	0	**0**	14	2	**16**	12	0	**12**	14	0	**14**	0	0	**0**
8:15 to 9:15	21	0	**21**	426	18	**444**	10	0	**10**	0	0	**0**	18	2	**20**	13	0	**13**	19	0	**19**	0	0	**0**
8:30 to 9:30	16	0	**16**	432	18	**450**	12	0	**12**	0	0	**0**	18	4	**22**	11	0	**11**	17	0	**17**	0	0	**0**
8:45 to 9:45	22	0	**22**	424	15	**439**	9	0	**9**	0	0	**0**	19	4	**23**	10	0	**10**	19	0	**19**	0	0	**0**
9:00 to 10:00	29	0	**29**	439	12	**451**	7	0	**7**	0	0	**0**	17	3	**20**	6	0	**6**	19	0	**19**	0	0	**0**
9:15 to 10:15	28	0	**28**	448	9	**457**	6	0	**6**	0	0	**0**	14	3	**17**	3	0	**3**	13	0	**13**	0	0	**0**
9:30 to 10:30	26	0	**26**	487	8	**495**	7	0	**7**	0	0	**0**	13	1	**14**	5	0	**5**	12	0	**12**	0	0	**0**
9:45 to 10:45	22	0	**22**	512	8	**520**	12	0	**12**	0	0	**0**	13	2	**15**	4	0	**4**	11	0	**11**	0	0	**0**
10:00 to 11:00	15	0	**15**	526	6	**532**	13	0	**13**	0	0	**0**	14	3	**17**	4	0	**4**	11	0	**11**	0	0	**0**
10:15 to 11:15	18	0	**18**	540	4	**544**	14	0	**14**	0	0	**0**	14	3	**17**	6	0	**6**	17	0	**17**	0	0	**0**
10:30 to 11:30	20	0	**20**	528	3	**531**	15	0	**15**	0	0	**0**	17	3	**20**	6	0	**6**	18	0	**18**	0	0	**0**
10:45 to 11:45	18	0	**18**	546	3	**549**	12	0	**12**	0	0	**0**	12	2	**14**	5	0	**5**	21	0	**21**	0	0	**0**
11:00 to 12:00	20	0	**20**	558	5	**563**	17	0	**17**	0	0	**0**	15	1	**16**	5	0	**5**	21	0	**21**	0	0	**0**
11:15 to 12:15	19	0	**19**	588	6	**594**	17	0	**17**	0	0	**0**	19	1	**20**	4	0	**4**	15	0	**15**	0	0	**0**
11:30 to 12:30	25	0	**25**	596	7	**603**	15	0	**15**	0	0	**0**	21	1	**22**	3	0	**3**	16	0	**16**	0	0	**0**
11:45 to 12:45	25	0	**25**	566	6	**572**	14	0	**14**	0	0	**0**	23	1	**24**	3	0	**3**	10	0	**10**	0	0	**0**
12:00 to 13:00	26	0	**26**	542	7	**549**	9	0	**9**	0	0	**0**	21	1	**22**	3	0	**3**	9	0	**9**	0	0	**0**
Totals	**112**	**0**	**112**	**2477**	**46**	**2523**	**54**	**0**	**54**	**0**	**0**	**0**	**81**	**10**	**91**	**30**	**0**	**30**	**74**	**0**	**74**	**0**	**0**	**0**

Job No. : N693
Client : Cardno
Suburb : Wamberal
Location : 4. Dover Rd / Ocean View Rd

Day/Date : Thu, 27th October 2011
Weather : Fine
Description : Classified Intersection Count
: Hourly Summary



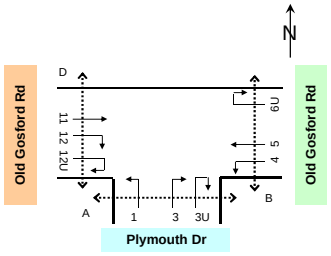
SKYHIGH - THE TRAFFIC SURVEY COMPANY

Approach	Ocean View Rd												Dover Rd											
Direction	Direction 1 (Left Turn)			Direction 2 (Through)			Direction 3 (Right Turn)			Direction 3U (U Turn)			Direction 4 (Left Turn)			Direction 5 (Through)			Direction 6 (Right Turn)			Direction 6U (U Turn)		
Time Period	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total
6:00 to 7:00	4	0	**4**	391	15	**406**	11	0	**11**	0	0	**0**	7	0	**7**	0	0	**0**	3	0	**3**	0	0	**0**
6:15 to 7:15	5	0	**5**	477	16	**493**	12	0	**12**	0	0	**0**	9	0	**9**	0	0	**0**	2	0	**2**	0	0	**0**
6:30 to 7:30	5	0	**5**	537	21	**558**	13	0	**13**	0	0	**0**	7	0	**7**	0	0	**0**	2	0	**2**	0	0	**0**
6:45 to 7:45	4	0	**4**	589	20	**609**	10	0	**10**	0	0	**0**	9	0	**9**	0	0	**0**	1	0	**1**	0	0	**0**
7:00 to 8:00	5	0	**5**	617	19	**636**	16	0	**16**	0	0	**0**	8	0	**8**	1	0	**1**	0	0	**0**	0	0	**0**
7:15 to 8:15	6	5	**11**	682	21	**703**	20	0	**20**	0	0	**0**	7	0	**7**	1	0	**1**	3	0	**3**	0	0	**0**
7:30 to 8:30	9	5	**14**	717	24	**741**	26	0	**26**	0	0	**0**	11	0	**11**	2	0	**2**	5	0	**5**	0	0	**0**
7:45 to 8:45	12	5	**17**	726	27	**753**	29	0	**29**	0	0	**0**	8	0	**8**	2	0	**2**	6	0	**6**	0	0	**0**
8:00 to 9:00	14	5	**19**	734	27	**761**	26	0	**26**	0	0	**0**	7	0	**7**	1	0	**1**	10	0	**10**	0	0	**0**
8:15 to 9:15	16	0	**16**	687	20	**707**	26	0	**26**	0	0	**0**	9	0	**9**	1	0	**1**	7	0	**7**	0	0	**0**
8:30 to 9:30	12	0	**12**	602	14	**616**	20	0	**20**	0	0	**0**	7	0	**7**	0	0	**0**	7	0	**7**	0	0	**0**
8:45 to 9:45	10	1	**11**	545	14	**559**	20	0	**20**	0	0	**0**	6	0	**6**	0	0	**0**	6	0	**6**	0	0	**0**
9:00 to 10:00	8	1	**9**	469	20	**489**	17	0	**17**	0	0	**0**	8	0	**8**	0	0	**0**	4	0	**4**	0	0	**0**
AM Totals	**31**	**6**	**37**	**2211**	**81**	**2292**	**70**	**0**	**70**	**0**	**0**	**0**	**30**	**0**	**30**	**2**	**0**	**2**	**17**	**0**	**17**	**0**	**0**	**0**
15:00 to 16:00	17	2	**19**	709	20	**729**	15	0	**15**	0	0	**0**	11	0	**11**	0	0	**0**	1	0	**1**	0	0	**0**
15:15 to 16:15	15	1	**16**	725	24	**749**	16	0	**16**	0	0	**0**	10	0	**10**	0	0	**0**	2	0	**2**	0	0	**0**
15:30 to 16:30	11	1	**12**	693	22	**715**	17	0	**17**	0	0	**0**	10	0	**10**	1	0	**1**	3	0	**3**	0	0	**0**
15:45 to 16:45	15	1	**16**	677	19	**696**	14	0	**14**	0	0	**0**	12	0	**12**	1	0	**1**	3	0	**3**	0	0	**0**
16:00 to 17:00	21	1	**22**	651	16	**667**	14	0	**14**	0	0	**0**	11	0	**11**	1	0	**1**	3	0	**3**	0	0	**0**
16:15 to 17:15	21	1	**22**	607	13	**620**	11	0	**11**	0	0	**0**	10	0	**10**	1	0	**1**	3	0	**3**	0	0	**0**
16:30 to 17:30	17	2	**19**	581	15	**596**	10	0	**10**	0	0	**0**	11	0	**11**	0	0	**0**	8	0	**8**	0	0	**0**
16:45 to 17:45	14	2	**16**	593	15	**608**	10	0	**10**	0	0	**0**	6	0	**6**	0	0	**0**	8	0	**8**	0	0	**0**
17:00 to 18:00	12	2	**14**	560	16	**576**	6	0	**6**	0	0	**0**	4	0	**4**	1	0	**1**	8	0	**8**	0	0	**0**
17:15 to 18:15	12	2	**14**	527	13	**540**	9	0	**9**	0	0	**0**	6	0	**6**	1	0	**1**	7	0	**7**	0	0	**0**
17:30 to 18:30	18	1	**19**	521	8	**529**	7	0	**7**	0	0	**0**	3	0	**3**	1	0	**1**	1	0	**1**	0	0	**0**
17:45 to 18:45	20	1	**21**	475	5	**480**	4	0	**4**	0	0	**0**	4	0	**4**	2	0	**2**	1	0	**1**	0	0	**0**
18:00 to 19:00	24	1	**25**	479	2	**481**	6	0	**6**	0	0	**0**	7	0	**7**	2	0	**2**	0	0	**0**	0	0	**0**
PM Totals	**74**	**6**	**80**	**2399**	**54**	**2453**	**41**	**0**	**41**	**0**	**0**	**0**	**33**	**0**	**33**	**4**	**0**	**4**	**12**	**0**	**12**	**0**	**0**	**0**

Approach	Ocean View Rd												Dover Rd											
Direction	Direction 7 (Left Turn)			Direction 8 (Through)			Direction 9 (Right Turn)			Direction 9U (U Turn)			Direction 10 (Left Turn)			Direction 11 (Through)			Direction 12 (Right Turn)			Direction 12U (U Turn)		
Time Period	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total
6:00 to 7:00	5	0	**5**	299	19	**318**	11	0	**11**	0	0	**0**	8	1	**9**	0	0	**0**	0	0	**0**	0	0	**0**
6:15 to 7:15	4	0	**4**	366	26	**392**	14	0	**14**	0	0	**0**	9	1	**10**	0	0	**0**	0	0	**0**	0	0	**0**
6:30 to 7:30	3	0	**3**	432	27	**459**	13	0	**13**	0	0	**0**	11	1	**12**	0	0	**0**	0	0	**0**	0	0	**0**
6:45 to 7:45	6	0	**6**	459	28	**487**	9	0	**9**	0	0	**0**	11	1	**12**	0	0	**0**	0	0	**0**	0	0	**0**
7:00 to 8:00	4	0	**4**	522	28	**550**	6	0	**6**	0	0	**0**	11	0	**11**	0	0	**0**	0	0	**0**	0	0	**0**
7:15 to 8:15	9	0	**9**	611	25	**636**	4	0	**4**	0	0	**0**	12	0	**12**	0	0	**0**	0	0	**0**	0	0	**0**
7:30 to 8:30	12	0	**12**	627	28	**655**	6	0	**6**	0	0	**0**	11	0	**11**	0	0	**0**	0	0	**0**	0	0	**0**
7:45 to 8:45	10	0	**10**	647	25	**672**	9	0	**9**	0	0	**0**	8	0	**8**	0	0	**0**	0	0	**0**	0	0	**0**
8:00 to 9:00	12	0	**12**	617	22	**639**	14	0	**14**	0	0	**0**	9	0	**9**	0	0	**0**	0	0	**0**	0	0	**0**
8:15 to 9:15	9	0	**9**	540	21	**561**	14	0	**14**	0	0	**0**	13	0	**13**	0	0	**0**	0	0	**0**	0	0	**0**
8:30 to 9:30	9	0	**9**	502	17	**519**	13	0	**13**	0	0	**0**	16	1	**17**	0	0	**0**	0	0	**0**	0	0	**0**
8:45 to 9:45	10	0	**10**	438	14	**452**	11	0	**11**	0	0	**0**	17	1	**18**	0	0	**0**	0	0	**0**	0	0	**0**
9:00 to 10:00	8	0	**8**	425	17	**442**	7	0	**7**	0	0	**0**	17	1	**18**	0	0	**0**	0	0	**0**	0	0	**0**
AM Totals	**29**	**0**	**29**	**1863**	**86**	**1949**	**38**	**0**	**38**	**0**	**0**	**0**	**45**	**2**	**47**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
15:00 to 16:00	5	0	**5**	615	17	**632**	14	0	**14**	0	0	**0**	19	0	**19**	0	0	**0**	0	0	**0**	0	0	**0**
15:15 to 16:15	4	0	**4**	579	17	**596**	16	0	**16**	0	0	**0**	20	0	**20**	0	0	**0**	0	0	**0**	0	0	**0**
15:30 to 16:30	3	0	**3**	582	10	**592**	7	0	**7**	0	0	**0**	14	0	**14**	0	0	**0**	0	0	**0**	0	0	**0**
15:45 to 16:45	5	0	**5**	606	8	**614**	8	0	**8**	0	0	**0**	9	0	**9**	0	0	**0**	0	0	**0**	0	0	**0**
16:00 to 17:00	6	0	**6**	588	5	**593**	10	0	**10**	0	0	**0**	11	0	**11**	0	0	**0**	0	0	**0**	0	0	**0**
16:15 to 17:15	7	0	**7**	624	6	**630**	10	0	**10**	0	0	**0**	12	0	**12**	0	0	**0**	0	0	**0**	0	0	**0**
16:30 to 17:30	6	0	**6**	616	4	**620**	11	0	**11**	0	0	**0**	14	0	**14**	0	0	**0**	0	0	**0**	0	0	**0**
16:45 to 17:45	4	0	**4**	610	4	**614**	10	0	**10**	0	0	**0**	16	0	**16**	0	0	**0**	0	0	**0**	0	0	**0**
17:00 to 18:00	4	0	**4**	602	4	**606**	10	0	**10**	0	0	**0**	18	0	**18**	0	0	**0**	0	0	**0**	0	0	**0**
17:15 to 18:15	3	0	**3**	575	3	**578**	11	0	**11**	0	0	**0**	17	0	**17**	0	0	**0**	0	0	**0**	0	0	**0**
17:30 to 18:30	7	0	**7**	565	4	**569**	8	0	**8**	0	0	**0**	19	0	**19**	0	0	**0**	0	0	**0**	0	0	**0**
17:45 to 18:45	6	0	**6**	519	5	**524**	9	0	**9**	0	0	**0**	17	0	**17**	0	0	**0**	0	0	**0**	0	0	**0**
18:00 to 19:00	5	0	**5**	489	5	**494**	8	0	**8**	0	0	**0**	14	0	**14**	0	0	**0**	0	0	**0**	0	0	**0**
PM Totals	**20**	**0**	**20**	**2294**	**31**	**2325**	**42**	**0**	**42**	**0**	**0**	**0**	**62**	**0**	**62**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Job No. : N693
Client : Cardno
Suburb : Wamberal
Location : 5. Old Gosford Rd / Plymouth Dr

Day/Date : Sat, 29th October 2011
Weather : Fine
Description : Classified Intersection Count
: Hourly Summary



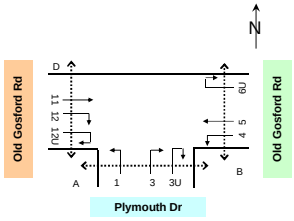
SKYHIGH - THE TRAFFIC SURVEY COMPANY

Approach	Plymouth Dr										Old Gosford Rd													
Direction	Direction 1 (Left Turn)				Direction 3 (Right Turn)			Direction 3U (U Turn)			Direction 4 (Left Turn)			Direction 5 (Through)				Direction 6U (U Turn)						
Time Period	Light	Heavy	Total		Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total		Light	Heavy	Total
8:00 to 9:00	29	0	**29**		27	0	**27**	0	0	**0**	43	2	**45**	39	1	**40**		0	0	**0**
8:15 to 9:15	29	0	**29**		29	0	**29**	0	0	**0**	38	2	**40**	38	1	**39**		0	0	**0**
8:30 to 9:30	35	0	**35**		29	0	**29**	0	0	**0**	25	2	**27**	39	1	**40**		0	0	**0**
8:45 to 9:45	31	0	**31**		30	0	**30**	0	0	**0**	27	1	**28**	41	1	**42**		0	0	**0**
9:00 to 10:00	24	0	**24**		29	0	**29**	0	0	**0**	27	0	**27**	42	1	**43**		0	0	**0**
9:15 to 10:15	27	0	**27**		31	0	**31**	0	0	**0**	31	0	**31**	42	1	**43**		0	0	**0**
9:30 to 10:30	27	0	**27**		31	0	**31**	0	0	**0**	37	0	**37**	37	1	**38**		0	0	**0**
9:45 to 10:45	33	0	**33**		31	0	**31**	0	0	**0**	33	1	**34**	36	1	**37**		0	0	**0**
10:00 to 11:00	40	0	**40**		34	0	**34**	0	0	**0**	38	1	**39**	36	1	**37**		0	0	**0**
10:15 to 11:15	36	0	**36**		36	0	**36**	0	0	**0**	40	1	**41**	36	1	**37**		0	0	**0**
10:30 to 11:30	36	1	**37**		35	0	**35**	0	0	**0**	37	1	**38**	33	1	**34**		0	0	**0**
10:45 to 11:45	33	1	**34**		35	0	**35**	0	0	**0**	42	0	**42**	27	1	**28**		0	0	**0**
11:00 to 12:00	34	1	**35**		39	0	**39**	0	0	**0**	46	0	**46**	32	1	**33**		0	0	**0**
11:15 to 12:15	37	1	**38**		37	0	**37**	0	0	**0**	42	0	**42**	36	1	**37**		0	0	**0**
11:30 to 12:30	35	0	**35**		45	0	**45**	0	0	**0**	46	0	**46**	44	1	**45**		0	0	**0**
11:45 to 12:45	33	0	**33**		45	0	**45**	0	0	**0**	46	0	**46**	41	3	**44**		0	0	**0**
12:00 to 13:00	25	0	**25**		41	0	**41**	0	0	**0**	48	0	**48**	33	2	**35**		1	0	**1**
Totals	**152**	**1**	**153**		**170**	**0**	**170**	**0**	**0**	**0**	**202**	**3**	**205**	**182**	**6**	**188**		**1**	**0**	**1**

Approach		Old Gosford Rd								
Direction		Direction 11 (Through)			Direction 12 (Right Turn)			Direction 12U (U Turn)		
Time Period		Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total
8:00 to 9:00		30	1	**31**	10	0	**10**	0	0	**0**
8:15 to 9:15		28	1	**29**	12	0	**12**	0	0	**0**
8:30 to 9:30		33	1	**34**	15	0	**15**	0	0	**0**
8:45 to 9:45		33	1	**34**	14	0	**14**	0	0	**0**
9:00 to 10:00		29	1	**30**	16	0	**16**	0	0	**0**
9:15 to 10:15		39	1	**40**	16	0	**16**	0	0	**0**
9:30 to 10:30		40	1	**41**	17	0	**17**	0	0	**0**
9:45 to 10:45		43	1	**44**	17	0	**17**	0	0	**0**
10:00 to 11:00		51	1	**52**	18	0	**18**	0	0	**0**
10:15 to 11:15		53	1	**54**	19	0	**19**	0	0	**0**
10:30 to 11:30		56	1	**57**	16	0	**16**	0	0	**0**
10:45 to 11:45		53	1	**54**	19	0	**19**	0	0	**0**
11:00 to 12:00		48	1	**49**	19	0	**19**	0	0	**0**
11:15 to 12:15		47	1	**48**	15	0	**15**	0	0	**0**
11:30 to 12:30		40	1	**41**	17	0	**17**	0	0	**0**
11:45 to 12:45		46	1	**47**	15	0	**15**	0	0	**0**
12:00 to 13:00		47	1	**48**	14	0	**14**	0	0	**0**
Totals		**205**	**5**	**210**	**77**	**0**	**77**	**0**	**0**	**0**

Job No. : N693
Client : Cardno
Suburb : Wamberal
Location : 5. Old Gosford Rd / Plymouth Dr

Day/Date : Thu, 27th October 2011
Weather : Fine
Description : Classified Intersection Count
: Hourly Summary



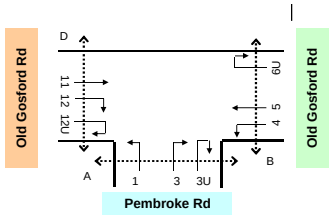
SKYHIGH - THE TRAFFIC SURVEY COMPANY

Approach	Plymouth Dr									Old Gosford Rd								
Direction	Direction 1 (Left Turn)			Direction 3 (Right Turn)			Direction 3U (U Turn)			Direction 4 (Left Turn)			Direction 5 (Through)			Direction 6U (U Turn)		
Time Period	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total
6:00 to 7:00	26	1	**27**	14	0	**14**	0	0	**0**	15	0	**15**	17	2	**19**	0	0	**0**
6:15 to 7:15	24	1	**25**	16	0	**16**	0	0	**0**	22	0	**22**	21	1	**22**	0	0	**0**
6:30 to 7:30	20	1	**21**	21	0	**21**	0	0	**0**	27	0	**27**	23	1	**24**	0	0	**0**
6:45 to 7:45	31	1	**32**	25	0	**25**	0	0	**0**	33	0	**33**	30	1	**31**	0	0	**0**
7:00 to 8:00	37	0	**37**	26	0	**26**	0	0	**0**	33	1	**34**	42	4	**46**	0	0	**0**
7:15 to 8:15	39	0	**39**	24	0	**24**	0	0	**0**	40	1	**41**	64	7	**71**	0	0	**0**
7:30 to 8:30	43	0	**43**	25	0	**25**	0	0	**0**	43	1	**44**	93	6	**99**	0	0	**0**
7:45 to 8:45	39	0	**39**	26	0	**26**	0	0	**0**	39	1	**40**	104	6	**110**	0	0	**0**
8:00 to 9:00	30	0	**30**	29	0	**29**	0	0	**0**	42	0	**42**	96	4	**100**	0	0	**0**
8:15 to 9:15	32	0	**32**	32	0	**32**	0	0	**0**	39	0	**39**	77	2	**79**	0	0	**0**
8:30 to 9:30	27	0	**27**	30	0	**30**	0	0	**0**	44	0	**44**	48	2	**50**	0	0	**0**
8:45 to 9:45	30	0	**30**	24	0	**24**	0	0	**0**	46	0	**46**	29	3	**32**	0	0	**0**
9:00 to 10:00	27	0	**27**	19	0	**19**	0	0	**0**	39	0	**39**	25	3	**28**	0	0	**0**
AM Totals	**120**	**1**	**121**	**88**	**0**	**88**	**0**	**0**	**0**	**129**	**1**	**130**	**180**	**13**	**193**	**0**	**0**	**0**
15:00 to 16:00	26	0	**26**	45	2	**47**	0	0	**0**	36	1	**37**	26	3	**29**	0	0	**0**
15:15 to 16:15	24	0	**24**	53	1	**54**	0	0	**0**	40	0	**40**	32	3	**35**	0	0	**0**
15:30 to 16:30	21	0	**21**	52	1	**53**	0	0	**0**	43	0	**43**	36	2	**38**	0	0	**0**
15:45 to 16:45	18	1	**19**	44	0	**44**	0	0	**0**	42	0	**42**	35	1	**36**	0	0	**0**
16:00 to 17:00	21	1	**22**	45	0	**45**	0	0	**0**	40	0	**40**	33	1	**34**	0	0	**0**
16:15 to 17:15	20	1	**21**	41	0	**41**	0	0	**0**	38	1	**39**	28	1	**29**	0	0	**0**
16:30 to 17:30	23	1	**24**	41	1	**42**	0	0	**0**	44	2	**46**	30	2	**32**	0	0	**0**
16:45 to 17:45	23	0	**23**	42	1	**43**	0	0	**0**	49	3	**52**	30	2	**32**	0	0	**0**
17:00 to 18:00	24	0	**24**	39	1	**40**	0	0	**0**	51	3	**54**	32	2	**34**	0	0	**0**
17:15 to 18:15	21	0	**21**	47	1	**48**	0	0	**0**	63	2	**65**	33	1	**34**	0	0	**0**
17:30 to 18:30	21	0	**21**	44	0	**44**	0	0	**0**	60	1	**61**	30	1	**31**	0	0	**0**
17:45 to 18:45	22	0	**22**	46	0	**46**	0	0	**0**	61	0	**61**	32	1	**33**	0	0	**0**
18:00 to 19:00	21	0	**21**	43	0	**43**	0	0	**0**	59	0	**59**	31	1	**32**	1	0	**1**
PM Totals	**92**	**1**	**93**	**172**	**3**	**175**	**0**	**0**	**0**	**186**	**4**	**190**	**122**	**7**	**129**	**1**	**0**	**1**

Approach	Old Gosford Rd								
Direction	Direction 11 (Through)			Direction 12 (Right Turn)			Direction 12U (U Turn)		
Time Period	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total
6:00 to 7:00	13	0	**13**	7	0	**7**	0	0	**0**
6:15 to 7:15	16	1	**17**	7	0	**7**	0	0	**0**
6:30 to 7:30	14	2	**16**	10	0	**10**	0	0	**0**
6:45 to 7:45	22	4	**26**	10	0	**10**	0	0	**0**
7:00 to 8:00	33	4	**37**	12	0	**12**	0	0	**0**
7:15 to 8:15	40	4	**44**	15	0	**15**	0	0	**0**
7:30 to 8:30	43	4	**47**	12	0	**12**	0	0	**0**
7:45 to 8:45	48	3	**51**	12	0	**12**	0	0	**0**
8:00 to 9:00	49	3	**52**	15	0	**15**	0	0	**0**
8:15 to 9:15	40	3	**43**	12	0	**12**	0	0	**0**
8:30 to 9:30	42	2	**44**	17	0	**17**	0	0	**0**
8:45 to 9:45	39	3	**42**	15	1	**16**	0	0	**0**
9:00 to 10:00	34	3	**37**	10	1	**11**	0	0	**0**
AM Totals	**129**	**10**	**139**	**44**	**1**	**45**	**0**	**0**	**0**
15:00 to 16:00	57	7	**64**	22	0	**22**	0	0	**0**
15:15 to 16:15	58	6	**64**	20	0	**20**	0	0	**0**
15:30 to 16:30	52	5	**57**	18	0	**18**	0	0	**0**
15:45 to 16:45	48	5	**53**	16	0	**16**	0	0	**0**
16:00 to 17:00	45	2	**47**	22	0	**22**	0	0	**0**
16:15 to 17:15	50	2	**52**	26	0	**26**	0	0	**0**
16:30 to 17:30	54	2	**56**	31	0	**31**	0	0	**0**
16:45 to 17:45	54	1	**55**	36	0	**36**	0	0	**0**
17:00 to 18:00	57	1	**58**	32	1	**33**	0	0	**0**
17:15 to 18:15	52	1	**53**	33	1	**34**	0	0	**0**
17:30 to 18:30	47	2	**49**	35	1	**36**	0	0	**0**
17:45 to 18:45	44	2	**46**	35	1	**36**	0	0	**0**
18:00 to 19:00	40	1	**41**	31	0	**31**	0	0	**0**
PM Totals	**199**	**11**	**210**	**107**	**1**	**108**	**0**	**0**	**0**

Job No. : N693
Client : Cardno
Suburb : Wamberal
Location : 6. Old Gosford Rd / Pembroke Rd

Day/Date : Sat, 29th October 2011
Weather : Fine
Description : Classified Intersection Count
: Hourly Summary



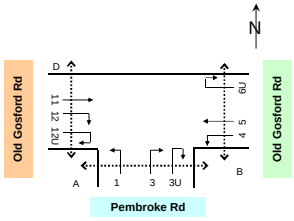
SKYHIGH - THE TRAFFIC SURVEY COMPANY

Approach	Pembroke Rd									Old Gosford Rd								
Direction	Direction 1 (Left Turn)			Direction 3 (Right Turn)			Direction 3U (U Turn)			Direction 4 (Left Turn)			Direction 5 (Through)			Direction 6U (U Turn)		
Time Period	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total
8:00 to 9:00	3	0	**3**	14	0	**14**	0	0	**0**	10	0	**10**	56	1	**57**	0	0	**0**
8:15 to 9:15	3	0	**3**	13	0	**13**	0	0	**0**	6	0	**6**	54	1	**55**	0	0	**0**
8:30 to 9:30	3	0	**3**	14	0	**14**	0	0	**0**	6	0	**6**	65	1	**66**	0	0	**0**
8:45 to 9:45	3	0	**3**	12	0	**12**	0	0	**0**	7	0	**7**	62	1	**63**	0	0	**0**
9:00 to 10:00	4	0	**4**	12	0	**12**	0	0	**0**	8	0	**8**	57	1	**58**	0	0	**0**
9:15 to 10:15	5	0	**5**	17	0	**17**	0	0	**0**	8	0	**8**	63	1	**64**	0	0	**0**
9:30 to 10:30	6	0	**6**	16	0	**16**	0	0	**0**	11	0	**11**	51	1	**52**	0	0	**0**
9:45 to 10:45	4	0	**4**	17	0	**17**	0	0	**0**	9	0	**9**	58	1	**59**	0	0	**0**
10:00 to 11:00	4	0	**4**	16	0	**16**	0	0	**0**	9	0	**9**	67	1	**68**	0	0	**0**
10:15 to 11:15	5	0	**5**	11	0	**11**	0	0	**0**	11	0	**11**	56	1	**57**	0	0	**0**
10:30 to 11:30	4	0	**4**	13	0	**13**	0	0	**0**	10	0	**10**	58	2	**60**	0	0	**0**
10:45 to 11:45	6	0	**6**	11	0	**11**	0	0	**0**	9	0	**9**	49	2	**51**	0	0	**0**
11:00 to 12:00	5	0	**5**	13	0	**13**	0	0	**0**	10	0	**10**	50	2	**52**	0	0	**0**
11:15 to 12:15	3	0	**3**	16	0	**16**	0	0	**0**	9	0	**9**	57	2	**59**	0	0	**0**
11:30 to 12:30	3	0	**3**	14	0	**14**	0	0	**0**	10	0	**10**	60	1	**61**	0	0	**0**
11:45 to 12:45	3	0	**3**	15	0	**15**	1	0	**1**	11	0	**11**	57	2	**59**	0	0	**0**
12:00 to 13:00	2	0	**2**	14	0	**14**	1	0	**1**	10	0	**10**	42	2	**44**	0	0	**0**
Totals	**18**	**0**	**18**	**69**	**0**	**69**	**1**	**0**	**1**	**47**	**0**	**47**	**272**	**7**	**279**	**0**	**0**	**0**

Approach	Old Gosford Rd								
Direction	Direction 11 (Through)			Direction 12 (Right Turn)			Direction 12U (U Turn)		
Time Period	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total
8:00 to 9:00	25	1	**26**	5	0	**5**	1	0	**1**
8:15 to 9:15	25	1	**26**	4	0	**4**	1	0	**1**
8:30 to 9:30	30	1	**31**	4	0	**4**	1	0	**1**
8:45 to 9:45	29	1	**30**	4	0	**4**	1	0	**1**
9:00 to 10:00	27	1	**28**	4	0	**4**	0	0	**0**
9:15 to 10:15	32	1	**33**	4	0	**4**	1	0	**1**
9:30 to 10:30	36	1	**37**	5	0	**5**	1	0	**1**
9:45 to 10:45	42	1	**43**	4	0	**4**	1	0	**1**
10:00 to 11:00	51	1	**52**	4	0	**4**	1	0	**1**
10:15 to 11:15	60	1	**61**	4	0	**4**	0	0	**0**
10:30 to 11:30	57	1	**58**	3	0	**3**	0	0	**0**
10:45 to 11:45	55	1	**56**	4	0	**4**	0	0	**0**
11:00 to 12:00	50	1	**51**	3	0	**3**	0	0	**0**
11:15 to 12:15	42	1	**43**	5	0	**5**	0	0	**0**
11:30 to 12:30	40	1	**41**	4	0	**4**	0	0	**0**
11:45 to 12:45	42	1	**43**	3	0	**3**	0	0	**0**
12:00 to 13:00	43	1	**44**	5	0	**5**	1	0	**1**
Totals	**196**	**5**	**201**	**21**	**0**	**21**	**3**	**0**	**3**

Job No. : N693
Client : Cardno
Suburb : Wamberal
Location : 6. Old Gosford Rd / Pembroke Rd

Day/Date : Thu, 27th October 2011
Weather : Fine
Description : Classified Intersection Count
: Hourly Summary



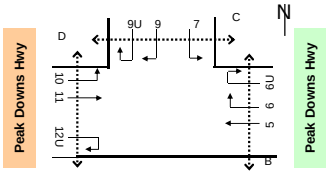
SKYHIGH - THE TRAFFIC SURVEY COMPANY

Approach	Pembroke Rd									Old Gosford Rd								
Direction	Direction 1 (Left Turn)			Direction 3 (Right Turn)			Direction 3U (U Turn)			Direction 4 (Left Turn)			Direction 5 (Through)			Direction 6U (U Turn)		
Time Period	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total
6:00 to 7:00	6	0	**6**	6	0	**6**	0	0	**0**	1	1	**2**	36	2	**38**	0	0	**0**
6:15 to 7:15	7	0	**7**	9	0	**9**	0	0	**0**	1	1	**2**	39	1	**40**	0	0	**0**
6:30 to 7:30	7	0	**7**	6	0	**6**	0	0	**0**	2	1	**3**	44	2	**46**	0	0	**0**
6:45 to 7:45	8	0	**8**	11	1	**12**	0	0	**0**	2	1	**3**	60	2	**62**	1	0	**1**
7:00 to 8:00	5	0	**5**	19	1	**20**	0	0	**0**	2	0	**2**	78	4	**82**	1	0	**1**
7:15 to 8:15	6	0	**6**	18	1	**19**	0	0	**0**	11	1	**12**	92	6	**98**	1	0	**1**
7:30 to 8:30	7	0	**7**	19	2	**21**	0	0	**0**	23	1	**24**	118	5	**123**	1	1	**2**
7:45 to 8:45	5	0	**5**	23	1	**24**	0	0	**0**	28	1	**29**	123	5	**128**	1	1	**2**
8:00 to 9:00	5	0	**5**	21	2	**23**	0	0	**0**	30	2	**32**	101	2	**103**	1	1	**2**
8:15 to 9:15	5	0	**5**	21	2	**23**	0	0	**0**	21	1	**22**	94	1	**95**	1	1	**2**
8:30 to 9:30	6	0	**6**	23	2	**25**	0	0	**0**	10	1	**11**	69	1	**70**	1	0	**1**
8:45 to 9:45	6	0	**6**	18	2	**20**	0	0	**0**	6	1	**7**	58	1	**59**	0	0	**0**
9:00 to 10:00	5	0	**5**	12	1	**13**	0	0	**0**	3	0	**3**	55	1	**56**	0	0	**0**
AM Totals	**21**	**0**	**21**	**58**	**4**	**62**	**0**	**0**	**0**	**36**	**3**	**39**	**270**	**9**	**279**	**2**	**1**	**3**
15:00 to 16:00	4	0	**4**	25	0	**25**	0	0	**0**	8	0	**8**	41	3	**44**	0	0	**0**
15:15 to 16:15	4	0	**4**	22	0	**22**	0	0	**0**	7	0	**7**	46	3	**49**	0	0	**0**
15:30 to 16:30	3	0	**3**	21	0	**21**	0	0	**0**	13	0	**13**	37	2	**39**	0	0	**0**
15:45 to 16:45	3	0	**3**	16	1	**17**	0	0	**0**	18	0	**18**	30	2	**32**	0	0	**0**
16:00 to 17:00	6	0	**6**	12	1	**13**	0	0	**0**	20	0	**20**	32	2	**34**	0	0	**0**
16:15 to 17:15	6	0	**6**	14	1	**15**	1	0	**1**	20	0	**20**	27	2	**29**	0	0	**0**
16:30 to 17:30	5	0	**5**	13	1	**14**	1	0	**1**	16	1	**17**	37	2	**39**	0	1	**1**
16:45 to 17:45	5	0	**5**	14	0	**14**	1	0	**1**	12	1	**13**	41	1	**42**	0	1	**1**
17:00 to 18:00	1	0	**1**	13	0	**13**	1	0	**1**	9	1	**10**	43	1	**44**	0	1	**1**
17:15 to 18:15	3	0	**3**	13	0	**13**	0	0	**0**	9	1	**10**	43	0	**43**	0	1	**1**
17:30 to 18:30	4	0	**4**	15	0	**15**	0	0	**0**	9	0	**9**	41	1	**42**	0	0	**0**
17:45 to 18:45	3	0	**3**	14	0	**14**	0	0	**0**	10	0	**10**	41	1	**42**	0	0	**0**
18:00 to 19:00	3	0	**3**	19	0	**19**	0	0	**0**	13	0	**13**	40	1	**41**	0	0	**0**
PM Totals	**14**	**0**	**14**	**69**	**0**	**69**	**1**	**0**	**1**	**50**	**1**	**51**	**156**	**7**	**163**	**0**	**1**	**1**

Approach	Old Gosford Rd								
Direction	Direction 11 (Through)			Direction 12 (Right Turn)			Direction 12U (U Turn)		
Time Period	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total
6:00 to 7:00	9	1	**10**	3	0	**3**	0	0	**0**
6:15 to 7:15	13	2	**15**	3	0	**3**	0	0	**0**
6:30 to 7:30	18	3	**21**	2	0	**2**	0	0	**0**
6:45 to 7:45	21	4	**25**	3	0	**3**	0	0	**0**
7:00 to 8:00	22	3	**25**	2	0	**2**	0	0	**0**
7:15 to 8:15	25	3	**28**	1	0	**1**	0	0	**0**
7:30 to 8:30	24	2	**26**	2	0	**2**	0	0	**0**
7:45 to 8:45	25	2	**27**	1	0	**1**	0	0	**0**
8:00 to 9:00	31	2	**33**	1	0	**1**	0	0	**0**
8:15 to 9:15	25	1	**26**	2	0	**2**	0	0	**0**
8:30 to 9:30	30	1	**31**	1	0	**1**	0	0	**0**
8:45 to 9:45	29	2	**31**	1	0	**1**	0	0	**0**
9:00 to 10:00	24	2	**26**	2	0	**2**	0	0	**0**
AM Totals	**86**	**8**	**94**	**8**	**0**	**8**	**0**	**0**	**0**
15:00 to 16:00	51	7	**58**	6	0	**6**	0	0	**0**
15:15 to 16:15	54	6	**60**	7	0	**7**	0	0	**0**
15:30 to 16:30	51	5	**56**	5	0	**5**	0	0	**0**
15:45 to 16:45	54	5	**59**	4	0	**4**	0	0	**0**
16:00 to 17:00	57	1	**58**	3	0	**3**	0	0	**0**
16:15 to 17:15	64	1	**65**	4	0	**4**	0	0	**0**
16:30 to 17:30	70	2	**72**	4	0	**4**	0	0	**0**
16:45 to 17:45	73	1	**74**	5	0	**5**	0	0	**0**
17:00 to 18:00	76	3	**79**	6	0	**6**	0	0	**0**
17:15 to 18:15	71	3	**74**	6	0	**6**	0	0	**0**
17:30 to 18:30	72	2	**74**	7	0	**7**	0	0	**0**
17:45 to 18:45	70	2	**72**	6	0	**6**	0	0	**0**
18:00 to 19:00	58	0	**58**	5	0	**5**	0	0	**0**
PM Totals	**242**	**11**	**253**	**20**	**0**	**20**	**0**	**0**	**0**

Job No. : N693
Client : Cardno
Suburb : Wamberal
Location : 7. Old Gosford Rd / Ghersi Ave

Day/Date : Sat, 29th October 2011
Weather : Fine
Description : Classified Intersection Count
: Hourly Summary



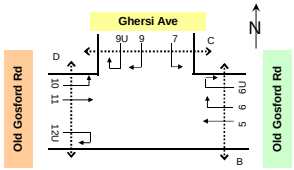
SKYHIGH - THE TRAFFIC SURVEY COMPANY

Approach		Peak Downs Hwy								
Direction		Direction 5 (Through)			Direction 6 (Right Turn)			Direction 6U (U Turn)		
Time Period		Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total
8:00 to 9:00		39	2	**41**	25	0	**25**	0	0	**0**
8:15 to 9:15		42	2	**44**	20	0	**20**	0	0	**0**
8:30 to 9:30		39	2	**41**	14	0	**14**	0	0	**0**
8:45 to 9:45		38	2	**40**	13	1	**14**	0	0	**0**
9:00 to 10:00		34	1	**35**	14	1	**15**	0	0	**0**
9:15 to 10:15		33	1	**34**	16	1	**17**	0	0	**0**
9:30 to 10:30		28	1	**29**	15	1	**16**	0	0	**0**
9:45 to 10:45		31	2	**33**	14	0	**14**	0	0	**0**
10:00 to 11:00		33	2	**35**	12	0	**12**	0	0	**0**
10:15 to 11:15		33	2	**35**	14	0	**14**	0	0	**0**
10:30 to 11:30		32	2	**34**	14	0	**14**	0	0	**0**
10:45 to 11:45		29	1	**30**	12	0	**12**	0	0	**0**
11:00 to 12:00		31	1	**32**	10	0	**10**	0	0	**0**
11:15 to 12:15		33	1	**34**	8	0	**8**	0	0	**0**
11:30 to 12:30		35	1	**36**	15	0	**15**	0	0	**0**
11:45 to 12:45		30	3	**33**	17	0	**17**	0	0	**0**
12:00 to 13:00		32	2	**34**	16	0	**16**	0	0	**0**
Totals		**169**	**8**	**177**	**77**	**1**	**78**	**0**	**0**	**0**

Approach	Ghersi Ave									Peak Downs Hwy								
Direction	Direction 7 (Left Turn)				Direction 9 (Right Turn)			Direction 9U (U Turn)			Direction 10 (Left Turn)			Direction 11 (Through)			Direction 12U (U Turn)		
Time Period	Light	Heavy	Total		Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total
8:00 to 9:00	27	0	**27**		45	1	**46**	0	0	**0**	41	0	**41**	16	1	**17**	0	0	**0**
8:15 to 9:15	23	0	**23**		37	1	**38**	0	0	**0**	38	0	**38**	20	1	**21**	0	0	**0**
8:30 to 9:30	18	0	**18**		25	1	**26**	0	0	**0**	39	0	**39**	24	1	**25**	0	0	**0**
8:45 to 9:45	21	0	**21**		23	0	**23**	0	0	**0**	43	0	**43**	21	1	**22**	0	0	**0**
9:00 to 10:00	17	0	**17**		28	0	**28**	0	0	**0**	37	0	**37**	24	1	**25**	0	0	**0**
9:15 to 10:15	19	0	**19**		31	0	**31**	0	0	**0**	44	0	**44**	27	1	**28**	0	0	**0**
9:30 to 10:30	25	0	**25**		38	0	**38**	0	0	**0**	44	0	**44**	28	1	**29**	0	0	**0**
9:45 to 10:45	24	0	**24**		36	0	**36**	0	0	**0**	40	0	**40**	33	1	**34**	0	0	**0**
10:00 to 11:00	27	0	**27**		39	0	**39**	0	0	**0**	49	0	**49**	33	1	**34**	0	0	**0**
10:15 to 11:15	27	0	**27**		43	0	**43**	0	0	**0**	52	0	**52**	37	1	**38**	0	0	**0**
10:30 to 11:30	25	0	**25**		40	0	**40**	0	0	**0**	54	0	**54**	37	1	**38**	0	0	**0**
10:45 to 11:45	24	0	**24**		42	1	**43**	0	0	**0**	53	0	**53**	37	1	**38**	0	0	**0**
11:00 to 12:00	27	0	**27**		46	1	**47**	0	0	**0**	55	0	**55**	36	1	**37**	0	0	**0**
11:15 to 12:15	23	0	**23**		42	1	**43**	0	0	**0**	47	0	**47**	37	1	**38**	0	0	**0**
11:30 to 12:30	27	0	**27**		52	1	**53**	0	0	**0**	50	0	**50**	36	1	**37**	0	0	**0**
11:45 to 12:45	28	0	**28**		54	0	**54**	0	0	**0**	55	0	**55**	35	1	**36**	0	0	**0**
12:00 to 13:00	28	0	**28**		50	0	**50**	0	0	**0**	47	0	**47**	37	1	**38**	0	0	**0**
Totals	**126**	**0**	**126**		**208**	**2**	**210**	**0**	**0**	**0**	**229**	**0**	**229**	**146**	**5**	**151**	**0**	**0**	**0**

Job No. : N693
Client : Cardno
Suburb : Wamberal
Location : 7. Old Gosford Rd / Ghersi Ave

Day/Date : Thu, 27th October 2011
Weather : Fine
Description : Classified Intersection Count
: Hourly Summary



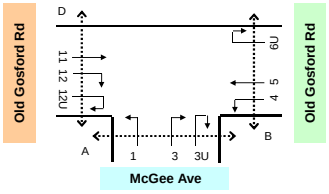
SKYHIGH - THE TRAFFIC SURVEY COMPANY

Approach	Old Gosford Rd								
Direction	Direction 5 (Through)			Direction 6 (Right Turn)			Direction 6U (U Turn)		
Time Period	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total
6:00 to 7:00	15	3	**18**	11	0	**11**	0	0	**0**
6:15 to 7:15	21	2	**23**	11	0	**11**	0	0	**0**
6:30 to 7:30	24	2	**26**	12	0	**12**	0	0	**0**
6:45 to 7:45	29	2	**31**	14	0	**14**	0	0	**0**
7:00 to 8:00	39	5	**44**	13	0	**13**	0	0	**0**
7:15 to 8:15	54	7	**61**	20	0	**20**	0	0	**0**
7:30 to 8:30	77	6	**83**	24	0	**24**	0	0	**0**
7:45 to 8:45	84	6	**90**	23	0	**23**	0	0	**0**
8:00 to 9:00	77	2	**79**	20	0	**20**	0	0	**0**
8:15 to 9:15	63	1	**64**	15	0	**15**	0	0	**0**
8:30 to 9:30	44	1	**45**	13	0	**13**	0	0	**0**
8:45 to 9:45	30	2	**32**	13	0	**13**	0	0	**0**
9:00 to 10:00	26	3	**29**	15	0	**15**	0	0	**0**
AM Totals	**157**	**13**	**170**	**59**	**0**	**59**	**0**	**0**	**0**
15:00 to 16:00	33	4	**37**	11	0	**11**	0	0	**0**
15:15 to 16:15	38	3	**41**	12	0	**12**	0	0	**0**
15:30 to 16:30	41	2	**43**	10	0	**10**	0	0	**0**
15:45 to 16:45	40	1	**41**	6	0	**6**	0	0	**0**
16:00 to 17:00	38	1	**39**	6	0	**6**	0	0	**0**
16:15 to 17:15	34	2	**36**	6	0	**6**	0	0	**0**
16:30 to 17:30	39	4	**43**	7	0	**7**	0	0	**0**
16:45 to 17:45	41	5	**46**	8	0	**8**	0	0	**0**
17:00 to 18:00	43	5	**48**	7	0	**7**	0	0	**0**
17:15 to 18:15	50	3	**53**	6	0	**6**	0	0	**0**
17:30 to 18:30	46	2	**48**	6	0	**6**	0	0	**0**
17:45 to 18:45	48	1	**49**	4	0	**4**	0	0	**0**
18:00 to 19:00	46	1	**47**	6	0	**6**	0	0	**0**
PM Totals	**160**	**11**	**171**	**30**	**0**	**30**	**0**	**0**	**0**

Approach	Ghersi Ave									Old Gosford Rd								
Direction	Direction 7 (Left Turn)			Direction 9 (Right Turn)			Direction 9U (U Turn)			Direction 10 (Left Turn)			Direction 11 (Through)			Direction 12U (U Turn)		
Time Period	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total
6:00 to 7:00	6	0	**6**	14	0	**14**	1	0	**1**	25	0	**25**	3	0	**3**	0	0	**0**
6:15 to 7:15	5	0	**5**	18	0	**18**	1	0	**1**	29	0	**29**	5	1	**6**	0	0	**0**
6:30 to 7:30	8	0	**8**	25	0	**25**	1	0	**1**	31	0	**31**	4	2	**6**	0	0	**0**
6:45 to 7:45	7	0	**7**	31	0	**31**	1	0	**1**	44	1	**45**	4	3	**7**	0	0	**0**
7:00 to 8:00	5	1	**6**	34	0	**34**	0	0	**0**	52	1	**53**	9	3	**12**	0	0	**0**
7:15 to 8:15	6	1	**7**	49	0	**49**	0	0	**0**	51	1	**52**	13	3	**16**	0	0	**0**
7:30 to 8:30	9	1	**10**	57	0	**57**	0	0	**0**	55	1	**56**	17	3	**20**	0	0	**0**
7:45 to 8:45	12	1	**13**	55	0	**55**	0	0	**0**	58	0	**58**	19	3	**22**	0	0	**0**
8:00 to 9:00	15	0	**15**	59	0	**59**	0	0	**0**	57	0	**57**	23	3	**26**	0	0	**0**
8:15 to 9:15	18	0	**18**	50	0	**50**	0	0	**0**	56	0	**56**	19	3	**22**	0	0	**0**
8:30 to 9:30	16	0	**16**	45	0	**45**	1	0	**1**	51	0	**51**	21	2	**23**	0	0	**0**
8:45 to 9:45	20	0	**20**	45	0	**45**	1	0	**1**	37	0	**37**	24	3	**27**	0	0	**0**
9:00 to 10:00	19	0	**19**	38	0	**38**	1	0	**1**	31	1	**32**	19	3	**22**	0	0	**0**
AM Totals	**45**	**1**	**46**	**145**	**0**	**145**	**2**	**0**	**2**	**165**	**2**	**167**	**54**	**9**	**63**	**0**	**0**	**0**
15:00 to 16:00	34	0	**34**	28	0	**28**	0	0	**0**	67	4	**71**	30	5	**35**	0	0	**0**
15:15 to 16:15	34	0	**34**	33	0	**33**	0	0	**0**	72	3	**75**	31	4	**35**	0	0	**0**
15:30 to 16:30	34	3	**37**	35	0	**35**	0	0	**0**	67	3	**70**	29	3	**32**	0	0	**0**
15:45 to 16:45	37	4	**41**	34	0	**34**	0	0	**0**	61	2	**63**	24	3	**27**	0	0	**0**
16:00 to 17:00	39	4	**43**	33	0	**33**	0	0	**0**	60	0	**60**	23	2	**25**	0	0	**0**
16:15 to 17:15	48	4	**52**	30	0	**30**	0	0	**0**	63	0	**63**	24	2	**26**	0	0	**0**
16:30 to 17:30	49	1	**50**	33	0	**33**	0	0	**0**	66	1	**67**	25	2	**27**	0	0	**0**
16:45 to 17:45	53	0	**53**	36	0	**36**	0	0	**0**	66	1	**67**	26	1	**27**	0	0	**0**
17:00 to 18:00	53	0	**53**	38	0	**38**	0	0	**0**	66	1	**67**	26	1	**27**	0	0	**0**
17:15 to 18:15	46	0	**46**	44	0	**44**	0	0	**0**	68	1	**69**	27	1	**28**	0	0	**0**
17:30 to 18:30	49	0	**49**	41	0	**41**	0	0	**0**	62	0	**62**	25	2	**27**	0	0	**0**
17:45 to 18:45	47	0	**47**	41	0	**41**	0	0	**0**	62	0	**62**	24	2	**26**	0	0	**0**
18:00 to 19:00	43	0	**43**	39	0	**39**	0	0	**0**	57	0	**57**	22	1	**23**	0	0	**0**
PM Totals	**169**	**4**	**173**	**138**	**0**	**138**	**0**	**0**	**0**	**250**	**5**	**255**	**101**	**9**	**110**	**0**	**0**	**0**

Job No. : N693
Client : Cardno
Suburb : Wamberal
Location : 8. Old Gosford Rd / McGee Ave

Day/Date : Sat, 29th October 2011
Weather : Fine
Description : Classified Intersection Count
: Hourly Summary



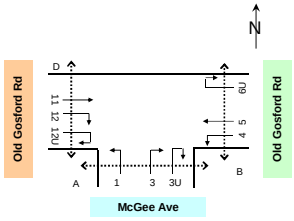
SKYHIGH - THE TRAFFIC SURVEY COMPANY

Approach	McGee Ave									Old Gosford Rd								
Direction	Direction 1 (Left Turn)			Direction 3 (Right Turn)			Direction 3U (U Turn)			Direction 4 (Left Turn)			Direction 5 (Through)			Direction 6U (U Turn)		
Time Period	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total
8:00 to 9:00	7	0	**7**	18	1	**19**	0	0	**0**	10	0	**10**	29	2	**31**	0	0	**0**
8:15 to 9:15	5	0	**5**	19	1	**20**	0	0	**0**	12	0	**12**	33	2	**35**	0	0	**0**
8:30 to 9:30	7	0	**7**	16	1	**17**	0	0	**0**	11	1	**12**	32	2	**34**	0	0	**0**
8:45 to 9:45	6	0	**6**	15	1	**16**	0	0	**0**	14	1	**15**	38	2	**40**	0	0	**0**
9:00 to 10:00	7	0	**7**	23	0	**23**	0	0	**0**	15	1	**16**	33	1	**34**	0	0	**0**
9:15 to 10:15	7	0	**7**	29	0	**29**	0	0	**0**	22	1	**23**	35	1	**36**	0	0	**0**
9:30 to 10:30	6	0	**6**	30	0	**30**	0	0	**0**	28	1	**29**	35	1	**36**	0	0	**0**
9:45 to 10:45	9	0	**9**	34	0	**34**	0	0	**0**	31	1	**32**	27	2	**29**	0	0	**0**
10:00 to 11:00	13	0	**13**	37	0	**37**	0	0	**0**	39	1	**40**	34	2	**36**	0	0	**0**
10:15 to 11:15	12	0	**12**	30	0	**30**	0	0	**0**	37	1	**38**	35	2	**37**	0	0	**0**
10:30 to 11:30	10	0	**10**	31	0	**31**	0	0	**0**	35	0	**35**	34	2	**36**	0	0	**0**
10:45 to 11:45	6	0	**6**	30	0	**30**	0	0	**0**	33	0	**33**	33	1	**34**	0	0	**0**
11:00 to 12:00	3	0	**3**	19	0	**19**	0	0	**0**	28	0	**28**	26	1	**27**	0	0	**0**
11:15 to 12:15	5	0	**5**	24	0	**24**	0	0	**0**	27	0	**27**	30	1	**31**	0	0	**0**
11:30 to 12:30	6	0	**6**	22	0	**22**	0	0	**0**	26	1	**27**	31	1	**32**	0	0	**0**
11:45 to 12:45	7	1	**8**	19	0	**19**	0	0	**0**	25	1	**26**	28	2	**30**	0	0	**0**
12:00 to 13:00	4	1	**5**	23	0	**23**	0	0	**0**	21	1	**22**	35	1	**36**	0	0	**0**
Totals	**34**	**1**	**35**	**120**	**1**	**121**	**0**	**0**	**0**	**113**	**3**	**116**	**157**	**7**	**164**	**0**	**0**	**0**

Approach				Old Gosford Rd								
Direction				Direction 11 (Through)			Direction 12 (Right Turn)			Direction 12U (U Turn)		
Time Period				Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total
8:00 to 9:00				41	1	**42**	4	0	**4**	0	0	**0**
8:15 to 9:15				41	1	**42**	4	0	**4**	0	0	**0**
8:30 to 9:30				36	1	**37**	3	0	**3**	0	0	**0**
8:45 to 9:45				40	1	**41**	5	0	**5**	0	0	**0**
9:00 to 10:00				39	1	**40**	5	0	**5**	0	0	**0**
9:15 to 10:15				42	1	**43**	6	0	**6**	0	0	**0**
9:30 to 10:30				50	1	**51**	6	0	**6**	0	0	**0**
9:45 to 10:45				46	1	**47**	5	0	**5**	0	0	**0**
10:00 to 11:00				51	1	**52**	5	0	**5**	0	0	**0**
10:15 to 11:15				54	1	**55**	5	0	**5**	0	0	**0**
10:30 to 11:30				52	1	**53**	5	0	**5**	0	0	**0**
10:45 to 11:45				57	1	**58**	6	0	**6**	0	0	**0**
11:00 to 12:00				56	1	**57**	5	0	**5**	0	0	**0**
11:15 to 12:15				52	1	**53**	5	0	**5**	0	0	**0**
11:30 to 12:30				54	1	**55**	5	0	**5**	0	0	**0**
11:45 to 12:45				53	1	**54**	2	0	**2**	0	0	**0**
12:00 to 13:00				51	1	**52**	4	0	**4**	0	0	**0**
Totals				**238**	**5**	**243**	**23**	**0**	**23**	**0**	**0**	**0**

Job No. : N693
Client : Cardno
Suburb : Wamberal
Location : 8. Old Gosford Rd / McGee Ave

Day/Date : Thu, 27th October 2011
Weather : Fine
Description : Classified Intersection Count
: Hourly Summary



SKYHIGH - THE TRAFFIC SURVEY COMPANY

Approach	McGee Ave									Old Gosford Rd								
Direction	Direction 1 (Left Turn)			Direction 3 (Right Turn)			Direction 3U (U Turn)			Direction 4 (Left Turn)			Direction 5 (Through)			Direction 6U (U Turn)		
Time Period	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total
6:00 to 7:00	3	2	**5**	11	0	**11**	0	0	**0**	1	1	**2**	5	2	**7**	0	0	**0**
6:15 to 7:15	6	1	**7**	15	0	**15**	0	0	**0**	3	1	**4**	6	3	**9**	0	0	**0**
6:30 to 7:30	7	0	**7**	17	0	**17**	0	0	**0**	6	0	**6**	5	3	**8**	0	0	**0**
6:45 to 7:45	11	1	**12**	19	0	**19**	0	0	**0**	8	0	**8**	11	3	**14**	0	0	**0**
7:00 to 8:00	14	2	**16**	20	0	**20**	0	0	**0**	9	0	**9**	21	5	**26**	0	0	**0**
7:15 to 8:15	10	2	**12**	20	0	**20**	0	0	**0**	9	0	**9**	38	6	**44**	0	0	**0**
7:30 to 8:30	9	2	**11**	23	0	**23**	0	0	**0**	10	1	**11**	64	6	**70**	0	0	**0**
7:45 to 8:45	5	1	**6**	26	0	**26**	0	0	**0**	10	3	**13**	69	7	**76**	0	0	**0**
8:00 to 9:00	3	0	**3**	27	1	**28**	0	0	**0**	10	3	**13**	64	3	**67**	0	0	**0**
8:15 to 9:15	4	0	**4**	26	1	**27**	0	0	**0**	12	3	**15**	53	2	**55**	0	0	**0**
8:30 to 9:30	4	0	**4**	24	1	**25**	0	0	**0**	11	2	**13**	33	2	**35**	0	0	**0**
8:45 to 9:45	3	0	**3**	19	1	**20**	0	0	**0**	11	0	**11**	25	1	**26**	0	0	**0**
9:00 to 10:00	4	0	**4**	23	0	**23**	0	0	**0**	14	1	**15**	23	2	**25**	0	0	**0**
AM Totals	**24**	**1**	**25**	**81**	**1**	**82**	**0**	**0**	**0**	**34**	**5**	**39**	**113**	**12**	**125**	**0**	**0**	**0**
15:00 to 16:00	4	0	**4**	15	0	**15**	0	0	**0**	24	1	**25**	34	5	**39**	0	0	**0**
15:15 to 16:15	5	0	**5**	15	0	**15**	0	0	**0**	27	0	**27**	37	4	**41**	0	0	**0**
15:30 to 16:30	5	0	**5**	22	0	**22**	0	0	**0**	23	0	**23**	41	2	**43**	0	0	**0**
15:45 to 16:45	4	0	**4**	22	0	**22**	0	0	**0**	22	0	**22**	39	1	**40**	0	0	**0**
16:00 to 17:00	4	0	**4**	23	0	**23**	0	0	**0**	22	0	**22**	40	0	**40**	0	0	**0**
16:15 to 17:15	4	0	**4**	23	0	**23**	0	0	**0**	18	0	**18**	36	2	**38**	0	0	**0**
16:30 to 17:30	4	0	**4**	22	0	**22**	0	0	**0**	30	0	**30**	37	2	**39**	0	0	**0**
16:45 to 17:45	6	0	**6**	23	0	**23**	0	0	**0**	29	0	**29**	34	2	**36**	0	0	**0**
17:00 to 18:00	5	0	**5**	19	0	**19**	0	0	**0**	33	0	**33**	31	2	**33**	0	0	**0**
17:15 to 18:15	4	0	**4**	18	0	**18**	0	0	**0**	33	0	**33**	33	0	**33**	0	0	**0**
17:30 to 18:30	3	0	**3**	15	0	**15**	0	0	**0**	27	0	**27**	33	1	**34**	0	0	**0**
17:45 to 18:45	1	0	**1**	17	0	**17**	0	0	**0**	26	0	**26**	41	1	**42**	0	0	**0**
18:00 to 19:00	3	0	**3**	17	0	**17**	0	0	**0**	22	0	**22**	43	1	**44**	0	0	**0**
PM Totals	**16**	**0**	**16**	**74**	**0**	**74**	**0**	**0**	**0**	**101**	**1**	**102**	**148**	**8**	**156**	**0**	**0**	**0**

Approach	Old Gosford Rd								
Direction	Direction 11 (Through)			Direction 12 (Right Turn)			Direction 12U (U Turn)		
Time Period	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total
6:00 to 7:00	12	0	**12**	0	0	**0**	0	0	**0**
6:15 to 7:15	14	0	**14**	0	0	**0**	0	0	**0**
6:30 to 7:30	11	0	**11**	1	0	**1**	0	0	**0**
6:45 to 7:45	12	0	**12**	2	0	**2**	0	0	**0**
7:00 to 8:00	16	0	**16**	3	0	**3**	0	0	**0**
7:15 to 8:15	17	1	**18**	5	0	**5**	0	0	**0**
7:30 to 8:30	25	2	**27**	5	0	**5**	0	0	**0**
7:45 to 8:45	28	4	**32**	4	0	**4**	0	0	**0**
8:00 to 9:00	33	4	**37**	3	0	**3**	0	0	**0**
8:15 to 9:15	36	4	**40**	1	0	**1**	0	0	**0**
8:30 to 9:30	37	3	**40**	0	0	**0**	0	0	**0**
8:45 to 9:45	38	2	**40**	1	0	**1**	0	0	**0**
9:00 to 10:00	34	2	**36**	2	0	**2**	0	0	**0**
AM Totals	**95**	**6**	**101**	**8**	**0**	**8**	**0**	**0**	**0**
15:00 to 16:00	48	8	**56**	4	0	**4**	0	0	**0**
15:15 to 16:15	42	7	**49**	4	0	**4**	0	0	**0**
15:30 to 16:30	44	6	**50**	5	0	**5**	0	0	**0**
15:45 to 16:45	47	5	**52**	5	0	**5**	0	0	**0**
16:00 to 17:00	46	1	**47**	8	1	**9**	0	0	**0**
16:15 to 17:15	54	1	**55**	9	1	**10**	0	0	**0**
16:30 to 17:30	54	1	**55**	8	1	**9**	0	0	**0**
16:45 to 17:45	49	0	**49**	10	1	**11**	0	0	**0**
17:00 to 18:00	50	1	**51**	8	0	**8**	0	0	**0**
17:15 to 18:15	50	1	**51**	7	0	**7**	0	0	**0**
17:30 to 18:30	49	2	**51**	9	0	**9**	0	0	**0**
17:45 to 18:45	52	2	**54**	7	0	**7**	0	0	**0**
18:00 to 19:00	48	1	**49**	6	0	**6**	0	0	**0**
PM Totals	**192**	**11**	**203**	**26**	**1**	**27**	**0**	**0**	**0**

Appendix D

Traffic Survey – O-D Surveys

WAMBERAL O-D SURVEY LOCATION MAP

Job No. : N693
Job : Wamberal OD
Description : Origin-Destination Survey
Day/Date/Time : Thu, 27th Oct 2011 6:00am to 10:00am
: individual matching

SKYHIGH - THE TRAFFIC SURVEY COMPANY

[6:00-7:00 Raw]

	Outbound	1EB	1WB	2EB	2WB	3EB	3WB	4NB	4SB	5EB	5WB	6NB	6SB	7SB	8EB	8WB	9EB	9WB	10NB	11NB	11SB	Total	
Inbound	Vehicles	265	678	34	25	12	50	28	25	22	30	2	2	342	21	17	306	440	677	39	22	3,037	
1EB	265				4	2			9	2			0	5	0		8		197		3	230	
1WB	678			5																		5	
2EB	34						2	4		4			0	0	0		1		6	6		23	
2WB	25	4																				4	
3EB	12								2	1			0	1	1		0		0	1		6	
3WB	50		39														1		1			41	
4NB	28		11				10								1		0		9	12		43	
4SB	25				3					6			0	1								10	
5EB	22											0		2	0			3	2			7	
5WB	30		1		4		1	3												1		10	
6NB	2		1		0			0						0	1			1		0		3	
6SB	2										0			0								0	
7NB	436		11		1		2	0	2		1					6		318	322		4	667	
8EB	21													10				10	10			30	
8WB	17		7		0		5		2	0	0		1							3		18	
9EB	306													273		4						277	
9WB	440		35																300		4	339	
10SB	880		515											265		0	273				11	1,064	
11NB	39		4											2			1		21			28	
11SB	22				3		0		11	2	1		0		3							20	
Total	3,334	4	624	5	15	2	20	7	26	15	2	0	1	559	6	10	284	332	868	23	22	2,825	85%

93%

[EXP]

	Outbound	1EB	1WB	2EB	2WB	3EB	3WB	4NB	4SB	5EB	5WB	6NB	6SB	7SB	8EB	8WB	9EB	9WB	10NB	11NB	11SB
Inbound	EXP	1.010	1.014	1.005	1.000	2.769	1.090	1.005	1.005	1.000	1.038	1.000	2.714	1.039	1.016	1.030	1.015	1.019	1.053	1.061	1.037
1EB	1.010				1.010	2.797			1.015	1.010			2.741	1.049	1.026		1.025		1.064		1.047
1WB	1.014			1.019																	
2EB	1.005						1.095	1.010		1.005			2.728	1.044	1.021		1.020		1.058	1.066	
2WB	1.000	1.010																			
3EB	2.769								2.783	2.769			7.515	2.877	2.813		2.811		2.916	2.938	
3WB	1.090		1.105														1.106		1.148		
4NB	1.005		1.019				1.095								1.021		1.020		1.058	1.066	
4SB	1.005				1.005					1.005			2.728	1.044							
5EB	1.000											1.000		1.039	1.016			1.019	1.053		
5WB	1.038		1.053		1.038		1.131	1.043												1.101	
6NB	1.000		1.014		1.000			1.005						1.039	1.016			1.019		1.061	
6SB	2.714										2.817			2.820							
7NB	1.030		1.044		1.030		1.123	1.035	1.035		1.069					1.061		1.050	1.085		1.068
8EB	1.016													1.056				1.035	1.070		
8WB	1.030		1.044		1.030		1.123		1.035	1.030	1.069		2.795							1.093	
9EB	1.015													1.055		1.045					
9WB	1.019		1.033																1.073		1.057
10SB	1.007		1.021											1.046		1.037	1.022				1.044
11NB	1.061		1.076											1.102			1.077		1.117		
11SB	1.037				1.037		1.130		1.042	1.037	1.076		2.814		1.054						

[6:00-7:00 Final]

	Outbound	1EB	1WB	2EB	2WB	3EB	3WB	4NB	4SB	5EB	5WB	6NB	6SB	7SB	8EB	8WB	9EB	9WB	10NB	11NB	11SB	Total	
Inbound	Vehicles	265	678	34	25	12	50	28	25	22	30	2	2	342	21	17	306	440	677	39	22	3,037	
1EB	265				4	6			9	2			0	5	0		8		210		3	247	
1WB	678			5																		5	
2EB	34						2	4		4			0	0	0		1		6	6		23	
2WB	25	4																				4	
3EB	12								6	3			0	3	3		0		0	3		18	
3WB	50		43														1		1			45	
4NB	28		11				11								1		0		10	13		46	
4SB	25				3					6			0	1								10	
5EB	22											0		2	0			3	2			7	
5WB	30		1		4		1	3												1		10	
6NB	2		1		0			0						0	1			1		0		3	
6SB	2										0			0								0	
7NB	436		11		1		2	0	2		1					6		334	349		4	710	
8EB	21													11				10	11			32	
8WB	17		7		0		6		2	0	0		3							3		21	
9EB	306													288		4						292	
9WB	440		36																322		4	362	
10SB	880		526											277		0	279				11	1,093	
11NB	39		4											2			1		23			30	
11SB	22				3		0		11	2	1		0		3							20	
Total	3,334	4	640	5	15	6	22	7	30	17	2	0	3	589	8	10	290	348	934	26	22	2,978	89%

98%

Job No. : N693
Job : Wamberal OD
Description : Origin-Destination Survey
Day/Date/Time : Thu, 27th Oct 2011 6:00am to 10:00am
: individual matching

SKYHIGH - THE TRAFFIC SURVEY COMPANY

[7:00-8:00 Raw]

	Outbound	1EB	1WB	2EB	2WB	3EB	3WB	4NB	4SB	5EB	5WB	6NB	6SB	7SB	8EB	8WB	9EB	9WB	10NB	11NB	11SB	Total	
Inbound	Vehicles	466	1,011	47	69	30	86	61	54	40	37	6	4	567	38	33	501	643	1,056	68	36	4,853	
1EB	466				4	9			10	4			0	15	3		22		359		3	429	
1WB	1,011			7																		7	
2EB	47						5	9		6			0	0	1		0		16	16		53	
2WB	69	4																				4	
3EB	30								4	1			0	1	2		0		2	3		13	
3WB	86		79														3		1			83	
4NB	61		32				28								2		0		19	24		105	
4SB	54				17					13			0	1								31	
5EB	40											0		2	0			6	7			15	
5WB	37		3		7		3	8												3		24	
6NB	6		3		0			0						0	1			1		1		6	
6SB	4										0			0								0	
7NB	670		19		1		3	2	3		5					10		507	501		4	1,055	
8EB	38													15				19	19			53	
8WB	33		10		5		9		7	3	0		0							4		38	
9EB	501													431		12						443	
9WB	643		38																513		6	557	
10SB	1,390		812											418		10	456				25	1,721	
11NB	68		9											2			2		40			53	
11SB	36				9		0		16	1	0		0		4							30	
Total	5,290	4	1,005	7	43	9	48	19	40	28	5	0	0	885	13	32	483	533	1,477	51	38	4,720	89%
																							97%

[EXP]

	Outbound	1EB	1WB	2EB	2WB	3EB	3WB	4NB	4SB	5EB	5WB	6NB	6SB	7SB	8EB	8WB	9EB	9WB	10NB	11NB	11SB
Inbound	EXP	1.010	1.014	1.005	1.000	2.769	1.090	1.005	1.005	1.000	1.038	1.000	2.714	1.039	1.016	1.030	1.015	1.019	1.053	1.061	1.037
1EB	1.010				1.010	2.797			1.015	1.010			2.741	1.049	1.026		1.025		1.064		1.047
1WB	1.014			1.019																	
2EB	1.005						1.095	1.010		1.005			2.728	1.044	1.021		1.020		1.058	1.066	
2WB	1.000	1.010																			
3EB	2.769								2.783	2.769			7.515	2.877	2.813		2.811		2.916	2.938	
3WB	1.090		1.105														1.106		1.148		
4NB	1.005		1.019				1.095								1.021		1.020		1.058	1.066	
4SB	1.005				1.005					1.005			2.728	1.044							
5EB	1.000											1.000		1.039	1.016			1.019	1.053		
5WB	1.038		1.053		1.038		1.131	1.043												1.101	
6NB	1.000		1.014		1.000			1.005						1.039	1.016			1.019		1.061	
6SB	2.714										2.817			2.820							
7NB	1.030		1.044		1.030		1.123	1.035	1.035		1.069					1.061		1.050	1.085		1.068
8EB	1.016													1.056				1.035	1.070		
8WB	1.030		1.044		1.030		1.123		1.035	1.030	1.069		2.795							1.093	
9EB	1.015													1.055		1.045					
9WB	1.019		1.033																1.073		1.057
10SB	1.007		1.021											1.046		1.037	1.022				1.044
11NB	1.061		1.076											1.102			1.077		1.117		
11SB	1.037				1.037		1.130		1.042	1.037	1.076		2.814		1.054						

[7:00-8:00 Final]

	Outbound	1EB	1WB	2EB	2WB	3EB	3WB	4NB	4SB	5EB	5WB	6NB	6SB	7SB	8EB	8WB	9EB	9WB	10NB	11NB	11SB	Total	
Inbound	Vehicles	466	1,011	47	69	30	86	61	54	40	37	6	4	567	38	33	501	643	1,056	68	36	4,853	
1EB	466				4	25			10	4			0	16	3		23		382		3	470	
1WB	1,011			7																		7	
2EB	47						5	9		6			0	0	1		0		17	17		55	
2WB	69	4																				4	
3EB	30								11	3			0	3	6		0		6	9		38	
3WB	86		87														3		1			91	
4NB	61		33				31								2		0		20	26		112	
4SB	54				17					13			0	1								31	
5EB	40											0		2	0			6	7			15	
5WB	37		3		7		3	8												3		24	
6NB	6		3		0			0						0	1			1		1		6	
6SB	4										0			0								0	
7NB	670		20		1		3	2	3		5					11		532	543		4	1,124	
8EB	38													16				20	20			56	
8WB	33		10		5		10		7	3	0		0							4		39	
9EB	501													455		13						468	
9WB	643		39																550		6	595	
10SB	1,390		829											437		10	466				26	1,768	
11NB	68		10											2			2		45			59	
11SB	36				9		0		17	1	0		0		4							31	
Total	5,290	4	1,034	7	43	25	52	19	48	30	5	0	0	932	17	34	494	559	1,591	60	39	4,993	94%
																							103%

Job No. : N693
Job : Wamberal OD
Description : Origin-Destination Survey
Day/Date/Time : Thu, 27th Oct 2011 6:00am to 10:00am
: individual matching

SKYHIGH - THE TRAFFIC SURVEY COMPANY

[8:00-9:00 Raw]

	Outbound	1EB	1WB	2EB	2WB	3EB	3WB	4NB	4SB	5EB	5WB	6NB	6SB	7SB	8EB	8WB	9EB	9WB	10NB	11NB	11SB	Total	
Inbound	Vehicles	610	1,052	60	168	38	119	66	66	33	50	5	8	635	63	80	514	723	1,281	77	73	5,721	
1EB	610				12	2			14	4			0	25	9		28		479		12	585	
1WB	1,052			11																		11	
2EB	60						3	17		3			1	3	5		1		16	15		64	
2WB	168	12																				12	
3EB	38								0	0			1	0	1		0		1	0		3	
3WB	119		87														6		4			97	
4NB	66		28				19								6		3		23	21		100	
4SB	66				39					12			0	1								52	
5EB	33											0		0	0			7	4			11	
5WB	50		9		16		6	12												0		43	
6NB	5		0		0			0						1	2			2		0		5	
6SB	8										0			0								0	
7NB	792		34		10		10	2	7		11					31		553	546		10	1,214	
8EB	63													22				35	35			92	
8WB	80		30		19		24		10	2	0		2							12		99	
9EB	514													453		13						466	
9WB	723		48																574		16	638	
10SB	1,384		781											423		6	461				49	1,720	
11NB	77		9											5			4		45			63	
11SB	73				26		6		26	2	0		0		10							70	
Total	5,981	12	1,026	11	122	2	68	31	57	23	11	0	4	933	33	50	503	597	1,727	48	87	5,345	89%
																							93%

[EXP]

	Outbound	1EB	1WB	2EB	2WB	3EB	3WB	4NB	4SB	5EB	5WB	6NB	6SB	7SB	8EB	8WB	9EB	9WB	10NB	11NB	11SB
Inbound	EXP	1.010	1.014	1.005	1.000	2.769	1.090	1.005	1.005	1.000	1.038	1.000	2.714	1.039	1.016	1.030	1.015	1.019	1.053	1.061	1.037
1EB	1.010				1.010	2.797			1.015	1.010			2.741	1.049	1.026		1.025		1.064		1.047
1WB	1.014			1.019																	
2EB	1.005						1.095	1.010		1.005			2.728	1.044	1.021		1.020		1.058	1.066	
2WB	1.000	1.010																			
3EB	2.769								2.783	2.769			7.515	2.877	2.813		2.811		2.916	2.938	
3WB	1.090		1.105														1.106		1.148		
4NB	1.005		1.019				1.095								1.021		1.020		1.058	1.066	
4SB	1.005				1.005					1.005			2.728	1.044							
5EB	1.000											1.000		1.039	1.016			1.019	1.053		
5WB	1.038		1.053		1.038		1.131	1.043												1.101	
6NB	1.000		1.014		1.000			1.005						1.039	1.016			1.019		1.061	
6SB	2.714										2.817			2.820							
7NB	1.030		1.044		1.030		1.123	1.035	1.035		1.069					1.061		1.050	1.085		1.068
8EB	1.016													1.056				1.035	1.070		
8WB	1.030		1.044		1.030		1.123		1.035	1.030	1.069		2.795							1.093	
9EB	1.015													1.055		1.045					
9WB	1.019		1.033																1.073		1.057
10SB	1.007		1.021											1.046		1.037	1.022				1.044
11NB	1.061		1.076											1.102			1.077		1.117		
11SB	1.037				1.037		1.130		1.042	1.037	1.076		2.814		1.054						

[8:00-9:00 Final]

	Outbound	1EB	1WB	2EB	2WB	3EB	3WB	4NB	4SB	5EB	5WB	6NB	6SB	7SB	8EB	8WB	9EB	9WB	10NB	11NB	11SB	Total	
Inbound	Vehicles	610	1,052	60	168	38	119	66	66	33	50	5	8	635	63	80	514	723	1,281	77	73	5,721	
1EB	610				12	6			14	4			0	26	9		29		509		13	622	
1WB	1,052			11																		11	
2EB	60						3	17		3			3	3	5		1		17	16		68	
2WB	168	12																				12	
3EB	38								0	0			8	0	3		0		3	0		14	
3WB	119		96														7		5			108	
4NB	66		29				21								6		3		24	22		105	
4SB	66				39					12			0	1								52	
5EB	33											0		0	0			7	4			11	
5WB	50		9		17		7	13												0		46	
6NB	5		0		0			0						1	2			2		0		5	
6SB	8										0			0								0	
7NB	792		36		10		11	2	7		12					33		580	592		11	1,294	
8EB	63													23				36	37			96	
8WB	80		31		20		27		10	2	0		6							13		109	
9EB	514													478		14						492	
9WB	723		50																616		17	683	
10SB	1,384		797											443		6	471				51	1,768	
11NB	77		10											6			4		50			70	
11SB	73				27		7		27	2	0		0		11							74	
Total	5,981	12	1,058	11	125	6	76	32	58	23	12	0	17	981	36	53	515	625	1,857	51	92	5,640	94%
																							99%

Job No. : N693
Job : Wamberal OD
Description : Origin-Destination Survey
Day/Date/Time : Thu, 27th Oct 2011 6:00am to 10:00am
: individual matching

SKYHIGH - THE TRAFFIC SURVEY COMPANY

[9:00-10:00 Raw]

	Outbound	1EB	1WB	2EB	2WB	3EB	3WB	4NB	4SB	5EB	5WB	6NB	6SB	7SB	8EB	8WB	9EB	9WB	10NB	11NB	11SB	Total	
Inbound	Vehicles	506	925	56	58	28	61	49	52	35	20	4	5	452	63	39	390	525	934	61	66	4,329	
1EB	506				4	8			6	2			0	20	9		30		398		5	482	
1WB	925			12																		12	
2EB	56						3	16		9			0	3	7		0		12	13		63	
2WB	58	4																				4	
3EB	28								3	0			0	1	4		2		4	2		16	
3WB	61		58														1		1			60	
4NB	49		31				24								8		2		6	15		86	
4SB	52				16					12			0	0								28	
5EB	35											0		2	0			12	9			23	
5WB	20		5		3		4	5												1		18	
6NB	4		1		0			0						0	3			2		0		6	
6SB	5										0			0								0	
7NB	513		29		6		3	0	6		2					15		383	365		10	819	
8EB	63													23				26	23			72	
8WB	39		8		3		6		7	3	0		0							8		35	
9EB	390													289		14						303	
9WB	525		50																407		15	472	
10SB	1,223		750											284		11	342				39	1,426	
11NB	61		11											2			6		26			45	
11SB	66				8		2		27	6	1		0		11							55	
Total	4,679	4	943	12	40	8	42	21	49	32	3	0	0	624	42	40	383	423	1,251	39	69	4,025	86%
																							93%

[EXP]

	Outbound	1EB	1WB	2EB	2WB	3EB	3WB	4NB	4SB	5EB	5WB	6NB	6SB	7SB	8EB	8WB	9EB	9WB	10NB	11NB	11SB
Inbound	EXP	1.010	1.014	1.005	1.000	2.769	1.090	1.005	1.005	1.000	1.038	1.000	2.714	1.039	1.016	1.030	1.015	1.019	1.053	1.061	1.037
1EB	1.010				1.010	2.797			1.015	1.010			2.741	1.049	1.026		1.025		1.064		1.047
1WB	1.014			1.019																	
2EB	1.005						1.095	1.010		1.005			2.728	1.044	1.021		1.020		1.058	1.066	
2WB	1.000	1.010																			
3EB	2.769								2.783	2.769			7.515	2.877	2.813		2.811		2.916	2.938	
3WB	1.090		1.105														1.106		1.148		
4NB	1.005		1.019				1.095								1.021		1.020		1.058	1.066	
4SB	1.005				1.005					1.005			2.728	1.044							
5EB	1.000											1.000		1.039	1.016			1.019	1.053		
5WB	1.038		1.053		1.038		1.131	1.043												1.101	
6NB	1.000		1.014		1.000			1.005						1.039	1.016			1.019		1.061	
6SB	2.714										2.817			2.820							
7NB	1.030		1.044		1.030		1.123	1.035	1.035		1.069					1.061		1.050	1.085		1.068
8EB	1.016													1.056				1.035	1.070		
8WB	1.030		1.044		1.030		1.123		1.035	1.030	1.069		2.795							1.093	
9EB	1.015													1.055		1.045					
9WB	1.019		1.033																1.073		1.057
10SB	1.007		1.021											1.046		1.037	1.022				1.044
11NB	1.061		1.076											1.102			1.077		1.117		
11SB	1.037				1.037		1.130		1.042	1.037	1.076		2.814		1.054						

[9:00-10:00 Final]

	Outbound	1EB	1WB	2EB	2WB	3EB	3WB	4NB	4SB	5EB	5WB	6NB	6SB	7SB	8EB	8WB	9EB	9WB	10NB	11NB	11SB	Total	
Inbound	Vehicles	506	925	56	58	28	61	49	52	35	20	4	5	452	63	39	390	525	934	61	66	4,329	
1EB	506				4	22			6	2			0	21	9		31		423		5	523	
1WB	925			12																		12	
2EB	56						3	16		9			0	3	7		0		13	14		65	
2WB	58	4																				4	
3EB	28								8	0			0	3	11		6		12	6		46	
3WB	61		64														1		1			66	
4NB	49		32				26								8		2		6	16		90	
4SB	52				16					12			0	0								28	
5EB	35											0		2	0			12	9			23	
5WB	20		5		3		5	5												1		19	
6NB	4		1		0			0						0	3			2		0		6	
6SB	5										0			0								0	
7NB	513		30		6		3	0	6		2					16		402	396		11	872	
8EB	63													24				27	25			76	
8WB	39		8		3		7		7	3	0		0							9		37	
9EB	390													305		15						320	
9WB	525		52																437		16	505	
10SB	1,223		766											297		11	350				41	1,465	
11NB	61		12											2			6		29			49	
11SB	66				8		2		28	6	1		0		12							57	
Total	4,679	4	970	12	40	22	46	21	55	32	3	0	0	657	50	42	396	443	1,351	46	73	4,263	91%
																							98%

Job No. : N693
Job : Wamberal OD
Description : Origin-Destination Survey
Day/Date/Time : Thu, 27th Oct 2011 6:00am to 10:00am
: individual matching

SKYHIGH - THE TRAFFIC SURVEY COMPANY

[AM 4hrs Total - Raw Data]

	Outbound	1EB	1WB	2EB	2WB	3EB	3WB	4NB	4SB	5EB	5WB	6NB	6SB	7SB	8EB	8WB	9EB	9WB	10NB	11NB	11SB	Total	
Inbound	Vehicles	1,847	3,666	197	320	108	316	204	197	130	137	17	19	1,996	185	169	1,711	2,331	3,948	245	197	17,940	
1EB	1,847				24	21			39	12			0	65	21		88		1,433		23	1,726	
1WB	3,666			35																		35	
2EB	197						13	46		22			1	6	13		2		50	50		203	
2WB	320	24																				24	
3EB	108								9	2			1	3	8		2		7	6		38	
3WB	316		263														11		7			281	
4NB	204		102				81								17		5		57	72		334	
4SB	197				75					43			0	3								121	
5EB	130											0		6	0			28	22			56	
5WB	137		18		30		14	28												5		95	
6NB	17		5		0			0						1	7			6		1		20	
6SB	19										0			0								0	
7NB	2,411		93		18		18	4	18		19					62		1,761	1,734		28	3,755	
8EB	185													70				90	87			247	
8WB	169		55		27		44		26	8	0		3							27		190	
9EB	1,711													1,446		43						1,489	
9WB	2,331		171																1,794		41	2,006	
10SB	4,877		2,858											1,390		27	1,532				124	5,931	
11NB	245		33											11			13		132			189	
11SB	197				46		8		80	11	2		0		28							175	
Total	19,284	24	3,598	35	220	21	178	78	172	98	21	0	5	3,001	94	132	1,653	1,885	5,323	161	216	16,915	88%
																							94%

[AM 4hrs Total - EXP Analysis]

	Outbound	1EB	1WB	2EB	2WB	3EB	3WB	4NB	4SB	5EB	5WB	6NB	6SB	7SB	8EB	8WB	9EB	9WB	10NB	11NB	11SB
Inbound	EXP	1.010	1.014	1.005	1.000	2.769	1.090	1.005	1.005	1.000	1.038	1.000	2.714	1.039	1.016	1.030	1.015	1.019	1.053	1.061	1.037
1EB	1.010				1.010	2.797			1.015	1.010			2.741	1.049	1.026		1.025		1.064		1.047
1WB	1.014			1.019																	
2EB	1.005						1.095	1.010		1.005			2.728	1.044	1.021		1.020		1.058	1.066	
2WB	1.000	1.010																			
3EB	2.769								2.783	2.769			7.515	2.877	2.813		2.811		2.916	2.938	
3WB	1.090		1.105														1.106		1.148		
4NB	1.005		1.019				1.095								1.021		1.020		1.058	1.066	
4SB	1.005				1.005					1.005			2.728	1.044							
5EB	1.000											1.000		1.039	1.016			1.019	1.053		
5WB	1.038		1.053		1.038		1.131	1.043												1.101	
6NB	1.000		1.014		1.000			1.005						1.039	1.016			1.019		1.061	
6SB	2.714										2.817			2.820							
7NB	1.030		1.044		1.030		1.123	1.035	1.035		1.069					1.061		1.050	1.085		1.068
8EB	1.016													1.056				1.035	1.070		
8WB	1.030		1.044		1.030		1.123		1.035	1.030	1.069		2.795							1.093	
9EB	1.015													1.055		1.045					
9WB	1.019		1.033																1.073		1.057
10SB	1.007		1.021											1.046		1.037	1.022				1.044
11NB	1.061		1.076											1.102			1.077		1.117		
11SB	1.037				1.037		1.130		1.042	1.037	1.076		2.814		1.054						

[AM 4hrs Total - Final Matching]

	Outbound	1EB	1WB	2EB	2WB	3EB	3WB	4NB	4SB	5EB	5WB	6NB	6SB	7SB	8EB	8WB	9EB	9WB	10NB	11NB	11SB	Total	
Inbound	Vehicles	1,847	3,666	197	320	108	316	204	197	130	137	17	19	1,996	185	169	1,711	2,331	3,948	245	197	17,940	
1EB	1,847				24	59			40	12			0	68	22		90		1,524		24	1,863	
1WB	3,666			36																		36	
2EB	197						14	46		22			3	6	13		2		53	53		212	
2WB	320	24																				24	
3EB	108								25	6			8	9	23		6		20	18		115	
3WB	316		291														12		8			311	
4NB	204		104				89								17		5		60	77		352	
4SB	197				75					43			0	3								121	
5EB	130											0		6	0			29	23			58	
5WB	137		19		31		16	29												6		101	
6NB	17		5		0			0						1	7			6		1		20	
6SB	19										0			0								0	
7NB	2,411		97		19		20	4	19		20					66		1,848	1,881		30	4,004	
8EB	185													74				93	93			260	
8WB	169		57		28		49		27	8	0		8							30		207	
9EB	1,711													1,525		45						1,570	
9WB	2,331		177																1,925		43	2,145	
10SB	4,877		2,918											1,454		28	1,566				129	6,095	
11NB	245		36											12			14		147			209	
11SB	197				48		9		83	11	2		0		30							183	
Total	19,284	24	3,704	36	225	59	197	79	194	102	22	0	19	3,158	112	139	1,695	1,976	5,734	185	226	17,886	93%
																							100%

Job No. : N693
Job : Wamberal OD
Description : Origin-Destination Survey
Day/Date/Time : Thu, 27th Oct 2011 15:00pm to 19:00pm
: individual matching

SKYHIGH - THE TRAFFIC SURVEY COMPANY

[15:00-16:00 Raw]

	Outbound	1EB	1WB	2EB	2WB	3EB	3WB	4NB	4SB	5EB	5WB	6NB	6SB	7SB	8EB	8WB	9EB	9WB	10NB	11NB	11SB	Total	
Inbound	Vehicles	1,013	711	121	54	66	49	82	63	57	48	3	10	638	73	64	606	665	1,199	84	68	5,674	
1EB	1,013				1	32			15	4			0	30	12		63		789		10	956	
1WB	711			16																		16	
2EB	121						7	36		12			1	8	12		3		24	28		131	
2WB	54	1																				1	
3EB	66								9	4			0	2	12		1		11	6		45	
3WB	49		46														5		3			54	
4NB	82		30				21								11		3		24	34		123	
4SB	63				13					14			1	0								28	
5EB	57											1		1	1			11	11			25	
5WB	48		4		7		4	8												2		25	
6NB	3		0		0			0						1	2			0		0		3	
6SB	10										0			1								1	
7NB	761		32		6		5	4	8		11					33		518	517		9	1,143	
8EB	73													24				33	28			85	
8WB	64		8		3		10		9	1	0		5							7		43	
9EB	606													510		17						527	
9WB	665		43																527		15	585	
10SB	1,563		544											462		13	496				40	1,555	
11NB	84		12											4			3		46			65	
11SB	68				6		2		21	2	0		1		13							45	
Total	6,161	1	719	16	36	32	49	48	62	37	11	1	8	1,043	63	63	574	562	1,980	77	74	5,456	89%
																							96%

[EXP]

	Outbound	1EB	1WB	2EB	2WB	3EB	3WB	4NB	4SB	5EB	5WB	6NB	6SB	7SB	8EB	8WB	9EB	9WB	10NB	11NB	11SB
Inbound	EXP	1.011	1.010	1.004	1.000	1.197	1.011	1.003	1.003	1.013	1.050	1.050	1.243	1.009	1.011	1.049	1.018	1.008	1.061	1.068	1.009
1EB	1.011				1.011	1.210			1.014	1.024			1.257	1.020	1.022		1.029		1.073		1.020
1WB	1.010			1.014																	
2EB	1.004						1.015	1.007		1.017			1.248	1.013	1.015		1.022		1.065	1.072	
2WB	1.000	1.011																			
3EB	1.197								1.201	1.213			1.488	1.208	1.210		1.219		1.270	1.278	
3WB	1.011		1.021														1.029		1.073		
4NB	1.003		1.013				1.014								1.014		1.021		1.064	1.071	
4SB	1.003				1.003					1.016			1.247	1.012							
5EB	1.013											1.064		1.022	1.024			1.021	1.075		
5WB	1.050		1.061		1.050		1.062	1.053												1.121	
6NB	1.050		1.061		1.050			1.053						1.059	1.062			1.058		1.121	
6SB	1.243										1.305			1.254							
7NB	1.039		1.049		1.039		1.050	1.042	1.042		1.091					1.090		1.047	1.102		1.048
8EB	1.011													1.020				1.019	1.073		
8WB	1.049		1.059		1.049		1.061		1.052	1.063	1.101		1.304							1.120	
9EB	1.018													1.027		1.068					
9WB	1.008		1.018																1.069		1.017
10SB	1.017		1.027											1.026		1.067	1.035				1.026
11NB	1.068		1.079											1.078			1.087		1.133		
11SB	1.009				1.009		1.020		1.012	1.022	1.059		1.254		1.020						

[15:00-16:00 Final]

	Outbound	1EB	1WB	2EB	2WB	3EB	3WB	4NB	4SB	5EB	5WB	6NB	6SB	7SB	8EB	8WB	9EB	9WB	10NB	11NB	11SB	Total	
Inbound	Vehicles	1,013	711	121	54	66	49	82	63	57	48	3	10	638	73	64	606	665	1,199	84	68	5,674	
1EB	1,013				1	39			15	4			0	31	12		65		846		10	1,023	
1WB	711			16																		16	
2EB	121						7	36		12			1	8	12		3		26	30		135	
2WB	54	1																				1	
3EB	66								11	5			0	2	15		1		14	8		56	
3WB	49		47														5		3			55	
4NB	82		30				21								11		3		26	36		127	
4SB	63				13					14			1	0								28	
5EB	57											1		1	1			11	12			26	
5WB	48		4		7		4	8												2		25	
6NB	3		0		0			0						1	2			0		0		3	
6SB	10										0			1								1	
7NB	761		34		6		5	4	8		12					36		543	570		9	1,227	
8EB	73													24				34	30			88	
8WB	64		8		3		11		9	1	0		7							8		47	
9EB	606													524		18						542	
9WB	665		44																564		15	623	
10SB	1,563		559											474		14	514				41	1,602	
11NB	84		13											4			3		52			72	
11SB	68				6		2		21	2	0		1		13							45	
Total	6,161	1	739	16	36	39	50	48	64	38	12	1	10	1,070	66	68	594	588	2,143	84	75	5,742	93%
																							101%

Job No. : N693
Job : Wamberal OD
Description : Origin-Destination Survey
Day/Date/Time : Thu, 27th Oct 2011 15:00pm to 19:00pm
: individual matching

SKYHIGH - THE TRAFFIC SURVEY COMPANY

[16:00-17:00 Raw]

	Outbound	1EB	1WB	2EB	2WB	3EB	3WB	4NB	4SB	5EB	5WB	6NB	6SB	7SB	8EB	8WB	9EB	9WB	10NB	11NB	11SB	Total	
Inbound	Vehicles	1,103	681	128	75	64	40	79	63	48	56	7	12	616	69	64	602	629	1,563	74	87	6,060	
1EB	1,103				3	39			17	3			3	33	11		61		841		16	1,027	
1WB	681			12																		12	
2EB	128						4	34		12			2	5	12		3		15	19		106	
2WB	75	3																				3	
3EB	64								10	3			2	3	7		2		3	5		35	
3WB	40		39														1		0			40	
4NB	79		23				16								10		4		17	33		103	
4SB	63				17					11			0	1								29	
5EB	48											1		0	1			6	5			13	
5WB	56		9		12		7	14												3		45	
6NB	7		1		0			0						2	3			1		1		8	
6SB	12										1			0								1	
7NB	694		19		9		1	3	4		16					29		488	480		6	1,055	
8EB	69													26				28	21			75	
8WB	64		4		8		3		7	2	0		4							7		35	
9EB	602													495		19						514	
9WB	629		38																505		16	559	
10SB	1,147		520											468		16	509				52	1,565	
11NB	74		12											3			7		29			51	
11SB	87				10		1		26	5	1		2		15							60	
Total	5,722	3	665	12	59	39	32	51	64	36	18	1	13	1,036	59	64	587	523	1,916	68	90	5,336	93%

88%

[EXP]

	Outbound	1EB	1WB	2EB	2WB	3EB	3WB	4NB	4SB	5EB	5WB	6NB	6SB	7SB	8EB	8WB	9EB	9WB	10NB	11NB	11SB
Inbound	EXP	1.011	1.010	1.004	1.000	1.197	1.011	1.003	1.003	1.013	1.050	1.050	1.243	1.009	1.011	1.049	1.018	1.008	1.061	1.068	1.009
1EB	1.011				1.011	1.210			1.014	1.024			1.257	1.020	1.022		1.029		1.073		1.020
1WB	1.010			1.014																	
2EB	1.004						1.015	1.007		1.017			1.248	1.013	1.015		1.022		1.065	1.072	
2WB	1.000	1.011																			
3EB	1.197								1.201	1.213			1.488	1.208	1.210		1.219		1.270	1.278	
3WB	1.011		1.021														1.029		1.073		
4NB	1.003		1.013				1.014								1.014		1.021		1.064	1.071	
4SB	1.003				1.003					1.016			1.247	1.012							
5EB	1.013											1.064		1.022	1.024			1.021	1.075		
5WB	1.050		1.061		1.050		1.062	1.053												1.121	
6NB	1.050		1.061		1.050			1.053						1.059	1.062			1.058		1.121	
6SB	1.243										1.305			1.254							
7NB	1.039		1.049		1.039		1.050	1.042	1.042		1.091					1.090		1.047	1.102		1.048
8EB	1.011													1.020				1.019	1.073		
8WB	1.049		1.059		1.049		1.061		1.052	1.063	1.101		1.304							1.120	
9EB	1.018													1.027		1.068					
9WB	1.008		1.018																1.069		1.017
10SB	1.017		1.027											1.026		1.067	1.035				1.026
11NB	1.068		1.079											1.078			1.087		1.133		
11SB	1.009				1.009		1.020		1.012	1.022	1.059		1.254		1.020						

[16:00-17:00 Final]

	Outbound	1EB	1WB	2EB	2WB	3EB	3WB	4NB	4SB	5EB	5WB	6NB	6SB	7SB	8EB	8WB	9EB	9WB	10NB	11NB	11SB	Total	
Inbound	Vehicles	1,103	681	128	75	64	40	79	63	48	56	7	12	616	69	64	602	629	1,563	74	87	6,060	
1EB	1,103				3	47			17	3			4	34	11		63		902		16	1,100	
1WB	681			12																		12	
2EB	128						4	34		12			2	5	12		3		16	20		108	
2WB	75	3																				3	
3EB	64								12	4			3	4	8		2		4	6		43	
3WB	40		40														1		0			41	
4NB	79		23				16								10		4		18	35		106	
4SB	63				17					11			0	1								29	
5EB	48											1		0	1			6	5			13	
5WB	56		10		13		7	15												3		48	
6NB	7		1		0			0						2	3			1		1		8	
6SB	12										1			0								1	
7NB	694		20		9		1	3	4		17					32		511	529		6	1,132	
8EB	69													27				29	23			79	
8WB	64		4		8		3		7	2	0		5							8		37	
9EB	602													508		20						528	
9WB	629		39																540		16	595	
10SB	1,147		534											480		17	527				53	1,611	
11NB	74		13											3			8		33			57	
11SB	87				10		1		26	5	1		3		15							61	
Total	5,722	3	684	12	60	47	32	52	66	37	19	1	17	1,064	60	69	608	547	2,070	73	91	5,612	98%

93%

Job No. : N693
Job : Wamberal OD
Description : Origin-Destination Survey
Day/Date/Time : Thu, 27th Oct 2011 15:00pm to 19:00pm
: individual matching

SKYHIGH - THE TRAFFIC SURVEY COMPANY

[17:00-18:00 Raw]

	Outbound	1EB	1WB	2EB	2WB	3EB	3WB	4NB	4SB	5EB	5WB	6NB	6SB	7SB	8EB	8WB	9EB	9WB	10NB	11NB	11SB	Total	
Inbound	Vehicles	1,135	736	104	103	89	46	75	91	67	59	4	14	624	68	64	600	551	1,562	78	98	6,168	
1EB	1,135				4	50			28	8			2	23	8		51		884		9	1,067	
1WB	736			9																		9	
2EB	104						5	18		16			1	5	5		4		10	13		77	
2WB	103	4																				4	
3EB	89								14	3			0	3	4		0		6	6		36	
3WB	46		41														1		3			45	
4NB	75		24				22								9		5		19	31		110	
4SB	91				29					14			2	3								48	
5EB	67											0		6	0			12	11			29	
5WB	59		9		10		8	15												5		47	
6NB	4		0		0			0						0	3			2		0		5	
6SB	14										3			4								7	
7NB	592		23		6		5	3	7		11					23		407	390		11	886	
8EB	68													33				17	16			66	
8WB	64		5		10		6		9	0	4		5							4		43	
9EB	600													501		23						524	
9WB	551		41																438		15	494	
10SB	1,257		605											488		22	519				62	1,696	
11NB	78		12											4			4		36			56	
11SB	98				12		3		35	5	2		1		19							77	
Total	5,831	4	760	9	71	50	49	36	93	46	20	0	11	1,070	48	68	584	438	1,813	59	97	5,326	91%
																							86%

[EXP]

	Outbound	1EB	1WB	2EB	2WB	3EB	3WB	4NB	4SB	5EB	5WB	6NB	6SB	7SB	8EB	8WB	9EB	9WB	10NB	11NB	11SB
Inbound	EXP	1.011	1.010	1.004	1.000	1.197	1.011	1.003	1.003	1.013	1.050	1.050	1.243	1.009	1.011	1.049	1.018	1.008	1.061	1.068	1.009
1EB	1.011				1.011	1.210			1.014	1.024			1.257	1.020	1.022		1.029		1.073		1.020
1WB	1.010			1.014																	
2EB	1.004						1.015	1.007		1.017			1.248	1.013	1.015		1.022		1.065	1.072	
2WB	1.000	1.011																			
3EB	1.197								1.201	1.213			1.488	1.208	1.210		1.219		1.270	1.278	
3WB	1.011		1.021														1.029		1.073		
4NB	1.003		1.013				1.014								1.014		1.021		1.064	1.071	
4SB	1.003				1.003					1.016			1.247	1.012							
5EB	1.013											1.064		1.022	1.024			1.021	1.075		
5WB	1.050		1.061		1.050		1.062	1.053												1.121	
6NB	1.050		1.061		1.050			1.053						1.059	1.062			1.058		1.121	
6SB	1.243										1.305			1.254							
7NB	1.039		1.049		1.039		1.050	1.042	1.042		1.091					1.090		1.047	1.102		1.048
8EB	1.011													1.020				1.019	1.073		
8WB	1.049		1.059		1.049		1.061		1.052	1.063	1.101		1.304							1.120	
9EB	1.018													1.027		1.068					
9WB	1.008		1.018																1.069		1.017
10SB	1.017		1.027											1.026		1.067	1.035				1.026
11NB	1.068		1.079											1.078			1.087		1.133		
11SB	1.009				1.009		1.020		1.012	1.022	1.059		1.254		1.020						

[17:00-18:00 Final]

	Outbound	1EB	1WB	2EB	2WB	3EB	3WB	4NB	4SB	5EB	5WB	6NB	6SB	7SB	8EB	8WB	9EB	9WB	10NB	11NB	11SB	Total	
Inbound	Vehicles	1,135	736	104	103	89	46	75	91	67	59	4	14	624	68	64	600	551	1,562	78	98	6,168	
1EB	1,135				4	61			28	8			3	23	8		52		948		9	1,144	
1WB	736			9																		9	
2EB	104						5	18		16			1	5	5		4		11	14		79	
2WB	103	4																				4	
3EB	89								17	4			0	4	5		0		8	8		46	
3WB	46		42														1		3			46	
4NB	75		24				22								9		5		20	33		113	
4SB	91				29					14			2	3								48	
5EB	67											0		6	0			12	12			30	
5WB	59		10		11		8	16												6		51	
6NB	4		0		0			0						0	3			2		0		5	
6SB	14										4			5								9	
7NB	592		24		6		5	3	7		12					25		426	430		12	950	
8EB	68													34				17	17			68	
8WB	64		5		10		6		9	0	4		7							4		45	
9EB	600													515		25						540	
9WB	551		42																468		15	525	
10SB	1,257		621											501		23	537				64	1,746	
11NB	78		13											4			4		41			62	
11SB	98				12		3		35	5	2		1		19							77	
Total	5,831	4	781	9	72	61	49	37	96	47	22	0	14	1,100	49	73	603	457	1,958	65	100	5,597	96%
																							91%

Job No. : N693
Job : Wamberal OD
Description : Origin-Destination Survey
Day/Date/Time : Thu, 27th Oct 2011 15:00pm to 19:00pm
: individual matching

SKYHIGH - THE TRAFFIC SURVEY COMPANY

[18:00-19:00 Raw]

	Outbound	1EB	1WB	2EB	2WB	3EB	3WB	4NB	4SB	5EB	5WB	6NB	6SB	7SB	8EB	8WB	9EB	9WB	10NB	11NB	11SB	Total	
Inbound	Vehicles	802	598	124	89	67	41	85	90	56	48	7	10	506	66	67	477	439	1,146	76	88	4,882	
1EB	802				6	34			21	5			1	19	10		46		581		11	734	
1WB	598			16																		16	
2EB	124						2	30		9			0	0	6		1		20	25		93	
2WB	89	6																				6	
3EB	67								13	0			0	2	4		0		3	4		26	
3WB	41		39														3		0			42	
4NB	85		23				16								9		2		21	31		102	
4SB	90				18					16			0	0								34	
5EB	56											0		1	0			7	10			18	
5WB	48		1		4		1	7												3		16	
6NB	7		0		0			0						2	4			2		0		8	
6SB	10										0			1								1	
7NB	513		17		4		2	2	4		13					30		315	293		9	689	
8EB	66													25				25	18			68	
8WB	67		6		6		5		6	2	1		6							4		36	
9EB	477													390		17						407	
9WB	439		29																324		11	364	
10SB	998		457											378		13	397				57	1,302	
11NB	76		11											2			3		34			50	
11SB	88				15		4		41	8	3		0		15							86	
Total	4,741	6	583	16	53	34	30	39	85	40	17	0	7	820	48	60	452	349	1,304	67	88	4,098	86%
																							84%

[EXP]

	Outbound	1EB	1WB	2EB	2WB	3EB	3WB	4NB	4SB	5EB	5WB	6NB	6SB	7SB	8EB	8WB	9EB	9WB	10NB	11NB	11SB
Inbound	EXP	1.011	1.010	1.004	1.000	1.197	1.011	1.003	1.003	1.013	1.050	1.050	1.243	1.009	1.011	1.049	1.018	1.008	1.061	1.068	1.009
1EB	1.011				1.011	1.210			1.014	1.024			1.257	1.020	1.022		1.029		1.073		1.020
1WB	1.010			1.014																	
2EB	1.004						1.015	1.007		1.017			1.248	1.013	1.015		1.022		1.065	1.072	
2WB	1.000	1.011																			
3EB	1.197								1.201	1.213			1.488	1.208	1.210		1.219		1.270	1.278	
3WB	1.011		1.021														1.029		1.073		
4NB	1.003		1.013				1.014								1.014		1.021		1.064	1.071	
4SB	1.003				1.003					1.016			1.247	1.012							
5EB	1.013											1.064		1.022	1.024			1.021	1.075		
5WB	1.050		1.061		1.050		1.062	1.053												1.121	
6NB	1.050		1.061		1.050			1.053						1.059	1.062			1.058		1.121	
6SB	1.243										1.305			1.254							
7NB	1.039		1.049		1.039		1.050	1.042	1.042		1.091					1.090		1.047	1.102		1.048
8EB	1.011													1.020				1.019	1.073		
8WB	1.049		1.059		1.049		1.061		1.052	1.063	1.101		1.304							1.120	
9EB	1.018													1.027		1.068					
9WB	1.008		1.018																1.069		1.017
10SB	1.017		1.027											1.026		1.067	1.035				1.026
11NB	1.068		1.079											1.078			1.087		1.133		
11SB	1.009				1.009		1.020		1.012	1.022	1.059		1.254		1.020						

[18:00-19:00 Final]

	Outbound	1EB	1WB	2EB	2WB	3EB	3WB	4NB	4SB	5EB	5WB	6NB	6SB	7SB	8EB	8WB	9EB	9WB	10NB	11NB	11SB	Total	
Inbound	Vehicles	802	598	124	89	67	41	85	90	56	48	7	10	506	66	67	477	439	1,146	76	88	4,882	
1EB	802				6	41			21	5			1	19	10		47		623		11	784	
1WB	598			16																		16	
2EB	124						2	30		9			0	0	6		1		21	27		96	
2WB	89	6																				6	
3EB	67								16	0			0	2	5		0		4	5		32	
3WB	41		40														3		0			43	
4NB	85		23				16								9		2		22	33		105	
4SB	90				18					16			0	0								34	
5EB	56											0		1	0			7	11			19	
5WB	48		1		4		1	7												3		16	
6NB	7		0		0			0						2	4			2		0		8	
6SB	10										0			1								1	
7NB	513		18		4		2	2	4		14					33		330	323		9	739	
8EB	66													26				25	19			70	
8WB	67		6		6		5		6	2	1		8							4		38	
9EB	477													401		18						419	
9WB	439		30																347		11	388	
10SB	998		469											388		14	411				58	1,340	
11NB	76		12											2			3		39			56	
11SB	88				15		4		41	8	3		0		15							86	
Total	4,741	6	599	16	53	41	30	39	88	40	18	0	9	842	49	65	467	364	1,409	72	89	4,296	91%
																							88%

Job No. : N693
Job : Wamberal OD
Description : Origin-Destination Survey
Day/Date/Time : Thu, 27th Oct 2011 15:00pm to 19:00pm
: individual matching

SKYHIGH - THE TRAFFIC SURVEY COMPANY

[PM 4hrs Total - Raw Data]

	Outbound	1EB	1WB	2EB	2WB	3EB	3WB	4NB	4SB	5EB	5WB	6NB	6SB	7SB	8EB	8WB	9EB	9WB	10NB	11NB	11SB	Total
Inbound	Vehicles	4,053	2,726	477	321	286	176	321	307	228	211	21	46	2,384	276	259	2,285	2,284	5,470	312	341	22,784
1EB	4,053				14	155			81	20			6	105	41		221		3,095		46	3,784
1WB	2,726			53																		53
2EB	477						18	118		49			4	18	35		11		69	85		407
2WB	321	14																				14
3EB	286								46	10			2	10	27		3		23	21		142
3WB	176		165														10		6			181
4NB	321		100				75								39		14		81	129		438
4SB	307				77					55			3	4								139
5EB	228											2		8	2			36	37			85
5WB	211		23		33		20	44												13		133
6NB	21		1		0			0						5	12			5		1		24
6SB	46										4			6								10
7NB	2,560		91		25		13	12	23		51					115		1,728	1,680		35	3,773
8EB	276													108				103	83			294
8WB	259		23		27		24		31	5	5		20							22		157
9EB	2,285													1,896		76						1,972
9WB	2,284		151																1,794		57	2,002
10SB	4,965		2,126											1,796		64	1,921				211	6,118
11NB	312		47											13			17		145			222
11SB	341				43		10		123	20	6		4		62							268
Total	22,455	14	2,727	53	219	155	160	174	304	159	66	2	39	3,969	218	255	2,197	1,872	7,013	271	349	20,216

90%

89%

[PM 4hrs Total - EXP Analysis]

	Outbound	1EB	1WB	2EB	2WB	3EB	3WB	4NB	4SB	5EB	5WB	6NB	6SB	7SB	8EB	8WB	9EB	9WB	10NB	11NB	11SB
Inbound	EXP	1.011	1.010	1.004	1.000	1.197	1.011	1.003	1.003	1.013	1.050	1.050	1.243	1.009	1.011	1.049	1.018	1.008	1.061	1.068	1.009
1EB	1.011				1.011	1.210			1.014	1.024			1.257	1.020	1.022		1.029		1.073		1.020
1WB	1.010			1.014																	
2EB	1.004						1.015	1.007		1.017			1.248	1.013	1.015		1.022		1.065	1.072	
2WB	1.000	1.011																			
3EB	1.197								1.201	1.213			1.488	1.208	1.210		1.219		1.270	1.278	
3WB	1.011		1.021														1.029		1.073		
4NB	1.003		1.013				1.014								1.014		1.021		1.064	1.071	
4SB	1.003				1.003					1.016			1.247	1.012							
5EB	1.013											1.064		1.022	1.024			1.021	1.075		
5WB	1.050		1.061		1.050		1.062	1.053												1.121	
6NB	1.050		1.061		1.050			1.053						1.059	1.062			1.058		1.121	
6SB	1.243										1.305			1.254							
7NB	1.039		1.049		1.039		1.050	1.042	1.042		1.091					1.090		1.047	1.102		1.048
8EB	1.011													1.020				1.019	1.073		
8WB	1.049		1.059		1.049		1.061		1.052	1.063	1.101		1.304							1.120	
9EB	1.018													1.027		1.068					
9WB	1.008		1.018																1.069		1.017
10SB	1.017		1.027											1.026		1.067	1.035				1.026
11NB	1.068		1.079											1.078			1.087		1.133		
11SB	1.009				1.009		1.020		1.012	1.022	1.059		1.254		1.020						

[PM 4hrs Total - Final Matching]

	Outbound	1EB	1WB	2EB	2WB	3EB	3WB	4NB	4SB	5EB	5WB	6NB	6SB	7SB	8EB	8WB	9EB	9WB	10NB	11NB	11SB	Total
Inbound	Vehicles	4,053	2,726	477	321	286	176	321	307	228	211	21	46	2,384	276	259	2,285	2,284	5,470	312	341	22,784
1EB	4,053				14	188			82	20			8	107	42		227		3,320		47	4,055
1WB	2,726			54																		54
2EB	477						18	119		50			5	18	36		11		74	91		422
2WB	321	14																				14
3EB	286								55	12			3	12	33		4		29	27		175
3WB	176		168														10		6			184
4NB	321		101				76								40		14		86	138		455
4SB	307				77					56			4	4								141
5EB	228											2		8	2			37	40			89
5WB	211		24		35		21	46												15		141
6NB	21		1		0			0						5	13			5		1		25
6SB	46										5			8								13
7NB	2,560		95		26		14	13	24		56					125		1,810	1,852		37	4,052
8EB	276													110				105	89			304
8WB	259		24		28		25		33	5	6		26							25		172
9EB	2,285													1,947		81						2,028
9WB	2,284		154																1,919		58	2,131
10SB	4,965		2,184											1,843		68	1,989				217	6,301
11NB	312		51											14			18		164			247
11SB	341				43		10		124	20	6		5		63							271
Total	22,455	14	2,802	54	223	188	164	178	318	163	73	2	51	4,076	229	274	2,273	1,957	7,579	297	359	21,274

95%

93%

Job No. : N693
Job : Wamberal OD
Description : Origin-Destination Survey
Day/Date/Time : Sat, 29th Oct 2011 8:00am to 9:00am
: individual matching

SKYHIGH - THE TRAFFIC SURVEY COMPANY

[8:00-9:00 Raw]

	Outbound	1EB	1WB	2EB	2WB	3EB	3WB	4NB	4SB	5EB	5WB	6NB	6SB	7SB	8EB	8WB	9EB	9WB	10NB	11NB	11SB	Total	
Inbound	Vehicles	363	752	44	60	31	59	52	50	46	24	6	3	460	57	38	391	452	743	63	56	3,750	
1EB	363				3	6			7	3			0	3	3		23		270		3	321	
1WB	752			3																		3	
2EB	44						0	10		9			0	0	2		1		9	14		45	
2WB	60	3																				3	
3EB	31								3	2			0	0	2		0		0	2		9	
3WB	59		14														1		2			17	
4NB	52		14				6								1		1		11	15		48	
4SB	50				16					5			0	0								21	
5EB	46											0		4	0			4	6			14	
5WB	24		2		7		1	2												2		14	
6NB	6		3		0			0						1	4			1		0		9	
6SB	3										0			0								0	
7NB	472		25		4		1	0	4		4					14		255	276		5	588	
8EB	57													13				13	12			38	
8WB	38		7		4		1		6	1	0		1							4		24	
9EB	391													138		8						146	
9WB	452		38																314		5	357	
10SB	1,054		574											124		9	333				33	1,073	
11NB	63		7											1			0		24			32	
11SB	56				7		0		18	1	0		0		13							39	
Total	4,073	3	684	3	41	6	9	12	38	21	4	0	1	284	25	31	359	273	924	37	46	2,801	69%
																							75%

[EXP]

	Outbound	1EB	1WB	2EB	2WB	3EB	3WB	4NB	4SB	5EB	5WB	6NB	6SB	7SB	8EB	8WB	9EB	9WB	10NB	11NB	11SB
Inbound	EXP	1.021	1.028	1.008	1.000	1.185	1.203	1.051	1.021	1.043	1.082	1.000	1.105	1.184	1.026	1.026	1.012	1.011	1.039	1.160	1.051
1EB	1.021				1.021	1.210			1.042	1.065			1.128	1.209	1.048		1.033		1.061		1.073
1WB	1.028			1.036																	
2EB	1.008						1.213	1.059		1.051			1.114	1.193	1.034		1.020		1.047	1.169	
2WB	1.000	1.021																			
3EB	1.185								1.210	1.236			1.309	1.403	1.216		1.199		1.231	1.375	
3WB	1.203		1.237														1.217		1.250		
4NB	1.051		1.080				1.264								1.078		1.064		1.092	1.219	
4SB	1.021				1.021					1.065			1.128	1.209							
5EB	1.043											1.043		1.235	1.070			1.054	1.084		
5WB	1.082		1.112		1.082		1.302	1.137												1.255	
6NB	1.000		1.028		1.000			1.051						1.184	1.026			1.011		1.160	
6SB	1.105										1.196			1.308							
7NB	1.094		1.125		1.094		1.316	1.150	1.117		1.184					1.122		1.106	1.137		1.150
8EB	1.026													1.215				1.037	1.066		
8WB	1.026		1.055		1.026		1.234		1.048	1.070	1.110		1.134							1.190	
9EB	1.012													1.198		1.038					
9WB	1.011		1.039																1.050		1.063
10SB	1.013		1.041											1.199		1.039	1.025				1.065
11NB	1.160		1.192											1.373			1.174		1.205		
11SB	1.051				1.051		1.264		1.073	1.096	1.137		1.161		1.078						

[8:00-9:00 Final]

	Outbound	1EB	1WB	2EB	2WB	3EB	3WB	4NB	4SB	5EB	5WB	6NB	6SB	7SB	8EB	8WB	9EB	9WB	10NB	11NB	11SB	Total	
Inbound	Vehicles	363	752	44	60	31	59	52	50	46	24	6	3	460	57	38	391	452	743	63	56	3,750	
1EB	363				3	7			7	3			0	4	3		24		286		3	340	
1WB	752			3																		3	
2EB	44						0	11		9			0	0	2		1		9	16		48	
2WB	60	3																				3	
3EB	31								4	2			0	0	2		0		0	3		11	
3WB	59		17														1		2			20	
4NB	52		15				8								1		1		12	18		55	
4SB	50				16					5			0	0								21	
5EB	46											0		5	0			4	7			16	
5WB	24		2		8		1	2												3		16	
6NB	6		3		0			0						1	4			1		0		9	
6SB	3										0			0								0	
7NB	472		28		4		1	0	4		5					16		282	314		6	660	
8EB	57													16				13	13			42	
8WB	38		7		4		1		6	1	0		1							5		25	
9EB	391													165		8						173	
9WB	452		39																330		5	374	
10SB	1,054		598											149		9	341				35	1,132	
11NB	63		8											1			0		29			38	
11SB	56				7		0		19	1	0		0		14							41	
Total	4,073	3	717	3	42	7	11	13	40	21	5	0	1	341	26	33	368	300	1,002	45	49	3,027	74%
																							81%

Job No. : N693
Job : Wamberal OD
Description : Origin-Destination Survey
Day/Date/Time : Sat, 29th Oct 2011 9:00am to 10:00am
: individual matching

SKYHIGH - THE TRAFFIC SURVEY COMPANY

[9:00-10:00 Raw]

	Outbound	1EB	1WB	2EB	2WB	3EB	3WB	4NB	4SB	5EB	5WB	6NB	6SB	7SB	8EB	8WB	9EB	9WB	10NB	11NB	11SB	Total	
Inbound	Vehicles	472	754	64	75	31	66	55	48	42	40	6	7	489	62	50	421	499	875	59	44	4,159	
1EB	472				5	18			11	4			1	21	6		43		362		4	475	
1WB	754			6																		6	
2EB	64						3	15		9			0	0	6		0		12	13		58	
2WB	75	5																				5	
3EB	31								11	3			1	1	3		0		1	4		24	
3WB	66		57														4		5			66	
4NB	55		16				16								7		0		17	23		79	
4SB	48				11					9			0	1								21	
5EB	42											2		4	1			4	5			16	
5WB	40		5		13		5	11												4		38	
6NB	6		2		0			2						1	2			1		1		9	
6SB	7										0			0								0	
7NB	577		22		5		4	2	3		11					21		276	287		3	634	
8EB	62													22				19	17			58	
8WB	50		12		4		13		6	1	0		3							3		42	
9EB	421													264		12						276	
9WB	499		50																358		10	418	
10SB	1,006		559											231		8	340				17	1,155	
11NB	59		6											4			3		25			38	
11SB	44				2		5		11	2	3		0		12							35	
Total	4,378	5	729	6	40	18	46	30	42	28	14	2	5	549	37	41	390	300	1,089	48	34	3,453	79%

83%

[EXP]

	Outbound	1EB	1WB	2EB	2WB	3EB	3WB	4NB	4SB	5EB	5WB	6NB	6SB	7SB	8EB	8WB	9EB	9WB	10NB	11NB	11SB
Inbound	EXP	1.021	1.028	1.008	1.000	1.185	1.203	1.051	1.021	1.043	1.082	1.000	1.105	1.184	1.026	1.026	1.012	1.011	1.039	1.160	1.051
1EB	1.021				1.021	1.210			1.042	1.065			1.128	1.209	1.048		1.033		1.061		1.073
1WB	1.028			1.036																	
2EB	1.008						1.213	1.059		1.051			1.114	1.193	1.034		1.020		1.047	1.169	
2WB	1.000	1.021																			
3EB	1.185								1.210	1.236			1.309	1.403	1.216		1.199		1.231	1.375	
3WB	1.203		1.237														1.217		1.250		
4NB	1.051		1.080				1.264								1.078		1.064		1.092	1.219	
4SB	1.021				1.021					1.065			1.128	1.209							
5EB	1.043											1.043		1.235	1.070			1.054	1.084		
5WB	1.082		1.112		1.082		1.302	1.137												1.255	
6NB	1.000		1.028		1.000			1.051						1.184	1.026			1.011		1.160	
6SB	1.105										1.196			1.308							
7NB	1.094		1.125		1.094		1.316	1.150	1.117		1.184					1.122		1.106	1.137		1.150
8EB	1.026													1.215				1.037	1.066		
8WB	1.026		1.055		1.026		1.234		1.048	1.070	1.110		1.134							1.190	
9EB	1.012													1.198		1.038					
9WB	1.011		1.039																1.050		1.063
10SB	1.013		1.041											1.199		1.039	1.025				1.065
11NB	1.160		1.192											1.373			1.174		1.205		
11SB	1.051				1.051		1.264		1.073	1.096	1.137		1.161		1.078						

[9:00-10:00 Final]

	Outbound	1EB	1WB	2EB	2WB	3EB	3WB	4NB	4SB	5EB	5WB	6NB	6SB	7SB	8EB	8WB	9EB	9WB	10NB	11NB	11SB	Total	
Inbound	Vehicles	472	754	64	75	31	66	55	48	42	40	6	7	489	62	50	421	499	875	59	44	4,159	
1EB	472				5	22			11	4			1	25	6		44		384		4	506	
1WB	754			6																		6	
2EB	64						4	16		9			0	0	6		0		13	15		63	
2WB	75	5																				5	
3EB	31								13	4			1	1	4		0		1	5		29	
3WB	66		70														5		6			81	
4NB	55		17				20								8		0		19	28		92	
4SB	48				11					10			0	1								22	
5EB	42											2		5	1			4	5			17	
5WB	40		6		14		7	13												5		45	
6NB	6		2		0			2						1	2			1		1		9	
6SB	7										0			0								0	
7NB	577		25		5		5	2	3		13					24		305	326		3	711	
8EB	62													27				20	18			65	
8WB	50		13		4		16		6	1	0		3							4		47	
9EB	421													316		12						328	
9WB	499		52																376		11	439	
10SB	1,006		582											277		8	349				18	1,234	
11NB	59		7											5			4		30			46	
11SB	44				2		6		12	2	3		0		13							38	
Total	4,378	5	774	6	41	22	58	33	45	30	16	2	5	658	40	44	402	330	1,178	58	36	3,783	86%

91%

Job No. : N693
Job : Wamberal OD
Description : Origin-Destination Survey
Day/Date/Time : Sat, 29th Oct 2011 10:00am to 11:00am
: individual matching

SKYHIGH - THE TRAFFIC SURVEY COMPANY

[10:00-11:00 Raw]

	Outbound	1EB	1WB	2EB	2WB	3EB	3WB	4NB	4SB	5EB	5WB	6NB	6SB	7SB	8EB	8WB	9EB	9WB	10NB	11NB	11SB	Total	
Inbound	Vehicles	662	942	78	86	57	73	74	64	37	55	7	14	557	84	72	488	556	1,067	68	62	5,103	
1EB	662				4	45			12	1			1	39	11		64		492		5	674	
1WB	942			16																		16	
2EB	78						4	20		6			0	6	13		4		11	11		75	
2WB	86	4																				4	
3EB	57								10	0			1	4	10		1		8	7		41	
3WB	73		67														7		1			75	
4NB	74		36				31								14		5		13	18		117	
4SB	64				25					6			0	4								35	
5EB	37											0		2	1			5	4			12	
5WB	55		6		11		7	13												3		40	
6NB	7		2		0			0						2	2			0		1		7	
6SB	14										2			1								3	
7NB	659		27		10		2	4	7		16					37		366	359		11	839	
8EB	84													37				29	26			92	
8WB	72		8		11		8		10	4	2		7							6		56	
9EB	488													382		17						399	
9WB	556		61																399		16	476	
10SB	1,258		703											346		13	397				39	1,498	
11NB	68		14											8			8		26			56	
11SB	62				6		2		18	2	0		1		17							46	
Total	5,396	4	924	16	67	45	54	37	57	19	20	0	10	831	68	67	486	400	1,339	46	71	4,561	85%
																							89%

[EXP]

	Outbound	1EB	1WB	2EB	2WB	3EB	3WB	4NB	4SB	5EB	5WB	6NB	6SB	7SB	8EB	8WB	9EB	9WB	10NB	11NB	11SB
Inbound	EXP	1.021	1.028	1.008	1.000	1.185	1.203	1.051	1.021	1.043	1.082	1.000	1.105	1.184	1.026	1.026	1.012	1.011	1.039	1.160	1.051
1EB	1.021				1.021	1.210			1.042	1.065			1.128	1.209	1.048		1.033		1.061		1.073
1WB	1.028			1.036																	
2EB	1.008						1.213	1.059		1.051			1.114	1.193	1.034		1.020		1.047	1.169	
2WB	1.000	1.021																			
3EB	1.185								1.210	1.236			1.309	1.403	1.216		1.199		1.231	1.375	
3WB	1.203		1.237														1.217		1.250		
4NB	1.051		1.080				1.264								1.078		1.064		1.092	1.219	
4SB	1.021				1.021					1.065			1.128	1.209							
5EB	1.043											1.043		1.235	1.070			1.054	1.084		
5WB	1.082		1.112		1.082		1.302	1.137												1.255	
6NB	1.000		1.028		1.000			1.051						1.184	1.026			1.011		1.160	
6SB	1.105										1.196			1.308							
7NB	1.094		1.125		1.094		1.316	1.150	1.117		1.184					1.122		1.106	1.137		1.150
8EB	1.026													1.215				1.037	1.066		
8WB	1.026		1.055		1.026		1.234		1.048	1.070	1.110		1.134							1.190	
9EB	1.012													1.198		1.038					
9WB	1.011		1.039																1.050		1.063
10SB	1.013		1.041											1.199		1.039	1.025				1.065
11NB	1.160		1.192											1.373			1.174		1.205		
11SB	1.051				1.051		1.264		1.073	1.096	1.137		1.161		1.078						

[10:00-11:00 Final]

	Outbound	1EB	1WB	2EB	2WB	3EB	3WB	4NB	4SB	5EB	5WB	6NB	6SB	7SB	8EB	8WB	9EB	9WB	10NB	11NB	11SB	Total	
Inbound	Vehicles	662	942	78	86	57	73	74	64	37	55	7	14	557	84	72	488	556	1,067	68	62	5,103	
1EB	662				4	54			13	1			1	47	12		66		522		5	725	
1WB	942			17																		17	
2EB	78						5	21		6			0	7	13		4		12	13		81	
2WB	86	4																				4	
3EB	57								12	0			1	6	12		1		10	10		52	
3WB	73		83														9		1			93	
4NB	74		39				39								15		5		14	22		134	
4SB	64				26					6			0	5								37	
5EB	37											0		2	1			5	4			12	
5WB	55		7		12		9	15												4		47	
6NB	7		2		0			0						2	2			0		1		7	
6SB	14										2			1								3	
7NB	659		30		11		3	5	8		19					42		405	408		13	944	
8EB	84													45				30	28			103	
8WB	72		8		11		10		10	4	2		8							7		60	
9EB	488													458		18						476	
9WB	556		63																419		17	499	
10SB	1,258		732											415		14	407				42	1,610	
11NB	68		17											11			9		31			68	
11SB	62				6		3		19	2	0		1		18							49	
Total	5,396	4	981	17	70	54	69	41	62	19	23	0	11	999	73	74	501	440	1,449	57	77	5,021	93%
																							98%

Job No. : N693
Job : Wamberal OD
Description : Origin-Destination Survey
Day/Date/Time : Sat, 29th Oct 2011 11:00am to 12:00noon
: individual matching

SKYHIGH - THE TRAFFIC SURVEY COMPANY

[11:00-12:00 Raw]

	Outbound	1EB	1WB	2EB	2WB	3EB	3WB	4NB	4SB	5EB	5WB	6NB	6SB	7SB	8EB	8WB	9EB	9WB	10NB	11NB	11SB	Total	
Inbound	Vehicles	860	897	99	90	54	57	77	65	41	65	4	13	605	77	58	535	604	1,325	75	74	5,675	
1EB	860				6	40			13	2			0	27	7		54		665		8	822	
1WB	897			7																		7	
2EB	99						3	22		13			0	2	7		1		12	12		72	
2WB	90	6																				6	
3EB	54								13	2			0	3	8		1		6	10		43	
3WB	57		51														1		1			53	
4NB	77		30				24								10		0		25	30		119	
4SB	65				21					12			0	0								33	
5EB	41											0		2	1			6	8			17	
5WB	65		6		18		5	11												3		43	
6NB	4		0		0			0						1	1			0		0		2	
6SB	13										1			0								1	
7NB	687		53		14		2	2	8		10					30		435	404		13	971	
8EB	77													28				27	21			76	
8WB	58		5		4		4		7	3	1		8							4		36	
9EB	535													438		10						448	
9WB	604		79																448		20	547	
10SB	1,308		696											420		7	456				44	1,623	
11NB	75		12											1			2		32			47	
11SB	74				12		1		26	5	1		0		15							60	
Total	5,740	6	932	7	75	40	39	35	67	37	13	0	8	922	49	47	515	468	1,622	59	85	5,026	88%
																							89%

[EXP]

	Outbound	1EB	1WB	2EB	2WB	3EB	3WB	4NB	4SB	5EB	5WB	6NB	6SB	7SB	8EB	8WB	9EB	9WB	10NB	11NB	11SB
Inbound	EXP	1.021	1.028	1.008	1.000	1.185	1.203	1.051	1.021	1.043	1.082	1.000	1.105	1.184	1.026	1.026	1.012	1.011	1.039	1.160	1.051
1EB	1.021				1.021	1.210			1.042	1.065			1.128	1.209	1.048		1.033		1.061		1.073
1WB	1.028			1.036																	
2EB	1.008						1.213	1.059		1.051			1.114	1.193	1.034		1.020		1.047	1.169	
2WB	1.000	1.021																			
3EB	1.185								1.210	1.236			1.309	1.403	1.216		1.199		1.231	1.375	
3WB	1.203		1.237														1.217		1.250		
4NB	1.051		1.080				1.264								1.078		1.064		1.092	1.219	
4SB	1.021				1.021					1.065			1.128	1.209							
5EB	1.043											1.043		1.235	1.070			1.054	1.084		
5WB	1.082		1.112		1.082		1.302	1.137												1.255	
6NB	1.000		1.028		1.000			1.051						1.184	1.026			1.011		1.160	
6SB	1.105										1.196			1.308							
7NB	1.094		1.125		1.094		1.316	1.150	1.117		1.184					1.122		1.106	1.137		1.150
8EB	1.026													1.215				1.037	1.066		
8WB	1.026		1.055		1.026		1.234		1.048	1.070	1.110		1.134							1.190	
9EB	1.012													1.198		1.038					
9WB	1.011		1.039																1.050		1.063
10SB	1.013		1.041											1.199		1.039	1.025				1.065
11NB	1.160		1.192											1.373			1.174		1.205		
11SB	1.051				1.051		1.264		1.073	1.096	1.137		1.161		1.078						

[11:00-12:00 Final]

	Outbound	1EB	1WB	2EB	2WB	3EB	3WB	4NB	4SB	5EB	5WB	6NB	6SB	7SB	8EB	8WB	9EB	9WB	10NB	11NB	11SB	Total	
Inbound	Vehicles	860	897	99	90	54	57	77	65	41	65	4	13	605	77	58	535	604	1,325	75	74	5,675	
1EB	860				6	48			14	2			0	33	7		56		705		9	880	
1WB	897			7																		7	
2EB	99						4	23		14			0	2	7		1		13	14		78	
2WB	90	6																				6	
3EB	54								16	2			0	4	10		1		7	14		54	
3WB	57		63														1		1			65	
4NB	77		32				30								11		0		27	37		137	
4SB	65				21					13			0	0								34	
5EB	41											0		2	1			6	9			18	
5WB	65		7		19		7	13												4		50	
6NB	4		0		0			0						1	1			0		0		2	
6SB	13										1			0								1	
7NB	687		60		15		3	2	9		12					34		481	459		15	1,090	
8EB	77													34				28	22			84	
8WB	58		5		4		5		7	3	1		9							5		39	
9EB	535													525		10						535	
9WB	604		82																471		21	574	
10SB	1,308		725											504		7	467				47	1,750	
11NB	75		14											1			2		39			56	
11SB	74				13		1		28	5	1		0		16							64	
Total	5,740	6	988	7	78	48	50	38	74	39	15	0	9	1,106	53	51	528	515	1,753	74	92	5,524	96%
																							97%

Job No. : N693
Job : Wamberal OD
Description : Origin-Destination Survey
Day/Date/Time : Sat, 29th Oct 2011 12:00noon to 13:00pm
: individual matching

SKYHIGH - THE TRAFFIC SURVEY COMPANY

[12:00-13:00 Raw]

	Outbound	1EB	1WB	2EB	2WB	3EB	3WB	4NB	4SB	5EB	5WB	6NB	6SB	7SB	8EB	8WB	9EB	9WB	10NB	11NB	11SB	Total	
Inbound	Vehicles	880	859	96	98	51	47	74	61	54	54	4	5	580	74	59	526	573	1,292	61	73	5,521	
1EB	880				4	40			11	3			1	43	10		68		665		8	853	
1WB	859			17																		17	
2EB	96						5	27		14			0	4	11		5		13	15		94	
2WB	98	4																				4	
3EB	51								9	2			1	6	11		1		3	4		37	
3WB	47		43														4		1			48	
4NB	74		24				20								9		4		14	24		95	
4SB	61				18					9			0	1								28	
5EB	54											1		6	1			12	8			28	
5WB	54		3		11		2	10												2		28	
6NB	4		0		2			0						1	2			1		0		6	
6SB	5										2			0								2	
7NB	630		46		7		1	1	4		9					23		413	386		9	899	
8EB	74													27				25	20			72	
8WB	59		11		10		6		8	2	2		3							4		46	
9EB	526													412		14						426	
9WB	573		73																426		19	518	
10SB	1,254		659											387		11	414				43	1,514	
11NB	61		9											2			4		24			39	
11SB	73				10		2		29	8	0		0		15							64	
Total	5,533	4	868	17	62	40	36	38	61	38	13	1	5	889	59	48	500	451	1,560	49	79	4,818	87%
																						87%	

[EXP]

	Outbound	1EB	1WB	2EB	2WB	3EB	3WB	4NB	4SB	5EB	5WB	6NB	6SB	7SB	8EB	8WB	9EB	9WB	10NB	11NB	11SB
Inbound	EXP	1.021	1.028	1.008	1.000	1.185	1.203	1.051	1.021	1.043	1.082	1.000	1.105	1.184	1.026	1.026	1.012	1.011	1.039	1.160	1.051
1EB	1.021				1.021	1.210			1.042	1.065			1.128	1.209	1.048		1.033		1.061		1.073
1WB	1.028			1.036																	
2EB	1.008						1.213	1.059		1.051			1.114	1.193	1.034		1.020		1.047	1.169	
2WB	1.000	1.021																			
3EB	1.185								1.210	1.236			1.309	1.403	1.216		1.199		1.231	1.375	
3WB	1.203		1.237														1.217		1.250		
4NB	1.051		1.080				1.264								1.078		1.064		1.092	1.219	
4SB	1.021				1.021					1.065			1.128	1.209							
5EB	1.043											1.043		1.235	1.070			1.054	1.084		
5WB	1.082		1.112		1.082		1.302	1.137												1.255	
6NB	1.000		1.028		1.000			1.051						1.184	1.026			1.011		1.160	
6SB	1.105										1.196			1.308							
7NB	1.094		1.125		1.094		1.316	1.150	1.117		1.184					1.122		1.106	1.137		1.150
8EB	1.026													1.215				1.037	1.066		
8WB	1.026		1.055		1.026		1.234		1.048	1.070	1.110		1.134							1.190	
9EB	1.012													1.198		1.038					
9WB	1.011		1.039																1.050		1.063
10SB	1.013		1.041											1.199		1.039	1.025				1.065
11NB	1.160		1.192											1.373			1.174		1.205		
11SB	1.051				1.051		1.264		1.073	1.096	1.137		1.161		1.078						

[12:00-13:00 Final]

	Outbound	1EB	1WB	2EB	2WB	3EB	3WB	4NB	4SB	5EB	5WB	6NB	6SB	7SB	8EB	8WB	9EB	9WB	10NB	11NB	11SB	Total	
Inbound	Vehicles	880	859	96	98	51	47	74	61	54	54	4	5	580	74	59	526	573	1,292	61	73	5,521	
1EB	880				4	48			11	3			1	52	10		70		705		9	913	
1WB	859			18																		18	
2EB	96						6	29		15			0	5	11		5		14	18		103	
2WB	98	4																				4	
3EB	51								11	2			1	8	13		1		4	5		45	
3WB	47		53														5		1			59	
4NB	74		26				25								10		4		15	29		109	
4SB	61				18					10			0	1								29	
5EB	54											1		7	1			13	9			31	
5WB	54		3		12		3	11												3		32	
6NB	4		0		2			0						1	2			1		0		6	
6SB	5										2			0								2	
7NB	630		52		8		1	1	4		11					26		457	439		10	1,009	
8EB	74													33				26	21			80	
8WB	59		12		10		7		8	2	2		3							5		49	
9EB	526													494		15						509	
9WB	573		76																447		20	543	
10SB	1,254		686											464		11	424				46	1,631	
11NB	61		11											3			5		29			48	
11SB	73				11		3		31	9	0		0		16							70	
Total	5,533	4	919	18	65	48	45	41	65	41	15	1	5	1,068	63	52	514	497	1,684	60	85	5,290	96%
																						96%	

Job No. : N693
Job : Wamberal OD
Description : Origin-Destination Survey
Day/Date/Time : Sat, 29th Oct 2011 8:00am to 13:00pm
: individual matching

SKYHIGH - THE TRAFFIC SURVEY COMPANY

[5hrs Total - Raw Data]

	Outbound	1EB	1WB	2EB	2WB	3EB	3WB	4NB	4SB	5EB	5WB	6NB	6SB	7SB	8EB	8WB	9EB	9WB	10NB	11NB	11SB	Total	
Inbound	Vehicles	3,237	4,204	381	409	224	302	332	288	220	238	27	42	2,691	354	277	2,361	2,684	5,302	326	309	24,208	
1EB	3,237				22	149			54	13			3	133	37		252		2,454		28	3,145	
1WB	4,204			49																		49	
2EB	381						15	94		51			0	12	39		11		57	65		344	
2WB	409	22																				22	
3EB	224								46	9			3	14	34		3		18	27		154	
3WB	302		232														17		10			259	
4NB	332		120				97								41		10		80	110		458	
4SB	288				91					41			0	6								138	
5EB	220											3		18	4			31	31			87	
5WB	238		22		60		20	47												14		163	
6NB	27		7		2			2						6	11			3		2		33	
6SB	42										5			1								6	
7NB	3,025		173		40		10	9	26		50					125		1,745	1,712		41	3,931	
8EB	354													127				113	96			336	
8WB	277		43		33		32		37	11	5		22							21		204	
9EB	2,361													1,634		61						1,695	
9WB	2,684		301																1,945		70	2,316	
10SB	5,880		3,191											1,508		48	1,940				176	6,863	
11NB	326		48											16			17		131			212	
11SB	309				37		10		102	18	4		1		72							244	
Total	25,120	22	4,137	49	285	149	184	152	265	143	64	3	29	3,475	238	234	2,250	1,892	6,534	239	315	20,659	82%
																							85%

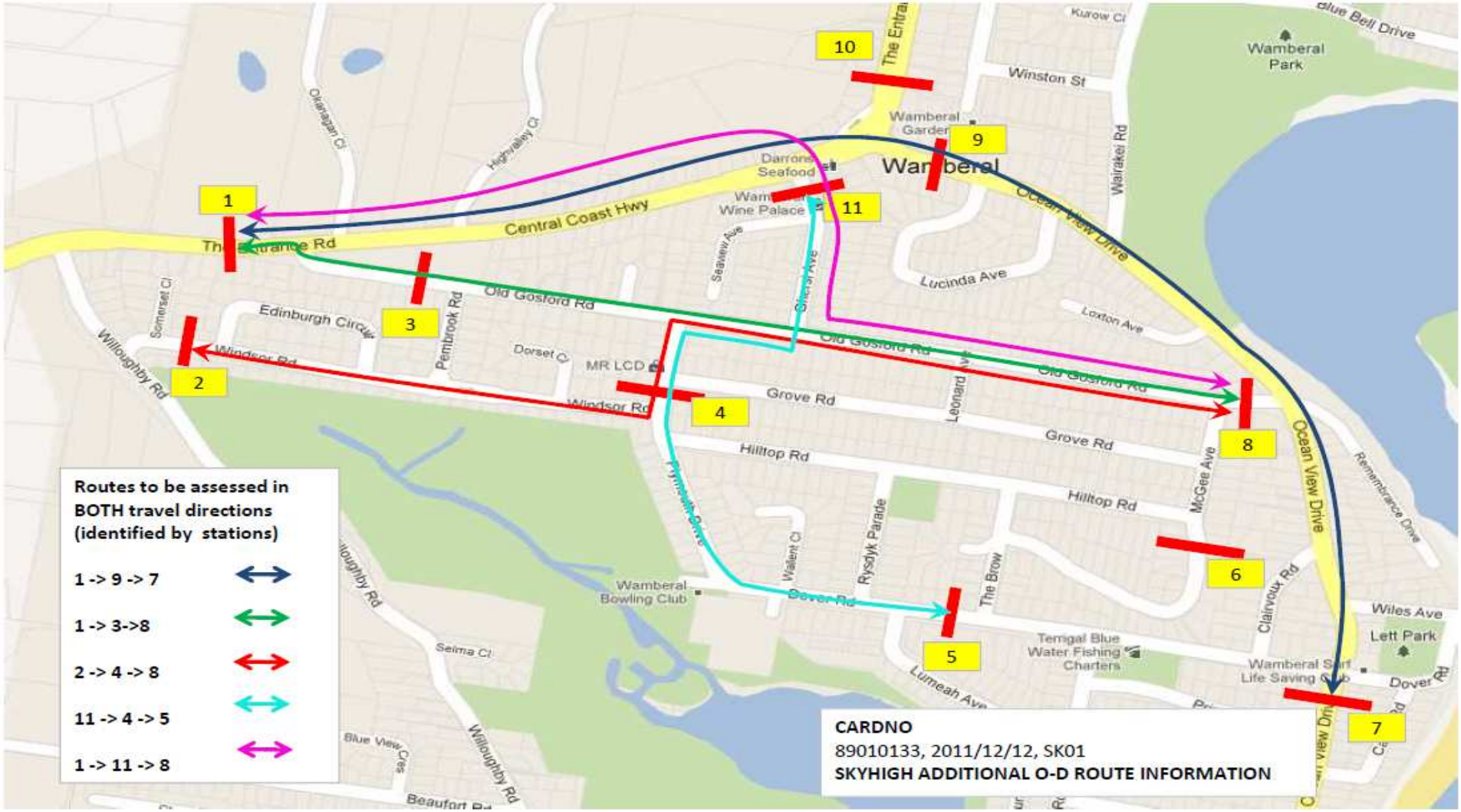
[5hrs Total - EXP Analysis]

	Outbound	1EB	1WB	2EB	2WB	3EB	3WB	4NB	4SB	5EB	5WB	6NB	6SB	7SB	8EB	8WB	9EB	9WB	10NB	11NB	11SB
Inbound	EXP	1.021	1.028	1.008	1.000	1.185	1.203	1.051	1.021	1.043	1.082	1.000	1.105	1.184	1.026	1.026	1.012	1.011	1.039	1.160	1.051
1EB	1.021				1.021	1.210			1.042	1.065			1.128	1.209	1.048		1.033		1.061		1.073
1WB	1.028			1.036																	
2EB	1.008						1.213	1.059		1.051			1.114	1.193	1.034		1.020		1.047	1.169	
2WB	1.000	1.021																			
3EB	1.185								1.210	1.236			1.309	1.403	1.216		1.199		1.231	1.375	
3WB	1.203		1.237														1.217		1.250		
4NB	1.051		1.080				1.264								1.078		1.064		1.092	1.219	
4SB	1.021				1.021					1.065			1.128	1.209							
5EB	1.043											1.043		1.235	1.070			1.054	1.084		
5WB	1.082		1.112		1.082		1.302	1.137												1.255	
6NB	1.000		1.028		1.000			1.051						1.184	1.026			1.011		1.160	
6SB	1.105										1.196			1.308							
7NB	1.094		1.125		1.094		1.316	1.150	1.117		1.184					1.122		1.106	1.137		1.150
8EB	1.026													1.215				1.037	1.066		
8WB	1.026		1.055		1.026		1.234		1.048	1.070	1.110		1.134							1.190	
9EB	1.012													1.198		1.038					
9WB	1.011		1.039																1.050		1.063
10SB	1.013		1.041											1.199		1.039	1.025				1.065
11NB	1.160		1.192											1.373			1.174		1.205		
11SB	1.051				1.051		1.264		1.073	1.096	1.137		1.161		1.078						

[5hrs Total - Final Matching]

	Outbound	1EB	1WB	2EB	2WB	3EB	3WB	4NB	4SB	5EB	5WB	6NB	6SB	7SB	8EB	8WB	9EB	9WB	10NB	11NB	11SB	Total	
Inbound	Vehicles	3,237	4,204	381	409	224	302	332	288	220	238	27	42	2,691	354	277	2,361	2,684	5,302	326	309	24,208	
1EB	3,237				22	180			56	14			3	161	39		260		2,603		30	3,368	
1WB	4,204			51																		51	
2EB	381						18	100		54			0	14	40		11		60	76		373	
2WB	409	22																				22	
3EB	224								56	11			4	20	41		4		22	37		195	
3WB	302		287														21		12			320	
4NB	332		130				123								44		11		87	134		529	
4SB	288				93					44			0	7								144	
5EB	220											3		22	4			33	34			96	
5WB	238		24		65		26	53												18		186	
6NB	27		7		2			2						7	11			3		2		34	
6SB	42										6			1								7	
7NB	3,025		195		44		13	10	29		59					140		1,930	1,946		47	4,413	
8EB	354													154				117	102			373	
8WB	277		45		34		39		39	12	6		25							25		225	
9EB	2,361													1,958		63						2,021	
9WB	2,684		313																2,043		74	2,430	
10SB	5,880		3,323											1,809		50	1,989				187	7,358	
11NB	326		57											22			20		158			257	
11SB	309				39		13		109	20	5		1		78							265	
Total	25,120	22	4,381	51	299	180	232	165	289	155	76	3	33	4,175	257	253	2,316	2,083	7,067	292	338	22,667	90%
																							94%

WAMBERAL O-D ROUTE SURVEY MAP



Job No. : N693
Job : Wamberal OD
Description : Origin-Destination Survey
Day/Date/Time : Thu, 27th Oct 2011 6:00am to 10:00am
: specific O/D routes matching

SKYHIGH - THE TRAFFIC SURVEY COMPANY

[AM Raw]

Hourly	6-7	7-8	8-9	9-10	AM Total
1->9->7	4	12	15	13	44
7->9->1	7	12	16	20	55
1->3->8	0	1	1	4	6
8->3->1	4	9	22	6	41
2->4->8	0	0	4	5	9
8->4->2	0	5	8	3	16
11->4->5	2	1	2	4	9
5->4->11	1	3	0	1	5
1->11->8	0	1	5	0	6
8->11->1	1	0	1	2	4
Total	19	44	74	58	195

[PM Raw]

Hourly	15-16	16-17	17-18	18-19	PM Total
1->9->7	22	21	13	13	69
7->9->1	21	12	14	8	55
1->3->8	8	5	2	3	18
8->3->1	8	3	5	5	21
2->4->8	4	6	3	3	16
8->4->2	1	3	6	2	12
11->4->5	2	4	4	7	17
5->4->11	2	3	5	3	13
1->11->8	0	1	1	1	3
8->11->1	0	1	0	0	1
Total	68	59	53	45	225

[AM EXP]

Routes	EXP
1->9->7	1.065
7->9->1	1.064
1->3->8	2.841
8->3->1	1.138
2->4->8	1.026
8->4->2	1.035
11->4->5	1.042
5->4->11	1.107
1->11->8	1.064
8->11->1	1.108

[PM EXP]

Routes	EXP
1->9->7	1.038
7->9->1	1.058
1->3->8	1.223
8->3->1	1.071
2->4->8	1.018
8->4->2	1.052
11->4->5	1.025
5->4->11	1.125
1->11->8	1.031
8->11->1	1.132

[AM Final]

Hourly	6-7	7-8	8-9	9-10	AM Total
1->9->7	4	13	16	14	47
7->9->1	7	13	17	21	58
1->3->8	0	3	3	11	17
8->3->1	5	10	25	7	47
2->4->8	0	0	4	5	9
8->4->2	0	5	8	3	16
11->4->5	2	1	2	4	9
5->4->11	1	3	0	1	5
1->11->8	0	1	5	0	6
8->11->1	1	0	1	2	4
Total	20	49	81	68	218

[PM Final]

Hourly	15-16	16-17	17-18	18-19	PM Total
1->9->7	23	22	13	13	71
7->9->1	22	13	15	8	58
1->3->8	10	6	2	4	22
8->3->1	9	3	5	5	22
2->4->8	4	6	3	3	16
8->4->2	1	3	6	2	12
11->4->5	2	4	4	7	17
5->4->11	2	3	6	3	14
1->11->8	0	1	1	1	3
8->11->1	0	1	0	0	1
Total	73	62	55	46	236

Job No. : N693
Job : Wamberal OD
Description : Origin-Destination Survey
Day/Date/Time : Sat, 29th Oct 2011 8:00am to 13:00pm
: specific O/D routes matching

SKYHIGH - THE TRAFFIC SURVEY COMPANY

[AM Raw]

Hourly	8-9	9-10	10-11	11-12	12-13	Total
1->9->7	1	16	33	21	32	103
7->9->1	12	15	14	40	34	115
1->3->8	1	2	10	4	9	26
8->3->1	2	6	5	1	5	19
2->4->8	1	3	10	5	6	25
8->4->2	2	3	5	2	5	17
11->4->5	0	2	1	5	5	13
5->4->11	0	3	2	3	1	9
1->11->8	0	2	1	2	1	6
8->11->1	1	0	0	1	1	3
Total	20	52	81	84	99	336

[Sat EXP]

Routes	EXP
1->9->7	1.223
7->9->1	1.137
1->3->8	1.241
8->3->1	1.269
2->4->8	1.087
8->4->2	1.048
11->4->5	1.119
5->4->11	1.319
1->11->8	1.101
8->11->1	1.223

[AM Final]

Hourly	8-9	9-10	10-11	11-12	12-13	Total
1->9->7	1	20	40	26	39	126
7->9->1	14	17	16	45	39	131
1->3->8	1	2	12	5	11	31
8->3->1	3	8	6	1	6	24
2->4->8	1	3	11	5	7	27
8->4->2	2	3	5	2	5	17
11->4->5	0	2	1	6	6	15
5->4->11	0	4	3	4	1	12
1->11->8	0	2	1	2	1	6
8->11->1	1	0	0	1	1	3
Total	23	61	95	97	116	392

Appendix E

Traffic Survey Mid-Block Surveys

Job No	N693
Client	Cardno
Road	Old Gosford Rd (east of Pembroke Drv)
Location	Wamberal
Site No.	1
Start Date	24-Oct-11
Description	Volume Summary
Direction	Combined

Average Weekday	1,706
7 Day Average	1,629

	Day of Week							Ave	7 Day
	Mon	Tue	Wed	Thu	Fri	Sat	Sun	W'day	Ave
Time	24-Oct	25-Oct	26-Oct	27-Oct	28-Oct	29-Oct	30-Oct		
AM Peak	198	297	225	195	181	144	123		
PM Peak	149	142	143	149	150	128	113		
0:00	1	4	4	0	5	8	18	3	6
1:00	1	1	1	2	2	4	3	1	2
2:00	0	1	2	2	3	4	6	2	3
3:00	2	2	0	2	3	5	3	2	2
4:00	6	6	7	5	6	5	2	6	5
5:00	38	38	23	27	18	10	9	29	23
6:00	58	60	60	58	51	25	29	57	49
7:00	122	163	122	126	108	64	31	128	105
8:00	198	297	225	195	181	104	65	219	181
9:00	101	114	98	96	125	108	91	107	105
10:00	84	68	69	66	104	144	113	78	93
11:00	94	87	76	89	91	125	123	87	98
12:00	93	86	74	84	102	113	113	88	95
13:00	86	89	79	75	92	128	106	84	94
14:00	99	106	101	101	122	119	113	106	109
15:00	121	127	130	136	150	115	98	133	125
16:00	138	120	143	123	115	109	89	128	120
17:00	149	142	132	149	145	116	84	143	131
18:00	103	98	122	130	124	97	65	115	106
19:00	78	71	66	87	81	53	56	77	70
20:00	35	41	51	67	45	46	38	48	46
21:00	25	30	37	42	42	36	14	35	32
22:00	16	14	17	23	23	35	13	19	20
23:00	4	3	5	12	29	18	4	11	11
Total	1652	1768	1644	1697	1767	1591	1286	1706	1629

7-19	1388	1497	1371	1370	1459	1342	1091	1417	1360
6-22	1584	1699	1585	1624	1678	1502	1228	1634	1557
6-24	1604	1716	1607	1659	1730	1555	1245	1663	1588
0-24	1652	1768	1644	1697	1767	1591	1286	1706	1629

Job No	N693
Client	Cardno
Road	Old Gosford Rd (east of Plymouth Drv)
Location	Wamberal
Site No.	2
Start Date	24-Oct-11
Description	Volume Summary
Direction	Combined

Average Weekday	1,977
7 Day Average	1,919

	Day of Week							Ave	7 Day
	Mon	Tue	Wed	Thu	Fri	Sat	Sun	W'day	Ave
Time	24-Oct	25-Oct	26-Oct	27-Oct	28-Oct	29-Oct	30-Oct		
AM Peak	230	378	276	208	204	159	133		
PM Peak	171	183	167	169	212	163	129		
0:00	2	1	2	1	8	20	23	3	8
1:00	2	2	1	2	4	7	14	2	5
2:00	1	2	4	3	4	14	10	3	5
3:00	4	2	0	1	4	7	10	2	4
4:00	6	8	9	7	4	4	3	7	6
5:00	27	22	18	18	11	9	14	19	17
6:00	53	41	39	55	39	26	34	45	41
7:00	134	159	124	118	129	64	47	133	111
8:00	230	378	276	208	204	121	70	259	212
9:00	98	126	130	120	145	121	91	124	119
10:00	96	95	86	80	108	146	124	93	105
11:00	89	94	92	106	94	159	133	95	110
12:00	95	94	90	99	128	163	129	101	114
13:00	92	94	93	67	122	135	108	94	102
14:00	96	110	103	97	152	136	110	112	115
15:00	171	146	163	166	193	142	124	168	158
16:00	165	161	162	160	160	143	108	162	151
17:00	152	183	167	169	212	158	111	177	165
18:00	143	125	141	169	156	149	85	147	138
19:00	93	84	92	118	134	98	78	104	100
20:00	45	35	56	62	79	66	50	55	56
21:00	32	25	43	50	49	49	19	40	38
22:00	15	13	17	24	27	55	16	19	24
23:00	3	4	14	14	33	35	10	14	16
Total	1844	2004	1922	1914	2199	2027	1521	1977	1919

7-19	1561	1765	1627	1559	1803	1637	1240	1663	1599
6-22	1784	1950	1857	1844	2104	1876	1421	1908	1834
6-24	1802	1967	1888	1882	2164	1966	1447	1941	1874
0-24	1844	2004	1922	1914	2199	2027	1521	1977	1919

Job No	N693
Client	Cardno
Road	Old Gosford Rd (east of Ghersi St)
Location	Wamberal
Site No.	3
Start Date	24-Oct-11
Description	Volume Summary
Direction	Combined

Average Weekday	1,395
7 Day Average	1,383

	Day of Week							Ave	7 Day
	Mon	Tue	Wed	Thu	Fri	Sat	Sun	W'day	Ave
Time	24-Oct	25-Oct	26-Oct	27-Oct	28-Oct	29-Oct	30-Oct		
AM Peak	156	137	140	141	133	107	95		
PM Peak	131	107	118	124	143	125	109		
0:00	1	1	1	0	4	9	15	1	4
1:00	1	2	1	1	2	2	11	1	3
2:00	3	1	2	2	5	1	6	3	3
3:00	2	1	0	1	2	1	4	1	2
4:00	4	5	4	4	5	7	0	4	4
5:00	23	14	12	14	15	10	15	16	15
6:00	43	31	45	40	41	38	28	40	38
7:00	79	89	72	74	78	42	31	78	66
8:00	156	137	140	141	133	98	51	141	122
9:00	89	75	85	87	101	96	71	87	86
10:00	88	76	73	66	94	106	95	79	85
11:00	75	63	74	78	100	107	95	78	85
12:00	75	82	69	67	109	118	109	80	90
13:00	78	80	75	65	95	100	100	79	85
14:00	99	92	81	102	103	105	85	95	95
15:00	126	97	116	109	143	104	92	118	112
16:00	124	107	118	108	117	99	108	115	112
17:00	131	106	112	124	128	123	80	120	115
18:00	108	83	93	115	120	125	80	104	103
19:00	70	59	73	75	91	74	51	74	70
20:00	32	22	48	30	52	53	42	37	40
21:00	16	10	25	29	35	36	11	23	23
22:00	12	10	8	13	12	34	8	11	14
23:00	7	5	7	5	17	27	3	8	10
Total	1442	1248	1334	1350	1602	1515	1191	1395	1383

7-19	1228	1087	1108	1136	1321	1223	997	1176	1157
6-22	1389	1209	1299	1310	1540	1424	1129	1349	1329
6-24	1408	1224	1314	1328	1569	1485	1140	1369	1353
0-24	1442	1248	1334	1350	1602	1515	1191	1395	1383

Appendix F

Crash Statistics

Dover Road: Ocean View Drive to Plymouth Drive, Wamberal

Crash Period: 1st January 2006 to 31st December 2010 (Finalised Data)

Plus Provisional Data (Which is incomplete & subject to change) from March Quarter 2011

October 2011

Jason Gillett

Detailed Crash Report - sorted

Crash No.	Date	Day of Week	Time	Distance	ID Feature	Loc Type	Alignment	Weather	Surface Condition	Speed Limit	No. of Tus	Tu Type/Obj	Age/Sex	Street Travelling	Speed Travelling	Manoeuvre	Degree of Crash	Killed	Injured	Factors
					Natural Lighting															**S F**
Hunter Region				**Gosford City LGA**		**Wamberal**			**Dover Rd**											
608229	27/01/2008	Sun	02:00	at	WALLENT CL	TJN	STR	Fine	Dry	50	2	OMV	U U	E in DOVER RD	Unk	Proceeding in lane	I	0	1	
E32939371					Darkness	DCA :	3	Ped - Far side				PED	F14	DOVER RD		Walk across carriageway				
Hunter Region				**Gosford City LGA**		**Wamberal**			**Dover Rd**											
640613	27/09/2008	Sat	07:00	at	LAKE VIEW RD	TJN	STR	Fine	Dry	50	1	WAG	M20	N in LAKE VIEW RD	20	Turning left	N	0	0	S
E34898017					Daylight	DCA :	706 L	Left turn				Tree/bush								
Hunter Region				**Gosford City LGA**		**Wamberal**			**Lumeah Ave**											
732856	15/11/2010	Mon	09:15	3 m S	DOVER RD	TJN	CRV	Fine	Dry	50	1	CAR	F45	S in LUMEAH AVE	40	Proceeding in lane	N	0	0	S
E42780846					Daylight	DCA :	803 L	Off right bend into obj				Utility pole								

Report Totals: Total Crashes: 3 Fatal Crashes: 0 Injury Crashes: 1 Killed: 0 Injured: 1

Crashid dataset Dover Road between Ocean View Drive & Plymouth Drive, Wamberal - 1/1/2006 to 2011*

Note: Ordered by: Crash Date. Data for the 9 month period prior to the generated date of this report are incomplete and are subject to change.

Ocean View Drive: The Entrance Road to Dover Road, Wamberal

Crash Period: 1st January 2006 to 31st December 2010 (Finalised Data)

Plus Provisional Data (Which is incomplete & subject to change) from March Quarter 2011

October 2011

Jason Gillett

Detailed Crash Report - sorted

Crash No.	Date	Day of Week	Time	Distance	ID Feature	Loc Type	Alignment	Weather	Surface Condition	Speed Limit	No. of Tus	Tu Type/Obj	Age/Sex	Street Travelling	Speed Travelling	Manoeuvre	Degree of Crash	Killed	Injured	Factors
Natural Lighting																				**S F**
Hunter Region				**Gosford City LGA**		**Wamberal**			**Dover Rd**											
522375	16/05/2006	Tue	16:00	at	OCEAN VIEW DR	XJN	STR	Fine	Dry	60	3	WAG	F61	E in DOVER RD	20	Proceeding in lane	N	0	0	
E27190831					Daylight	DCA : 101		Adj - Cross traffic				TRK		W in DOVER RD	0	Parked				
												UTE	M41	N in OCEAN VIEW DR	50	Proceeding in lane				
Hunter Region				**Gosford City LGA**		**Wamberal**			**Lucinda Ave**											
538030	17/09/2006	Sun	10:45	at	OCEAN VIEW DR	TJN	STR	Fine	Dry	60	2	CAR	M22	N in LUCINDA AVE	30	Turning left	N	0	0	
E28481529					Daylight	DCA : 309		Same - Left turn side swipe				CAR	M17	N in LUCINDA AVE	60	Proceeding in lane				
Hunter Region				**Gosford City LGA**		**Wamberal**			**Ocean View Dr**											
550661	19/12/2006	Tue	03:00	at	WILES AVE	TJN	STR	Fine	Dry	50	1	CAR	M19	E in WILES AVE	Unk	Turning right	N	0	0	S
E28767922					Darkness	DCA : 707 L		Right turn				Utility pole								
Hunter Region				**Gosford City LGA**		**Wamberal**			**Loxton Ave**											
562102	13/02/2007	Tue	17:05	at	OCEAN VIEW DR	TJN	STR	Fine	Dry	50	2	WAG	M20	S in OCEAN VIEW DR	50	Proceeding in lane	N	0	0	
E29442411					Daylight	DCA : 303		Same - Rear right				4WD	F40	S in OCEAN VIEW DR	0	Wait turn right				
Hunter Region				**Gosford City LGA**		**Wamberal**			**Ocean View Dr**											
560087	17/02/2007	Sat	03:30	240 m	E THE ENTRANCE RD	2WY	STR	Fine	Dry	60	1	CAR	F29	E in OCEAN VIEW DR	50	Proceeding in lane	I	0	1	
E30528916					Darkness	DCA : 704		Right off cway into obj				Fence								
Hunter Region				**Gosford City LGA**		**Wamberal**			**Ocean View Dr**											
561390	15/03/2007	Thu	16:00	at	WAIRAKEI RD	TJN	STR	Fine	Dry	50	2	CAR	F48	E in OCEAN VIEW DR	50	Proceeding in lane	N	0	0	
E30268778					Daylight	DCA : 302		Same - Rear left				CAR	F63	E in OCEAN VIEW DR	30	Turning left				
Hunter Region				**Gosford City LGA**		**Wamberal**			**Lucinda Ave**											
562591	26/03/2007	Mon	05:00	at	OCEAN VIEW DR	TJN	STR	Overcast	Wet	60	2	CAR	M53	E in OCEAN VIEW DR	Unk	Proceeding in lane	I	0	1	
E29505820					Dawn	DCA : 303		Same - Rear right				4WD	F43	E in OCEAN VIEW DR	0	Wait turn right				
Hunter Region				**Gosford City LGA**		**Wamberal**			**Ocean Beach Dr**											
567626	21/04/2007	Sat	16:00	at	WAIRAKEI RD	TJN	STR	Fine	Dry	60	2	CAR	M93	S in WAIRAKEI RD	5	Turning right	N	0	0	
E30491163					Daylight	DCA : 104		Adj - Right-thru from right				CAR	M17	E in OCEAN BEACH DR	40	Proceeding in lane				
Hunter Region				**Gosford City LGA**		**Wamberal**			**Ocean View Dr**											
575937	18/05/2007	Fri	13:13	20 m	E LOXTON AVE	2WY	STR	Raining	Wet	50	2	4WD	M41	E in OCEAN VIEW DR	10	Pulling out	I	0	1	
E30435418					Daylight	DCA : 401		Manov - Leaving parking				WAG	M27	E in OCEAN VIEW DR	50	Proceeding in lane				

Detailed Crash Report - sorted

Crash No.	Date	Day of Week	Time	Distance	ID Feature	Loc Type	Alignment	Weather	Surface Condition	Speed Limit	No. of Tus	Tu Type/Obj	Age/Sex	Street Travelling	Speed Travelling	Manoeuvre	Degree of Crash	Killed	Injured	Factors
Natural Lighting																				**S F**
Hunter Region				**Gosford City LGA**		**Wamberal**				**Ocean View Dr**										
594782	14/10/2007	Sun	13:00	45 m N	LOXTON AVE	2WY	STR	Fine	Dry	60	2	WAG	M17	S in OCEAN VIEW DR	Unk Incorrect side		I	0	3	F
E33545989					Daylight	DCA : 201		Opp - Head on				CAR	M54	N in OCEAN VIEW DR	Unk Proceeding in lane					
Hunter Region				**Gosford City LGA**		**Wamberal**				**Ocean View Dr**										
598996	08/11/2007	Thu	18:50	at	OLD GOSFORD RD	XJN	CRV	Overcast	Dry	50	2	CAR	M18	E in OLD GOSFORD RD	30 Turning right		I	0	1	
E34229588					Daylight	DCA : 104		Adj - Right-thru from right				CAR	M24	N in OCEAN VIEW DR	50 Proceeding in lane					
Hunter Region				**Gosford City LGA**		**Wamberal**				**Ocean View Dr**										
600057	21/11/2007	Wed	17:30	at	WAIRAKEI RD	TJN	CRV	Fine	Dry	60	2	OMV	F21	W in OCEAN VIEW DR	20 Turning right		N	0	0	S
E31792560					Daylight	DCA : 202		Opp - Right-thru				TRK	M30	E in OCEAN VIEW DR	60 Proceeding in lane					
Hunter Region				**Gosford City LGA**		**Wamberal**				**Ocean View Dr**										
604862	25/12/2007	Tue	09:40	100 m N	OLD GOSFORD RD	2WY	STR	Fine	Dry	60	1	CAR	M33	S in OCEAN VIEW DR	50 Proceeding in lane		I	0	1	F
E33151053					Daylight	DCA : 703		Left off cway into object				Tree/bush								
Hunter Region				**Gosford City LGA**		**Wamberal**				**Ocean View Dr**										
608694	22/01/2008	Tue	18:10	100 m E	THE ENTRANCE RD	2WY	STR	Fine	Dry	50	2	M/C	M U	E in OCEAN VIEW DR	50 Proceeding in lane		I	0	1	
E32725946					Daylight	DCA : 302		Same - Rear left				CAR	F31	E in OCEAN VIEW DR	15 Turning left					
Hunter Region				**Gosford City LGA**		**Wamberal**				**Dover Rd**										
622176	19/04/2008	Sat	20:47	at	OCEAN VIEW DR	XJN	STR	Raining	Wet	60	2	CAR	M25	E in DOVER RD	5 Proceeding in lane		I	0	2	
E33621766					Darkness	DCA : 101		Adj - Cross traffic				WAG	M U	N in OCEAN VIEW DR	50 Proceeding in lane					
Hunter Region				**Gosford City LGA**		**Wamberal**				**Wairakei Rd**										
624937	02/05/2008	Fri	15:25	5 m N	OCEAN VIEW DR	TJN	STR	Fine	Dry	50	2	4WD	M17	S in WAIRAKEI RD	40 Proceeding in lane		I	0	1	
E33827262					Daylight	DCA : 302		Same - Rear left				CAR	F31	S in WAIRAKEI RD	0 Waiting turn left					
Hunter Region				**Gosford City LGA**		**Wamberal**				**Wairakei Rd**										
627914	18/06/2008	Wed	17:00	5 m N	OCEAN VIEW DR	TJN	STR	Fine	Dry	50	2	CAR	F20	S in WAIRAKEI RD	10 Proceeding in lane		I	0	2	
E34368419					Dusk	DCA : 301		Same - Rear end				CAR	F20	S in WAIRAKEI RD	0 Stationary					
Hunter Region				**Gosford City LGA**		**Wamberal**				**Ocean View Dr**										
638830	22/09/2008	Mon	17:57	70 m N	DOVER RD	2WY	CRV	Fine	Dry	60	3	CAR	M20	S in OCEAN VIEW DR	Unk Incorrect side		I	0	1	
E67846401					Dusk	DCA : 201		Opp - Head on				CAR	M47	N in OCEAN VIEW DR	55 Proceeding in lane					
												CAR	F39	N in OCEAN VIEW DR	55 Proceeding in lane					

Detailed Crash Report - sorted

Crash No.	Date	Day of Week	Time	Distance	ID Feature	Loc Type	Alignment	Weather	Surface Condition	Speed Limit	No. of Tus	Tu Type/Obj	Age/Sex	Street Travelling	Speed Travelling	Manoeuvre	Degree of Crash	Killed	Injured	Factors
Natural Lighting																				**S F**
Hunter Region				**Gosford City LGA**		**Wamberal**				**Wairakei Rd**										
650880	23/12/2008	Tue	16:30	5 m N	OCEAN VIEW DR	TJN	STR	Fine	Dry	60	2	TRK	M21	S in WAIRAKEI RD	20	Proceeding in lane	I	0	1	
E35740136					Daylight	DCA : 301		Same - Rear end				M/C	M41	S in WAIRAKEI RD	Unk	Proceeding in lane				
Hunter Region				**Gosford City LGA**		**Wamberal**				**Dover Rd**										
712131	01/06/2010	Tue	12:30	at	OCEAN VIEW DR	XJN	STR	Fine	Dry	50	2	4WD	F28	W in DOVER RD	5	Proceeding in lane	N	0	0	
E40789824					Daylight	DCA : 101		Adj - Cross traffic				TRK	M58	S in OCEAN VIEW DR	50	Proceeding in lane				
Hunter Region				**Gosford City LGA**		**Wamberal**				**Dover Rd**										
714664	20/06/2010	Sun	14:50	at	OCEAN VIEW DR	XJN	STR	Fine	Dry	50	2	CAR	F62	E in DOVER RD	15	Turning right	N	0	0	
E40683460					Daylight	DCA : 202		Opp - Right-thru				CAR	M49	W in DOVER RD	Unk	Proceeding in lane				
Hunter Region				**Gosford City LGA**		**Wamberal**				**Ocean View Dr**										
717460	10/07/2010	Sat	21:00	100 m S	OLD GOSFORD RD	2WY	STR	Fine	Wet	60	1	CAR	M45	N in OCEAN VIEW DR	50	Proceeding in lane	N	0	0	
E247675792					Darkness	DCA : 609		On path - Hit animal				Small animal								
Hunter Region				**Gosford City LGA**		**Wamberal**				**Ocean View Dr**										
727418	10/09/2010	Fri	21:00	1 m N	DOVER RD	XJN	CRV	Fine	Dry	50	1	CAR	M32	S in OCEAN VIEW DR	Unk	Proceeding in lane	I	0	2	S
E137978497					Darkness	DCA : 803 R		Off right bend into obj				Utility pole								
Hunter Region				**Gosford City LGA**		**Wamberal**				**Ocean View Dr**										
737975	30/09/2010	Thu	09:51	at	WAIRAKEI RD	TJN	STR	Fine	Dry	50	2	OMV	M65	E in OCEAN VIEW DR	10	Proceeding in lane	I	0	1	
E81586101					Daylight	DCA : 1		Ped - Near side				PED	M27	S in OCEAN VIEW DR		Walk across carriageway				
Hunter Region				**Gosford City LGA**		**Wamberal**				**Ocean View Dr**										
737976	30/09/2010	Thu	09:50	at	WAIRAKEI RD	TJN	STR	Fine	Dry	50	2	CAR	M27	W in OCEAN VIEW DR	50	Proceeding in lane	I	0	1	
E81586101					Daylight	DCA : 301		Same - Rear end				TRK	M42	W in OCEAN VIEW DR	Unk	Proceeding in lane				

Report Totals: Total Crashes: 25 Fatal Crashes: 0 Injury Crashes: 15 Killed: 0 Injured: 20

Crashid dataset Ocean View Drive between The Entrance Road & Dover Road, Wamberal - 1/1/2006 to 2011*

Note: Ordered by: Crash Date. Data for the 9 month period prior to the generated date of this report are incomplete and are subject to change.

Old Gosford Rd: The Entrance Rd to Ocean View Dr, Wamberal

Crash Period: 1st January 2006 to 31st December 2010 (Finalised Data)

Plus Provisional Data (Which is incomplete & subject to change) from March Quarter 2011

October 2011

Jason Gillett

Detailed Crash Report - sorted

Crash No.	Date	Day of Week	Time	Distance	ID Feature	Loc Type	Alignment	Weather	Surface Condition	Speed Limit	No. of Tus	Tu Type/Obj	Age/Sex	Street Travelling	Speed Travelling	Manoeuvre	Degree of Crash	Killed	Injured	Factors
																				S F
Natural Lighting																				
Hunter Region				**Gosford City LGA**		**Wamberal**			**Old Gosford Rd**											
742376	13/02/2011	Sun	20:48	5 m E	GHERSI AVE	TJN	STR	Raining	Wet	50	2	CAR	M51	E in OLD GOSFORD RD	50	Proceeding in lane	N	0	0	F
E43554976					Darkness	DCA : 703		Left off cway into object				WAG		E in OLD GOSFORD RD	0	Parked footpath				

Report Totals: Total Crashes: 1 Fatal Crashes: 0 Injury Crashes: 0 Killed: 0 Injured: 0

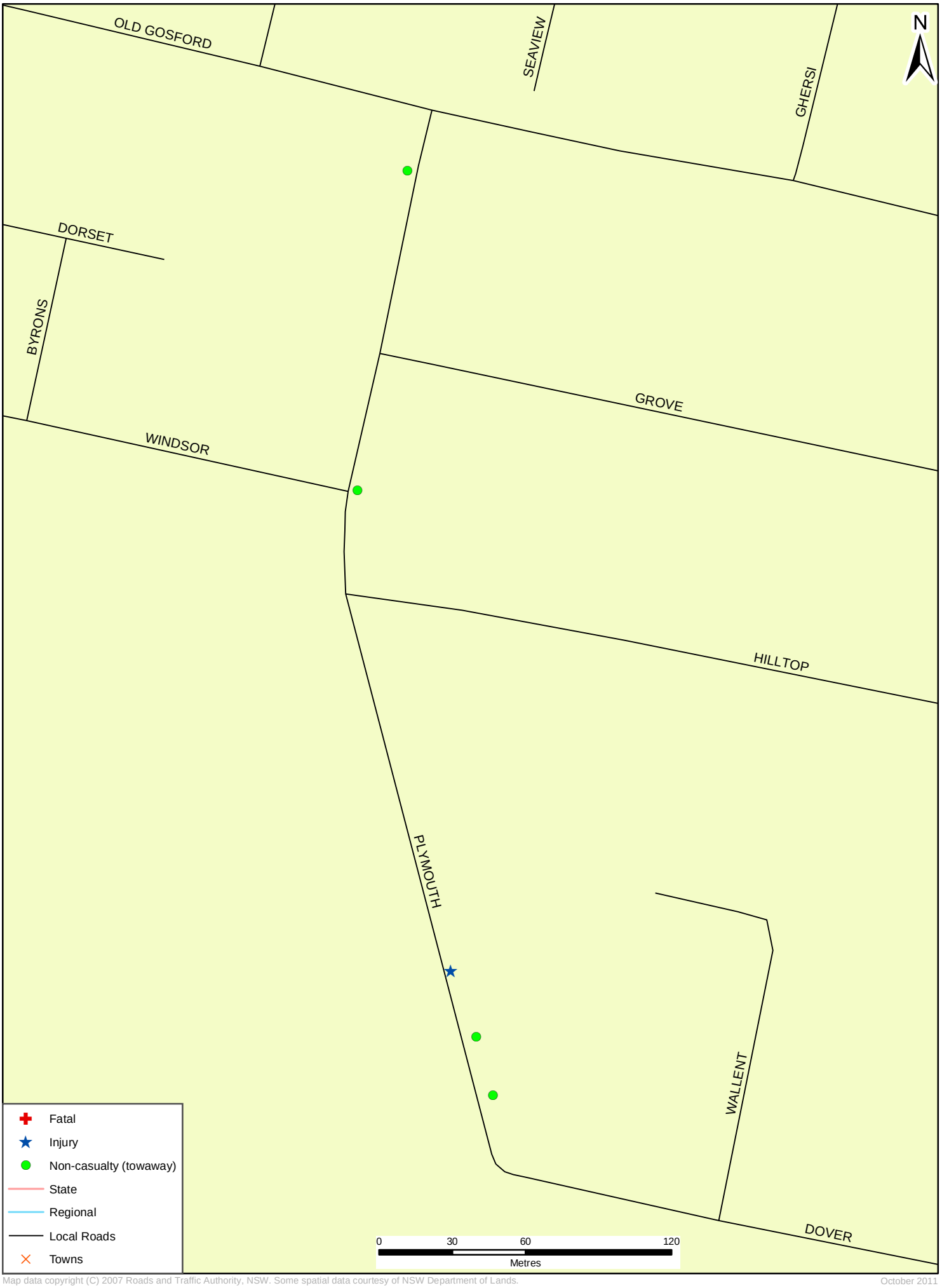
Crashid dataset Old Gosford Road between The Entrance Road & Ocean View Drive, Wamberal - 1/1/2006 to 2011*

Note: Ordered by: Crash Date. Data for the 9 month period prior to the generated date of this report are incomplete and are subject to change.

Plymouth Drive: Dover Road to Old Gosford Road, Wamberal

Crash Period: 1st January 2006 to 31st December 2010 (Finalised Data)

Plus Provisional Data (Which is incomplete & subject to change) from March Quarter 2011



October 2011

Jason Gillett

Detailed Crash Report - sorted

Crash No.	Date	Day of Week	Time	Distance	ID Feature	Loc Type	Alignment	Weather	Surface Condition	Speed Limit	No. of Tus	Tu Type/Obj	Age/Sex	Street Travelling	Speed Travelling	Manoeuvre	Degree of Crash	Killed	Injured	Factors
					Natural Lighting															**S F**
Hunter Region					**Gosford City LGA**	**Wamberal**								**Plymouth Dr**						
520596	25/04/2006	Tue	19:46	30 m S	OLD GOSFORD RD	2WY	STR	Overcast	Wet	50	2	CAR	F52	N in PLYMOUTH DR	Unk	Proceeding in lane	N	0	0	F
E26581124					Darkness	DCA : 703		Left off cway into object				CAR		N in PLYMOUTH DR	0	Parked				
Hunter Region					**Gosford City LGA**	**Wamberal**								**Plymouth Dr**						
532925	21/08/2006	Mon	00:25	25 m N	DOVER RD	2WY	STR	Fine	Dry	50	1	WAG	M36	S in PLYMOUTH DR	20	Proceeding in lane	N	0	0	F
E121781593					Darkness	DCA : 703		Left off cway into object				Tree/bush								
Hunter Region					**Gosford City LGA**	**Wamberal**								**Plymouth Dr**						
567457	29/04/2007	Sun	18:09	50 m N	DOVER RD	2WY	CRV	Fine	Dry	50	1	CAR	F19	N in PLYMOUTH DR	40	Proceeding in lane	N	0	0	S
E29863852					Darkness	DCA : 803 L		Off right bend into obj				Utility pole								
Hunter Region					**Gosford City LGA**	**Wamberal**								**Plymouth Dr**						
631949	08/07/2008	Tue	04:40	65 m N	DOVER RD	2WY	STR	Overcast	Wet	50	1	4WD	M25	N in PLYMOUTH DR	Unk	Proceeding in lane	I	0	1	
E34580150					Darkness	DCA : 703		Left off cway into object				Tree/bush								
Hunter Region					**Gosford City LGA**	**Wamberal**								**Plymouth Dr**						
717452	10/07/2010	Sat	13:00	at	WINDSOR RD	TJN	CRV	Fine	Dry	50	2	CAR	M73	E in WINDSOR RD	10	Turning right	N	0	0	
E43863481					Daylight	DCA : 104		Adj - Right-thru from right				TRK	M28	N in PLYMOUTH DR	40	Proceeding in lane				

Report Totals: Total Crashes: 5 Fatal Crashes: 0 Injury Crashes: 1 Killed: 0 Injured: 1

Crashid dataset Plymouth Drive between Dover Road & Old Gosford Road, Wamberal - 1/1/2006 to 2011*

Note: Ordered by: Crash Date. Data for the 9 month period prior to the generated date of this report are incomplete and are subject to change.

The Entrance Rd: Willoughby Rd to Ocean View Dr, Wamberal

Crash Period: 1st January 2006 to 31st December 2010 (Finalised Data)

Plus Provisional Data (Which is incomplete & subject to change) from March Quarter 2011

October 2011

Jason Gillett

Detailed Crash Report - sorted

RTA

Crash No.	Date	Day of Week	Time	Distance	ID Feature	Loc Type	Alignment	Weather	Surface Condition	Speed Limit	No. of Tus	Tu Type/Obj	Age/Sex	Street Travelling	Speed Travelling	Manoeuvre	Degree of Crash	Killed	Injured	Factors
Natural Lighting																				**S F**
Hunter Region				**Gosford City LGA**		**Wamberal**			**The Entrance Rd**											
505600	07/01/2006	Sat	14:50	350 m W	OCEAN VIEW DR	2WY	STR	Fine	Dry	70	3	CAR	F21	E in THE ENTRANCE RD	50 Proceeding in lane		N	0	0	
E25569075				Daylight		DCA : 301	Same - Rear end					CAR	F63	E in THE ENTRANCE RD	0 Stationary					
												CAR	M21	E in THE ENTRANCE RD	0 Stationary					
Hunter Region				**Gosford City LGA**		**Wamberal**			**The Entrance Rd**											
507375	25/01/2006	Wed	13:00	100 m W	GHERSI AVE	2WY	STR	Fine	Dry	60	3	CAR	M27	E in THE ENTRANCE RD	60 Proceeding in lane		I	0	1	
E26753641				Daylight		DCA : 301	Same - Rear end					CAR	M39	E in THE ENTRANCE RD	0 Stationary					
												CAR	M51	E in THE ENTRANCE RD	0 Stationary					
Hunter Region				**Gosford City LGA**		**Wamberal**			**The Entrance Rd**											
511525	24/02/2006	Fri	21:25	at	NUMBER 713 HN	2WY	STR	Fine	Dry	60	2	CAR	F20	E in THE ENTRANCE RD	60 Proceeding in lane		I	0	1	
E26405457				Darkness		DCA : 301	Same - Rear end					WAG	M26	E in THE ENTRANCE RD	40 Proceeding in lane					
Hunter Region				**Gosford City LGA**		**Wamberal**			**The Entrance Rd**											
510854	26/02/2006	Sun	15:50	at	OCEAN VIEW DR	RDB	CRV	Overcast	Wet	60	1	CAR	M41	N in THE ENTRANCE RD	30 Proceeding in lane		N	0	0	S
E27053241				Daylight		DCA : 803 L	Off right bend into obj					Embankment								
Hunter Region				**Gosford City LGA**		**Wamberal**			**The Entrance Rd**											
518272	23/04/2006	Sun	15:20	at	OLD GOSFORD RD	TJN	STR	Fine	Dry	60	2	CAR	M17	E in THE ENTRANCE RD	50 Proceeding in lane		N	0	0	
E27874516				Daylight		DCA : 303	Same - Rear right					CAR	F33	E in THE ENTRANCE RD	0 Wait turn right					
Hunter Region				**Gosford City LGA**		**Wamberal**			**The Entrance Rd**											
520603	25/04/2006	Tue	10:45	at	WILLOUGHBY RD	TJN	CRV	Fine	Dry	60	2	CAR	F77	N in WILLOUGHBY RD	20 Turning right		N	0	0	
E52328601				Daylight		DCA : 102	Adj - Right-thru from left					TRK	M43	E in THE ENTRANCE RD	60 Proceeding in lane					
Hunter Region				**Gosford City LGA**		**Wamberal**			**The Entrance Rd**											
523319	27/05/2006	Sat	04:00	25 m E	OKANAGAN CL	2WY	STR	Fine	Dry	60	1	CAR	M19	E in THE ENTRANCE RD	80 Proceeding in lane		I	0	1	S
E29489186				Darkness		DCA : 703	Left off cway into object					Tree/bush								
Hunter Region				**Gosford City LGA**		**Wamberal**			**The Entrance Rd**											
529641	18/07/2006	Tue	18:00	40 m W	OCEAN VIEW DR	DIV	STR	Fine	Dry	60	3	TRK	F25	E in THE ENTRANCE RD	40 Proceeding in lane		N	0	0	
E27851569				Darkness		DCA : 301	Same - Rear end					UTE	M52	E in THE ENTRANCE RD	0 Stationary					
												CAR	F34	E in THE ENTRANCE RD	0 Stationary					
Hunter Region				**Gosford City LGA**		**Wamberal**			**The Entrance Rd**											
530933	24/07/2006	Mon	07:00	10 m E	WILLOUGHBY RD	TJN	CRV	Fine	Dry	60	2	TRK	M22	N in WILLOUGHBY RD	10 Turning right		N	0	0	
E29339885				Daylight		DCA : 102	Adj - Right-thru from left					SEM	M46	E in THE ENTRANCE RD	60 Proceeding in lane					

Detailed Crash Report - sorted

Crash No.	Date	Day of Week	Time	Distance	ID Feature	Loc Type	Alignment	Weather	Surface Condition	Speed Limit	No. of Tus	Tu Type/Obj	Age/Sex	Street Travelling	Speed Travelling	Manoeuvre	Degree of Crash	Killed	Injured	Factors
Natural Lighting																				**S F**
Hunter Region				**Gosford City LGA**		**Wamberal**			**The Entrance Rd**											
538907	08/10/2006	Sun	03:00	300 m N	OLD GOSFORD RD	2WY	CRV	Fine	Dry	60	1	CAR	F46	N in THE ENTRANCE RD	60	Proceeding in lane	N	0	0	S F
E28641651				Darkness		DCA : 804 R		Off left bend into obj				Fence								
Hunter Region				**Gosford City LGA**		**Wamberal**			**The Entrance Rd**											
552644	10/01/2007	Wed	17:55	15 m S	OCEAN VIEW RD	DIV	STR	Fine	Dry	60	4	CAR	M24	N in THE ENTRANCE RD	Unk	Proceeding in lane	I	0	1	
E29391219				Daylight		DCA : 301		Same - Rear end				CAR	F25	N in THE ENTRANCE RD	0	Stationary				
												CAR	F17	N in THE ENTRANCE RD	0	Stationary				
												CAR	F27	N in THE ENTRANCE RD	0	Stationary				
Hunter Region				**Gosford City LGA**		**Wamberal**			**The Entrance Rd**											
575477	26/05/2007	Sat	23:30	100 m W	GHERSI AVE	2WY	STR	Fine	Dry	60	2	CAR	M33	E in THE ENTRANCE RD	50	Proceeding in lane	I	0	1	
E30728169				Darkness		DCA : 1		Ped - Near side				PED	F21	W in THE ENTRANCE RD		Run across carriageway				
Hunter Region				**Gosford City LGA**		**Wamberal**			**The Entrance Rd**											
581888	19/07/2007	Thu	08:30	30 m E	GHERSI AVE	DIV	STR	Fine	Dry	70	3	CAR	F49	W in THE ENTRANCE RD	15	Proceeding in lane	I	0	2	
E30887148				Daylight		DCA : 301		Same - Rear end				CAR	F42	W in THE ENTRANCE RD	0	Stationary				
												CAR	F20	W in THE ENTRANCE RD	0	Stationary				
Hunter Region				**Gosford City LGA**		**Wamberal**			**The Entrance Rd**											
590811	19/09/2007	Wed	13:00	20 m W	GHERSI AVE	2WY	STR	Fine	Dry	60	5	CAR	M41	W in THE ENTRANCE RD	80	Proceeding in lane	I	0	1	S
E31331132				Daylight		DCA : 703		Left off cway into object				CAR		S in THE ENTRANCE RD	0	Parked				
												4WD		S in THE ENTRANCE RD	0	Parked				
												4WD		S in THE ENTRANCE RD	0	Parked				
												4WD		S in THE ENTRANCE RD	0	Parked				
												Fence								
Hunter Region				**Gosford City LGA**		**Wamberal**			**The Entrance Rd**											
605680	24/12/2007	Mon	14:00	10 m W	WILLOUGHBY RD	TJN	STR	Fine	Dry	60	2	4WD	F38	E in THE ENTRANCE RD	20	Proceeding in lane	I	0	1	
E135776994				Daylight		DCA : 301		Same - Rear end				CAR	M U	E in THE ENTRANCE RD	Unk	Proceeding in lane				
Hunter Region				**Gosford City LGA**		**Wamberal**			**The Entrance Rd**											
609495	11/01/2008	Fri	16:00	100 m E	OLD GOSFORD RD	2WY	STR	Fine	Dry	60	3	CAR	M23	E in THE ENTRANCE RD	50	Proceeding in lane	N	0	0	
E32402422				Daylight		DCA : 301		Same - Rear end				4WD	F45	E in THE ENTRANCE RD	0	Stationary				
												4WD	M39	E in THE ENTRANCE RD	0	Stationary				

Detailed Crash Report - sorted

Crash No.	Date	Day of Week	Time	Distance	ID Feature	Loc Type	Alignment	Weather	Surface Condition	Speed Limit	No. of Tus	Tu Type/Obj	Age/Sex	Street Travelling	Speed Travelling	Manoeuvre	Degree of Crash	Killed	Injured	Factors
Natural Lighting																				**S F**
Hunter Region				**Gosford City LGA**		**Wamberal**			**The Entrance Rd**											
609057	03/02/2008	Sun	13:30	30 m E	WILLOUGHBY RD	2WY	CRV	Raining	Wet	60	1	WAG	M22	E in THE ENTRANCE RD	50 Proceeding in lane		N	0	0	S
E116464796				Daylight		DCA : 803 L	Off right bend into obj					Embankment								
Hunter Region				**Gosford City LGA**		**Wamberal**			**The Entrance Rd**											
607751	07/02/2008	Thu	15:45	245 m W	GHERSI AVE	2WY	STR	Raining	Wet	60	2	WAG	M20	W in THE ENTRANCE RD	50 Proceeding in lane		N	0	0	
E33577853				Daylight		DCA : 301	Same - Rear end					CAR	M41	W in THE ENTRANCE RD	0 Stationary					
Hunter Region				**Gosford City LGA**		**Wamberal**			**The Entrance Rd**											
624839	12/04/2008	Sat	18:15	100 m W	OLD GOSFORD RD	2WY	STR	Fine	Dry	60	2	CAR	M47	E in THE ENTRANCE RD	50 Incorrect side		N	0	0	
E33666719				Dusk		DCA : 201	Opp - Head on					TRK	M28	W in THE ENTRANCE RD	60 Proceeding in lane					
Hunter Region				**Gosford City LGA**		**Wamberal**			**The Entrance Rd**											
623362	14/05/2008	Wed	07:30	65 m W	GHERSI AVE	2WY	STR	Fine	Dry	60	6	UTE	M42	W in THE ENTRANCE RD	50 Proceeding in lane		I	0	2	
E65602001				Daylight		DCA : 301	Same - Rear end					TRK	M50	W in THE ENTRANCE RD	30 Proceeding in lane					
												TRK	M U	W in THE ENTRANCE RD	0 Stationary					
												CAR	F23	W in THE ENTRANCE RD	0 Stationary					
												CAR	M67	W in THE ENTRANCE RD	0 Stationary					
												CAR	F46	W in THE ENTRANCE RD	0 Stationary					
Hunter Region				**Gosford City LGA**		**Wamberal**			**The Entrance Rd**											
627811	15/06/2008	Sun	22:30	30 m E	WILLOUGHBY RD	2WY	CRV	Raining	Wet	60	1	WAG	M18	N in THE ENTRANCE RD	90 Proceeding in lane		N	0	0	S
E33680010				Darkness		DCA : 803 R	Off right bend into obj					Embankment								
Hunter Region				**Gosford City LGA**		**Wamberal**			**The Entrance Rd**											
630777	10/07/2008	Thu	17:45	120 m E	OLD GOSFORD RD	2WY	STR	Fine	Dry	60	3	CAR	F20	E in THE ENTRANCE RD	60 Proceeding in lane		N	0	0	
E34467221				Darkness		DCA : 301	Same - Rear end					CAR	F47	E in THE ENTRANCE RD	0 Stationary					
												CAR	F40	E in THE ENTRANCE RD	0 Stationary					
Hunter Region				**Gosford City LGA**		**Wamberal**			**The Entrance Rd**											
631796	22/07/2008	Tue	17:00	30 m E	OLD GOSFORD RD	2WY	STR	Fine	Dry	60	5	CAR	F26	E in THE ENTRANCE RD	60 Proceeding in lane		I	0	2	
E34445613				Daylight		DCA : 301	Same - Rear end					CAR	F46	E in THE ENTRANCE RD	Unk Proceeding in lane					
												CAR	F31	E in THE ENTRANCE RD	Unk Proceeding in lane					
												OMV	U U	E in THE ENTRANCE RD	Unk Proceeding in lane					
												WAG	M23	E in THE ENTRANCE RD	Unk Proceeding in lane					

Detailed Crash Report - sorted

Crash No.	Date	Day of Week	Time	Distance	ID Feature	Loc Type	Alignment	Weather	Surface Condition	Speed Limit	No. of Tus	Tu Type/Obj	Age/Sex	Street Travelling	Speed Travelling	Manoeuvre	Degree of Crash	Killed	Injured	Factors
Natural Lighting																				**S F**
Hunter Region				**Gosford City LGA**		**Wamberal**			**The Entrance Rd**											
637823	07/09/2008	Sun	14:00	7 m E	OLD GOSFORD RD	TJN	STR	Fine	Dry	60	2	CAR	F18	W in THE ENTRANCE RD	50 Proceeding in lane		I	0	2	
E34995705				Daylight		DCA : 301	Same - Rear end					CAR	M71	W in THE ENTRANCE RD	30 Proceeding in lane					
Hunter Region				**Gosford City LGA**		**Wamberal**			**The Entrance Rd**											
637830	07/09/2008	Sun	06:05	at	WILLOUGHBY RD	TJN	CRV	Fine	Dry	60	2	CAR	M18	N in WILLOUGHBY RD	10 Turning right		N	0	0	
E35652641				Daylight		DCA : 104	Adj - Right-thru from right					TRK	M37	W in THE ENTRANCE RD	60 Proceeding in lane					
Hunter Region				**Gosford City LGA**		**Wamberal**			**The Entrance Rd**											
641327	16/10/2008	Thu	08:10	50 m E	OKANAGAN CL	2WY	STR	Fine	Dry	60	2	WAG	M17	S in THE ENTRANCE RD	20 Proceeding in lane		N	0	0	
E35257261				Daylight		DCA : 301	Same - Rear end					CAR	M38	S in THE ENTRANCE RD	0 Stationary					
Hunter Region				**Gosford City LGA**		**Wamberal**			**The Entrance Rd**											
651797	04/01/2009	Sun	16:50	300 m W	OCEAN VIEW DR	2WY	STR	Fine	Dry	60	2	TRK	M47	E in THE ENTRANCE RD	60 Proceeding in lane		N	0	0	
E36314858				Daylight		DCA : 301	Same - Rear end					4WD	F67	E in THE ENTRANCE RD	0 Stationary					
Hunter Region				**Gosford City LGA**		**Wamberal**			**The Entrance Rd**											
665541	20/04/2009	Mon	20:30	75 m W	OLD GOSFORD RD	2WY	STR	Overcast	Wet	60	1	CAR	M21	E in THE ENTRANCE RD	60 Proceeding in lane		N	0	0	
E137491395				Darkness		DCA : 704	Right off cway into obj					Embankment								
Hunter Region				**Gosford City LGA**		**Wamberal**			**The Entrance Rd**											
668653	27/05/2009	Wed	18:15	150 m W	OCEAN VIEW DR	2WY	STR	Overcast	Wet	60	3	CAR	M43	W in THE ENTRANCE RD	50 Proceeding in lane		N	0	0	
E37390254				Darkness		DCA : 301	Same - Rear end					CAR	F18	W in THE ENTRANCE RD	0 Stationary					
												UTE	M50	W in THE ENTRANCE RD	0 Stationary					
Hunter Region				**Gosford City LGA**		**Wamberal**			**The Entrance Rd**											
679934	19/08/2009	Wed	08:00	5 m W	WILLOUGHBY RD	TJN	STR	Fine	Dry	50	2	TRK	M39	E in THE ENTRANCE RD	20 Proceeding in lane		I	0	1	
E39992187				Daylight		DCA : 301	Same - Rear end					CAR	F22	E in THE ENTRANCE RD	20 Proceeding in lane					
Hunter Region				**Gosford City LGA**		**Wamberal**			**Ocean View Dr**											
681437	24/08/2009	Mon	12:13	1 m E	THE ENTRANCE RD	RDB	STR	Fine	Dry	60	1	CAR	M51	E in OCEAN VIEW DR	10 Turning left		I	0	1	S
E37987737				Daylight		DCA : 706 L	Left turn					Fence								
Hunter Region				**Gosford City LGA**		**Wamberal**			**The Entrance Rd**											
690320	26/10/2009	Mon	08:15	20 m W	HIGH VALLEY CL	2WY	STR	Raining	Wet	60	3	CAR	F22	W in THE ENTRANCE RD	40 Proceeding in lane		N	0	0	
E38588144				Daylight		DCA : 301	Same - Rear end					WAG	M48	W in THE ENTRANCE RD	40 Proceeding in lane					
												CAR	F54	W in THE ENTRANCE RD	15 Proceeding in lane					

Detailed Crash Report - sorted

Crash No.	Date	Day of Week	Time	Distance	ID Feature	Loc Type	Alignment	Weather	Surface Condition	Speed Limit	No. of Tus	Tu Type/Obj	Age/Sex	Street Travelling	Speed Travelling	Manoeuvre	Degree of Crash	Killed	Injured	Factors
Natural Lighting																				**S F**
Hunter Region				**Gosford City LGA**		**Wamberal**			**The Entrance Rd**											
691086	25/11/2009	Wed	09:20	30 m E	OLD GOSFORD RD	2WY	STR	Fine	Dry	70	2	CAR	F20	W in THE ENTRANCE RD	60 Proceeding in lane		N	0	0	
E38868170				Daylight		DCA :	703	Left off cway into object				CAR	M24	W in THE ENTRANCE RD	0 Parked other					
Hunter Region				**Gosford City LGA**		**Wamberal**			**The Entrance Rd**											
691193	04/12/2009	Fri	11:20	50 m W	GHERSI AVE	2WY	STR	Fine	Dry	60	2	CAR	F36	W in THE ENTRANCE RD	50 Proceeding in lane		N	0	0	
E39212511				Daylight		DCA :	301	Same - Rear end				VAN	M56	W in THE ENTRANCE RD	0 Stationary					
Hunter Region				**Gosford City LGA**		**Wamberal**			**The Entrance Rd**											
701335	25/12/2009	Fri	23:40	5 m W	GHERSI AVE	TJN	STR	Overcast	Wet	50	1	CAR	U U	W in THE ENTRANCE RD	60 Proceeding in lane		N	0	0	S
E41587784				Darkness		DCA :	703	Left off cway into object				Fence								
Hunter Region				**Gosford City LGA**		**Wamberal**			**The Entrance Rd**											
712340	13/05/2010	Thu	17:15	at	OCEAN VIEW DR	RDB	CRV	Fine	Dry	60	2	CAR	F66	W in OCEAN VIEW DR	20 Turning right		N	0	0	
E43302681				Dusk		DCA :	104	Adj - Right-thru from right				CAR	M30	S in THE ENTRANCE RD	20 Proceeding in lane					
Hunter Region				**Gosford City LGA**		**Wamberal**			**The Entrance Rd**											
713627	05/06/2010	Sat	08:17	at	WILLOUGHBY RD	TJN	CRV	Fine	Dry	60	3	CAR	M75	E in THE ENTRANCE RD	40 Proceeding in lane		N	0	0	
E592718790				Daylight		DCA :	301	Same - Rear end				TRK	F19	E in THE ENTRANCE RD	1 Proceeding in lane					
												WAG	M51	E in THE ENTRANCE RD	0 Stationary					
Hunter Region				**Gosford City LGA**		**Wamberal**			**The Entrance Rd**											
716452	21/06/2010	Mon	12:20	at	GHERSI AVE	TJN	STR	Fine	Dry	60	2	CAR	F40	N in GHERSI AVE	10 Proceeding in lane		N	0	0	
E41658469				Daylight		DCA :	101	Adj - Cross traffic				4WD	F61	W in THE ENTRANCE RD	50 Proceeding in lane					
Hunter Region				**Gosford City LGA**		**Wamberal**			**The Entrance Rd**											
731922	14/10/2010	Thu	02:15	at	GHERSI AVE	TJN	STR	Fine	Wet	60	2	OMV	M68	W in THE ENTRANCE RD	40 Proceeding in lane		I	0	1	
E42553950				Darkness		DCA :	4	Ped - On carriageway				PED	M30	THE ENTRANCE RD	Stand on carriageway					
Hunter Region				**Gosford City LGA**		**Wamberal**			**The Entrance Rd**											
736122	06/12/2010	Mon	17:15	at	WILLOUGHBY RD	TJN	CRV	Fine	Dry	60	2	TRK	M42	E in THE ENTRANCE RD	50 Proceeding in lane		N	0	0	
E42782854				Daylight		DCA :	303	Same - Rear right				CAR	F40	E in THE ENTRANCE RD	0 Wait turn right					
Hunter Region				**Gosford City LGA**		**Wamberal**			**The Entrance Rd**											
741749	23/01/2011	Sun	11:45	at	OKANAGAN CL	TJN	STR	Fine	Dry	60	2	CAR	M21	E in THE ENTRANCE RD	50 Proceeding in lane		I	0	1	
E43471957				Daylight		DCA :	303	Same - Rear right				CAR	F50	E in THE ENTRANCE RD	0 Wait turn right					

Detailed Crash Report - sorted

Crash No.	Date	Day of Week	Time	Distance	ID Feature	Loc Type	Alignment	Weather	Surface Condition	Speed Limit	No. of Tus	Tu Type/Obj	Age/Sex	Street Travelling	Speed Travelling	Manoeuvre	Degree of Crash	Killed	Injured	Factors
Natural Lighting																				**S F**
Hunter Region		**Gosford City LGA**			**Wamberal**				**The Entrance Rd**											
757068	17/06/2011	Fri	10:45	20 m W	OKANAGHAN CL	2WY	STR	Fine	Dry	40	5	CAR	M20	E in THE ENTRANCE RD	40	Proceeding in lane	N	0	0	
E44186120				Daylight		DCA : 301		Same - Rear end				CAR	F66	E in THE ENTRANCE RD	0	Stationary				
												CAR	M52	E in THE ENTRANCE RD	0	Stationary				
												CAR	F49	E in THE ENTRANCE RD	0	Stationary				
												4WD	M19	E in THE ENTRANCE RD	0	Stationary				
Hunter Region		**Gosford City LGA**			**Wamberal**				**The Entrance Rd**											
759386	07/07/2011	Thu	15:40	at	GHERSI AVE	TJN	STR	Fine	Dry	40	2	CAR	F61	N in GHERSI AVE	10	Turning right	N	0	0	
E44386220				Daylight		DCA : 104		Adj - Right-thru from right				4WD	F35	W in THE ENTRANCE RD	10	Proceeding in lane				
Hunter Region		**Gosford City LGA**			**Wamberal**				**The Entrance Rd**											
765273	21/08/2011	Sun	21:00	at	OCEAN VIEW DR	RDB	CRV	Fine	Dry	60	1	CAR	M51	N in THE ENTRANCE RD	40	Proceeding in lane	N	0	0	S F
E45364747				Darkness		DCA : 804 R		Off left bend into obj				Traffic island etc								

Report Totals: Total Crashes: 44 Fatal Crashes: 0 Injury Crashes: 15 Killed: 0 Injured: 19

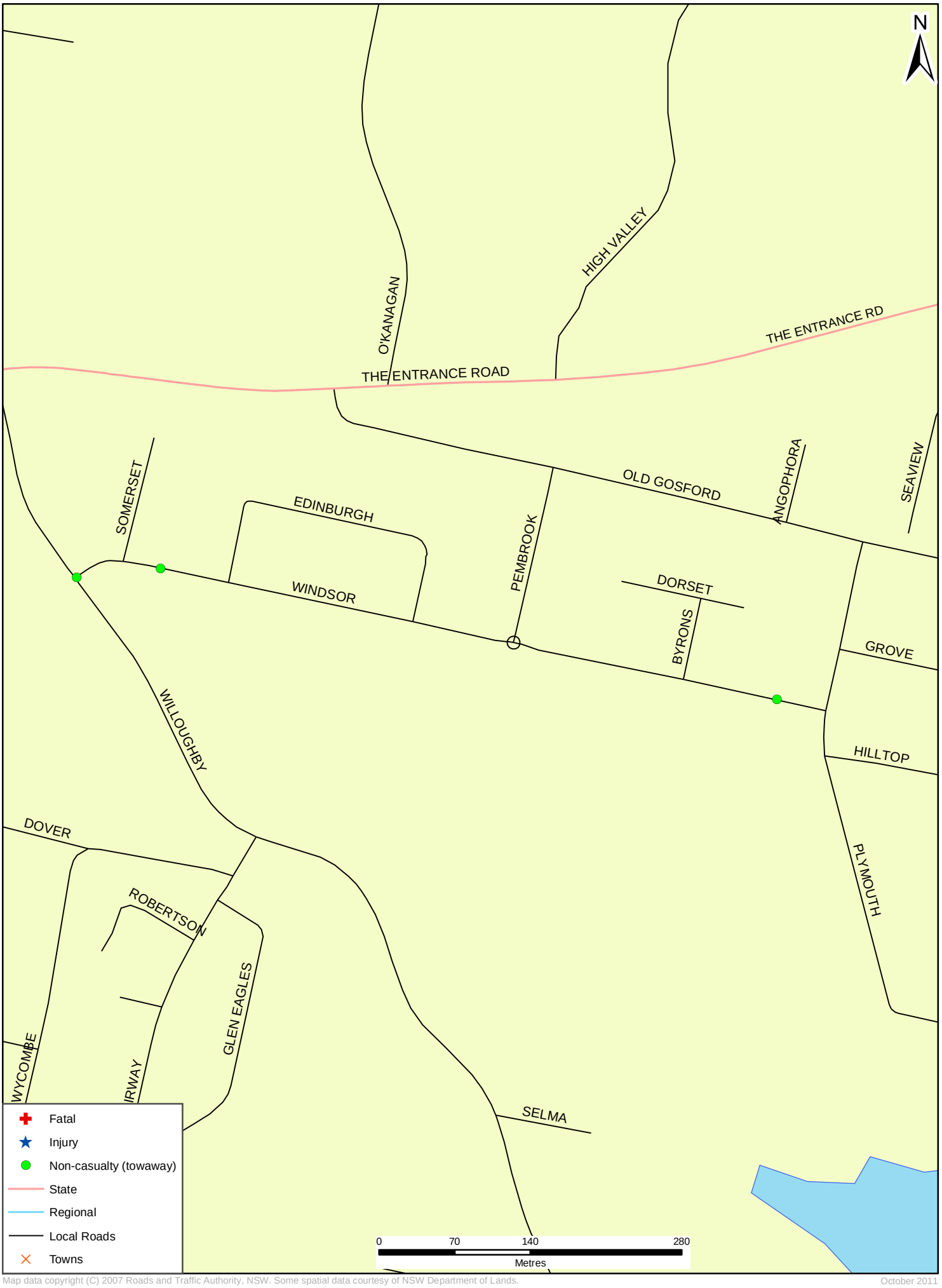
Crashid dataset The Entrance Road between Willoughby Road & Ocean View Drive, Wamberal - 1/1/2006 to 2011*

Note: Ordered by: Crash Date. Data for the 9 month period prior to the generated date of this report are incomplete and are subject to change.

Windsor Road: Willoughby Road & Plymouth Drive, Wamberal

Crash Period: 1st January 2006 to 31st December 2010 (Finalised Data)

Plus Provisional Data (Which is incomplete & subject to change) from March Quarter 2011



October 2011

Jason Gillett

Detailed Crash Report - sorted

Crash No.	Date	Day of Week	Time	Distance	ID Feature	Loc Type	Alignment	Weather	Surface Condition	Speed Limit	No. of Tus	Tu Type/Obj	Age/Sex	Street Travelling	Speed Travelling	Manoeuvre	Degree of Crash	Killed	Injured	Factors
Natural Lighting																				**S F**
Hunter Region		**Gosford City LGA**				**Wamberal**				**Windsor Rd**										
687011	12/10/2009	Mon	07:00	35 m E	SOMERSET CL	2WY	STR	Fine	Dry	50	3	CAR	M19	E in WINDSOR RD	35	Proceeding in lane	N	0	0	
E38626832				Daylight		DCA : 703		Left off cway into object				TRK		E in WINDSOR RD	0	Parked				
												TRK		E in WINDSOR RD	0	Parked				
Hunter Region		**Gosford City LGA**				**Wamberal**				**Willoughby Rd**										
713694	07/06/2010	Mon	10:30	at	WINDSOR RD	TJN	STR	Fine	Dry	50	2	CAR	F49	W in WINDSOR RD	1	Turning left	N	0	0	
E41888241				Daylight		DCA : 107		Adj - Left-thru from right				4WD	F36	S in WILLOUGHBY RD	40	Proceeding in lane				
Hunter Region		**Gosford City LGA**				**Wamberal**				**Windsor Rd**										
734547	03/12/2010	Fri	20:00	50 m W	PLYMOUTH DR	2WY	STR	Fine	Dry	50	3	CAR	F U	W in WINDSOR RD	50	Proceeding in lane	N	0	0	
E42489937				Dusk		DCA : 703		Left off cway into object				UTE		W in WINDSOR RD	0	Parked				
												UTE		W in WINDSOR RD	0	Parked				

Report Totals: Total Crashes: 3 Fatal Crashes: 0 Injury Crashes: 0 Killed: 0 Injured: 0

Crashid dataset Windsor Road between Willoughby Road & Plymouth Drive, Wamberal - 1/1/2006 to 2011*

Note: Ordered by: Crash Date. Data for the 9 month period prior to the generated date of this report are incomplete and are subject to change.

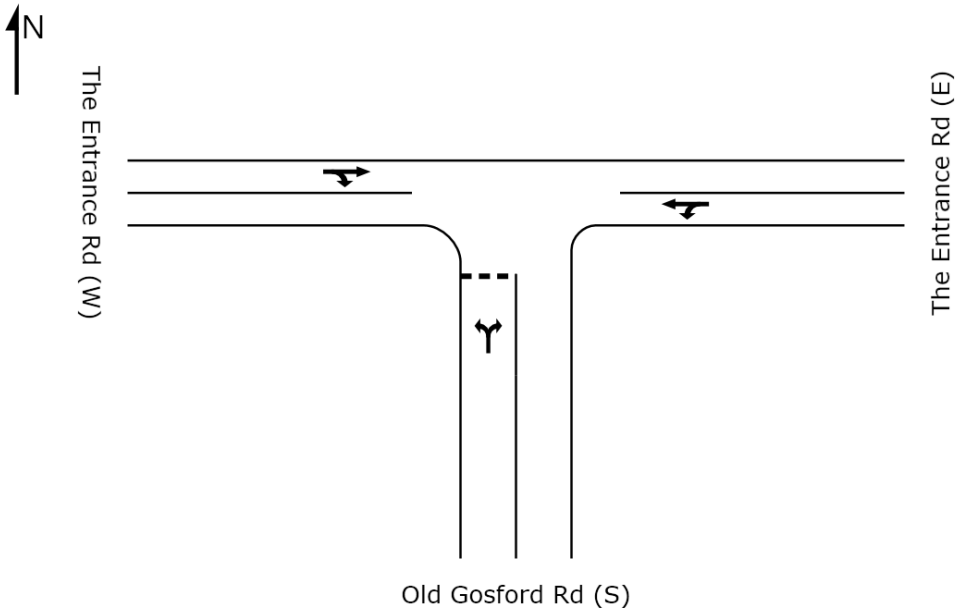
Appendix G

Intersection SIDRA Analysis

2011 SIDRA Assessment Summaries

Existing AM Peak

1-The Entrance Road / Old Gosford Road



MOVEMENT SUMMARY

Site: The Entrance Rd/Old Gosford Rd

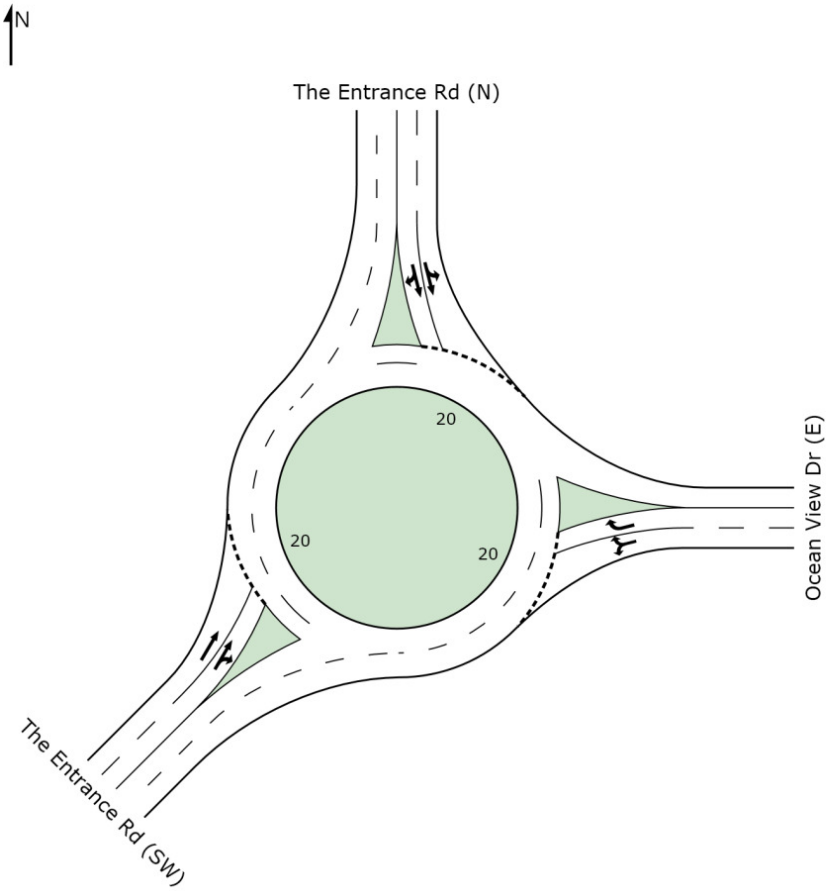
89010133 The Entrance Rd/Old Gosford Rd
2011 AM Existing (07:45-08:45)
Giveway / Yield (Two-Way)

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
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Old Gosford Rd (S)											
1	L	137	4.0	0.596	30.4	LOS C	3.1	22.3	0.91	1.12	29.9
3	R	1	0.0	0.500	30.3	LOS C	3.1	22.3	0.91	1.11	29.9
Approach		138	4.0	0.594	30.4	LOS C	3.1	22.3	0.91	1.12	29.9
East: The Entrance Rd (E)											
4	L	6	33.0	0.545	8.4	LOS A	0.0	0.0	0.00	1.27	48.6
5	T	987	5.0	0.527	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		993	5.2	0.527	0.1	LOS A	0.0	0.0	0.00	0.01	59.9
West: The Entrance Rd (W)											
11	T	549	8.0	0.355	13.5	LOS A	8.0	60.0	1.00	0.00	40.7
12	R	26	8.0	0.356	21.2	LOS B	8.0	60.0	1.00	1.11	40.3
Approach		575	8.0	0.355	13.8	LOS B	8.0	60.0	1.00	0.05	40.7
All Vehicles		1706	6.0	0.594	7.1	NA	8.0	60.0	0.41	0.11	48.3

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS C. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

2-The Entrance Road / Ocean View Drive



MOVEMENT SUMMARY

Site: The Entrance Rd/Ocean View Dr

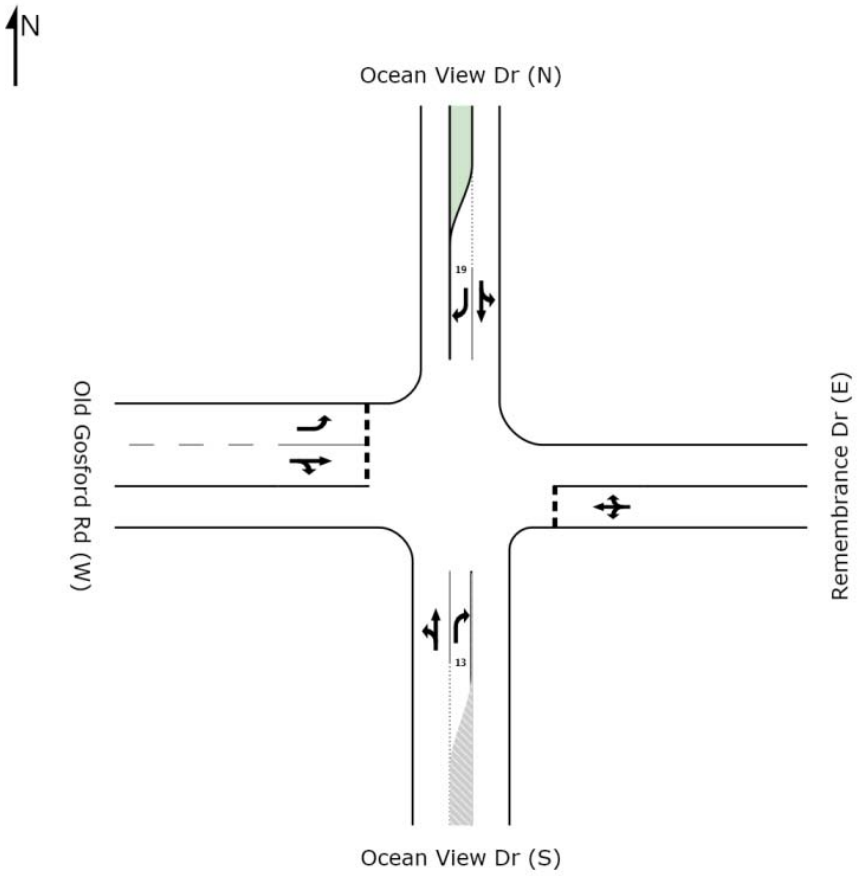
89010133 The Entrance Rd / Ocean View Drive
2011 AM Existing (07:45-08:45)
Roundabout

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
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
East: Ocean View Dr (E)											
4	L	51	4.0	0.560	13.0	LOS A	5.2	37.9	0.86	1.01	43.0
6	R	679	4.0	0.560	19.7	LOS B	5.2	37.9	0.86	1.06	39.8
Approach		730	4.0	0.560	19.2	LOS B	5.2	37.9	0.86	1.06	40.0
North: The Entrance Rd (N)											
7	L	547	5.0	0.553	7.1	LOS A	6.6	48.0	0.41	0.51	48.5
8	T	976	5.0	0.552	10.9	LOS A	6.6	48.0	0.42	0.62	45.7
9	R	9	0.0	0.563	13.9	LOS A	6.5	47.3	0.43	0.64	43.4
Approach		1532	5.0	0.552	9.6	LOS A	6.6	48.0	0.42	0.58	46.6
South West: The Entrance Rd (SW)											
31	T	617	18.0	0.537	11.5	LOS A	4.6	36.9	0.81	0.96	46.0
32	R	72	19.3	0.537	18.9	LOS B	4.4	35.6	0.81	1.05	41.8
Approach		689	18.1	0.536	12.3	LOS B	4.6	36.9	0.81	0.97	45.5
All Vehicles		2951	7.8	0.560	12.6	LOS A	6.6	48.0	0.62	0.79	44.5

Level of Service (Aver. Int. Delay): LOS A. Based on average delay for all vehicle movements. LOS Method: Delay (RTA NSW).
Level of Service (Worst Movement): LOS B. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.
Roundabout Capacity Model: SIDRA Standard.

3- Ocean View Drive/ Old Gosford Road /



MOVEMENT SUMMARY

Site: Ocean View Dr/ Old Gosford Rd

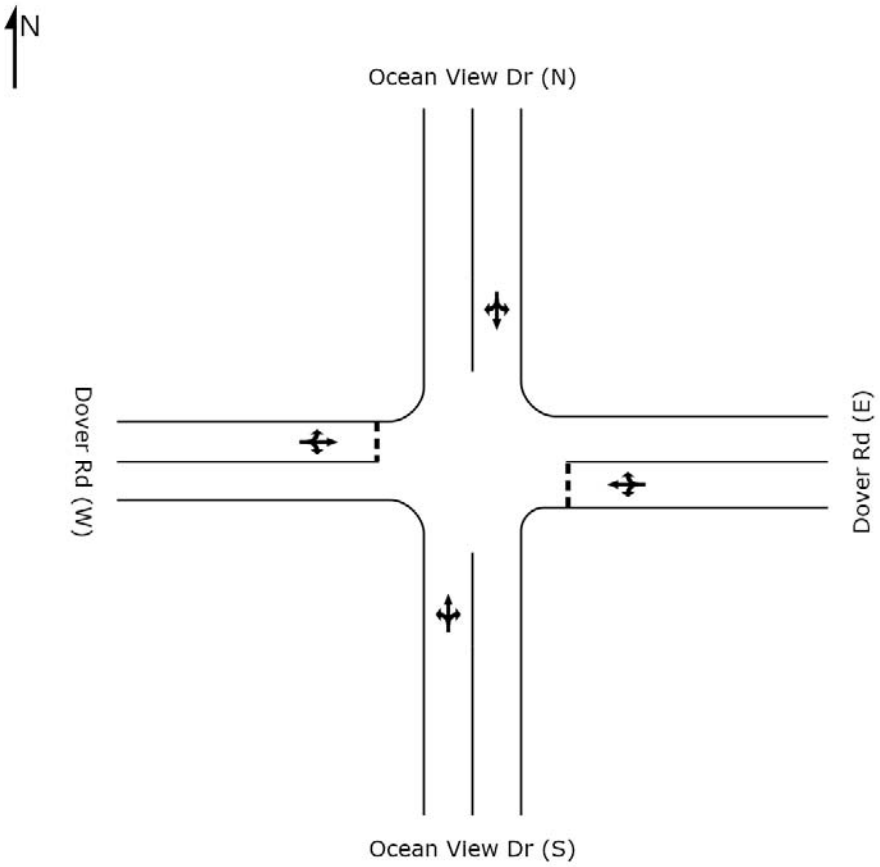
89010133 Ocean View Drive / Old Gosford Road / Remembrance Drive
2011 AM Existing (07:45-08:45)
Giveway / Yield (Two-Way)

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
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Ocean View Dr (S)											
1	L	38	0.0	0.418	8.2	LOS A	0.0	0.0	0.00	1.06	49.0
2	T	756	3.0	0.416	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
3	R	2	0.0	0.004	11.9	LOS A	0.0	0.1	0.56	0.68	45.2
Approach		796	2.8	0.416	0.4	LOS A	0.0	0.1	0.00	0.05	59.3
East: Remembrance Dr (E)											
4	L	5	0.0	0.083	37.0	LOS C	0.3	2.2	0.87	0.96	29.8
5	T	4	0.0	0.083	35.8	LOS C	0.3	2.2	0.87	0.94	30.0
6	R	1	0.0	0.083	37.0	LOS C	0.3	2.2	0.87	0.96	29.8
Approach		10	0.0	0.083	36.5	LOS C	0.3	2.2	0.87	0.95	29.9
North: Ocean View Dr (N)											
7	L	3	0.0	0.333	8.2	LOS A	0.0	0.0	0.00	1.09	49.0
8	T	656	4.0	0.347	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
9	R	49	20.0	0.132	17.5	LOS B	0.6	4.7	0.73	0.91	41.1
Approach		708	5.1	0.347	1.2	LOS B	0.6	4.7	0.05	0.07	58.1
West: Old Gosford Rd (W)											
10	L	33	12.0	0.097	17.5	LOS B	0.4	3.0	0.72	0.91	40.8
11	T	2	0.0	0.500	94.4	LOS F	1.8	12.3	0.97	1.03	16.6
12	R	23	0.0	0.451	95.6	LOS F	1.8	12.3	0.97	1.03	16.5
Approach		58	6.8	0.448	51.1	LOS F	1.8	12.3	0.82	0.96	25.0
All Vehicles		1572	4.0	0.448	2.9	NA	1.8	12.3	0.06	0.10	55.6

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS F. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

4-Ocean View Drive/ Dover Road



MOVEMENT SUMMARY

Site: Ocean View Dr/ Dover Rd

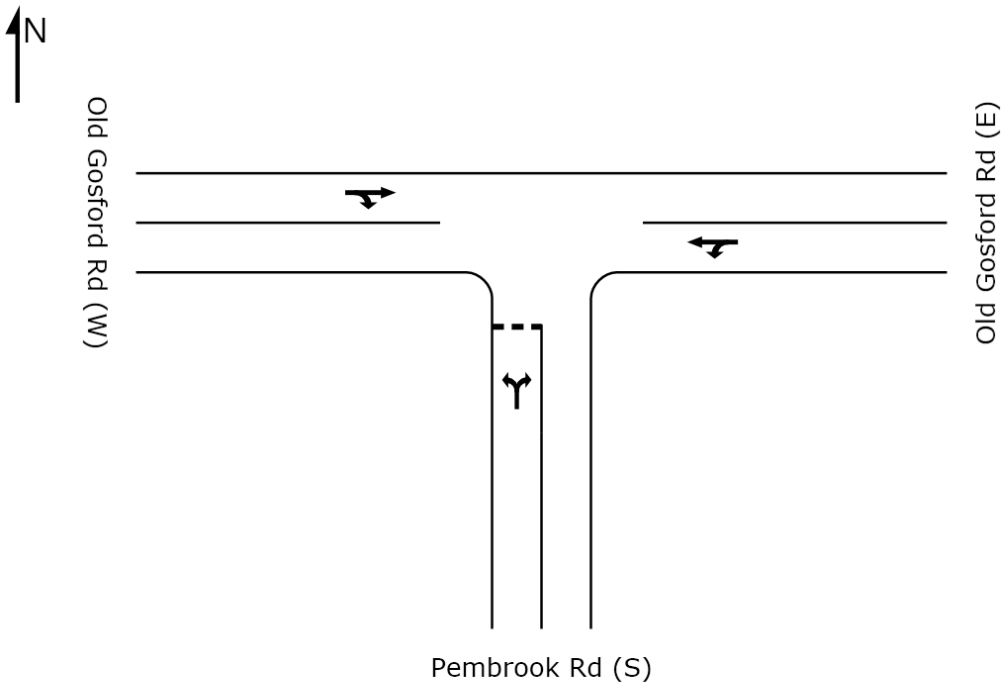
89010133 Ocean View Drive / Dover Road
2011 AM Existing (07:45-08:45)
Giveway / Yield (Two-Way)

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
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Ocean View Dr (S)											
1	L	17	29.0	0.459	18.7	LOS B	11.1	81.0	1.00	0.00	43.7
2	T	753	4.0	0.454	9.5	LOS A	11.1	81.0	1.00	0.00	43.9
3	R	29	0.0	0.453	17.6	LOS B	11.1	81.0	1.00	1.16	43.7
Approach		799	4.4	0.454	10.0	LOS B	11.1	81.0	1.00	0.04	43.9
East: Dover Rd (E)											
4	L	8	0.0	0.163	44.0	LOS D	0.6	4.2	0.90	0.97	27.2
5	T	2	0.0	0.167	42.7	LOS D	0.6	4.2	0.90	0.96	27.3
6	R	6	0.0	0.162	43.9	LOS D	0.6	4.2	0.90	0.97	27.2
Approach		16	0.0	0.164	43.8	LOS D	0.6	4.2	0.90	0.97	27.2
North: Ocean View Dr (N)											
7	L	10	0.0	0.370	18.2	LOS B	9.5	68.8	1.00	0.00	43.3
8	T	672	4.0	0.376	10.1	LOS A	9.5	68.8	1.00	0.00	43.5
9	R	9	0.0	0.375	18.2	LOS B	9.5	68.8	1.00	1.11	43.3
Approach		691	3.9	0.376	10.3	LOS B	9.5	68.8	1.00	0.01	43.5
West: Dover Rd (W)											
10	L	8	0.0	0.058	27.0	LOS B	0.2	1.5	0.82	0.94	34.4
11	T	1	0.0	0.059	25.8	LOS B	0.2	1.5	0.82	0.92	34.7
12	R	1	0.0	0.059	27.0	LOS B	0.2	1.5	0.82	0.94	34.4
Approach		10	0.0	0.058	26.9	LOS B	0.2	1.5	0.82	0.94	34.4
All Vehicles		1516	4.1	0.454	10.6	NA	11.1	81.0	1.00	0.05	43.4

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS D. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

5-Old Gosford Road / Pembrook Road



MOVEMENT SUMMARY

Site: Old Gosford Rd/Pembrook Rd

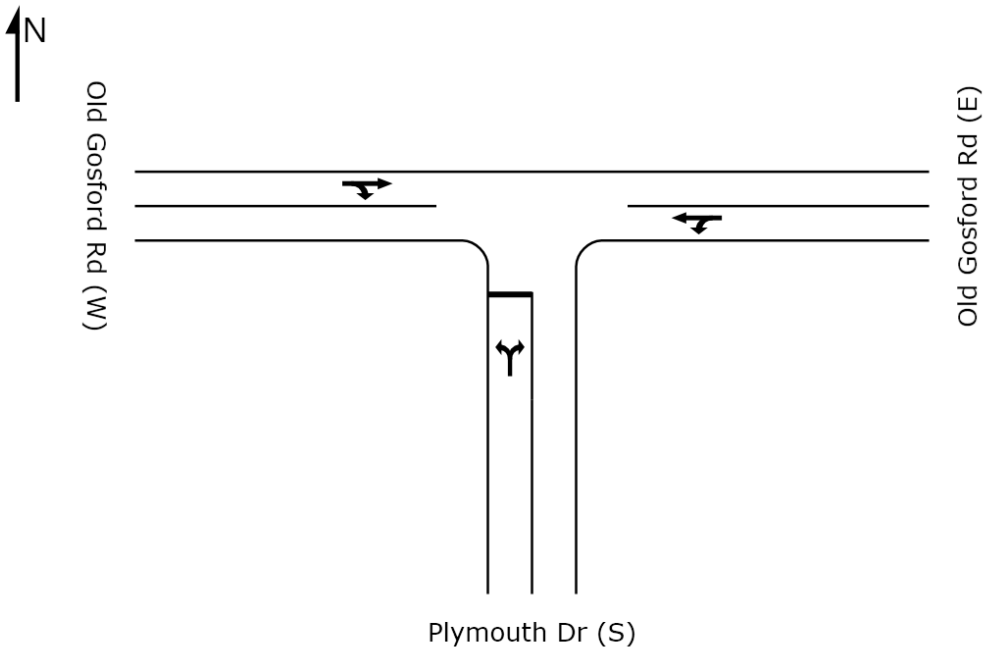
89010133 Old Gosford Road / Pembrook Road
2011 AM Existing (07:45-08:45)
Giveway / Yield (Two-Way)

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 Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Pembrook Rd (S)											
1	L	5	0.0	0.038	8.4	LOS A	0.2	1.2	0.30	0.60	42.7
3	R	24	4.0	0.038	8.6	LOS A	0.2	1.2	0.30	0.63	42.7
Approach		29	3.3	0.038	8.5	LOS A	0.2	1.2	0.30	0.62	42.7
East: Old Gosford Rd (E)											
4	L	29	3.0	0.083	7.5	LOS A	0.0	0.0	0.00	1.02	48.6
5	T	128	4.0	0.083	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		157	3.8	0.083	1.4	LOS A	0.0	0.0	0.00	0.19	57.6
West: Old Gosford Rd (W)											
11	T	27	7.0	0.015	0.7	LOS A	0.1	0.9	0.30	0.00	54.4
12	R	1	0.0	0.015	8.2	LOS A	0.1	0.9	0.30	0.95	48.9
Approach		28	6.8	0.015	1.0	LOS A	0.1	0.9	0.30	0.03	54.2
All Vehicles		214	4.1	0.083	2.3	NA	0.2	1.2	0.08	0.23	54.6

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS A. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

6-Old Gosford Road / Plymouth Drive



MOVEMENT SUMMARY

Site: Old Gosford Rd/Plymouth Dr

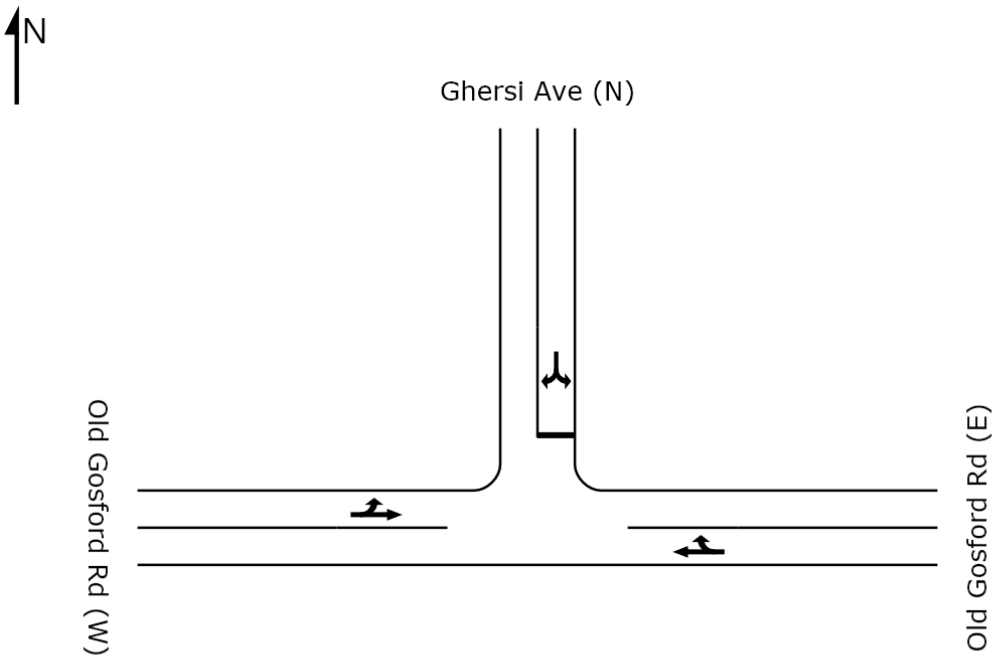
89010133 Old Gosford Road / Plymouth Dr
2011 AM Existing (07:45-08:45)
Stop (Two-Way)

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
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Plymouth Dr (S)											
1	L	39	0.0	0.072	10.9	LOS A	0.3	2.3	0.27	0.86	41.2
3	R	34	0.0	0.072	10.8	LOS A	0.3	2.3	0.27	0.91	41.3
Approach		73	0.0	0.072	10.8	LOS A	0.3	2.3	0.27	0.88	41.2
East: Old Gosford Rd (E)											
4	L	40	3.0	0.080	7.5	LOS A	0.0	0.0	0.00	0.96	48.6
5	T	110	5.0	0.080	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		150	4.5	0.080	2.0	LOS A	0.0	0.0	0.00	0.26	56.6
West: Old Gosford Rd (W)											
11	T	63	5.0	0.043	0.6	LOS A	0.3	2.2	0.27	0.00	54.7
12	R	12	0.0	0.043	8.2	LOS A	0.3	2.2	0.27	0.93	48.6
Approach		75	4.2	0.043	1.8	LOS A	0.3	2.2	0.27	0.15	53.6
All Vehicles		298	3.3	0.080	4.1	NA	0.3	2.3	0.13	0.38	51.2

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS A. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

7-Old Gosford Road / Ghersi Avenue



MOVEMENT SUMMARY

Site: Old Gosford Rd/Ghersi Ave

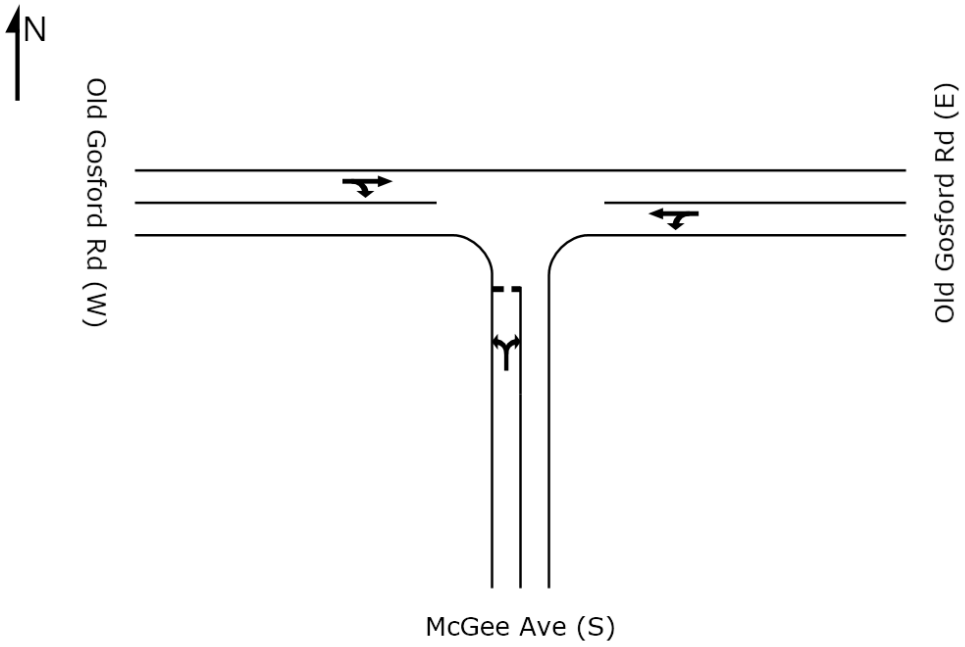
89010133 Old Gosford Road / Ghersi Avenue
2011 AM Existing (07:45-08:45)
Stop (Two-Way)

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
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
East: Old Gosford Rd (E)											
11	T	90	7.0	0.065	0.3	LOS A	0.4	3.2	0.19	0.00	56.1
12	R	23	0.0	0.066	8.0	LOS A	0.4	3.2	0.19	0.94	48.4
Approach		113	5.6	0.065	1.9	LOS A	0.4	3.2	0.19	0.19	54.4
North: Ghersi Ave (N)											
1	L	13	8.0	0.066	11.2	LOS A	0.3	2.2	0.21	0.84	41.2
3	R	55	0.0	0.066	10.6	LOS A	0.3	2.2	0.21	0.91	41.3
Approach		68	1.5	0.066	10.7	LOS A	0.3	2.2	0.21	0.90	41.2
West: Old Gosford Rd (W)											
4	L	58	0.0	0.044	7.4	LOS A	0.0	0.0	0.00	0.73	48.6
5	T	22	14.0	0.044	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		80	3.9	0.044	5.4	LOS A	0.0	0.0	0.00	0.53	51.4
All Vehicles		261	4.0	0.066	5.3	NA	0.4	3.2	0.14	0.48	49.4

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS A. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

8-Old Gosford Road / McGee Avenue



MOVEMENT SUMMARY

Site: Old Gosford Rd/McGee Ave

89010133 Old Gosford Road / McGee Avenue
2011 AM Existing (07:45-08:45)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

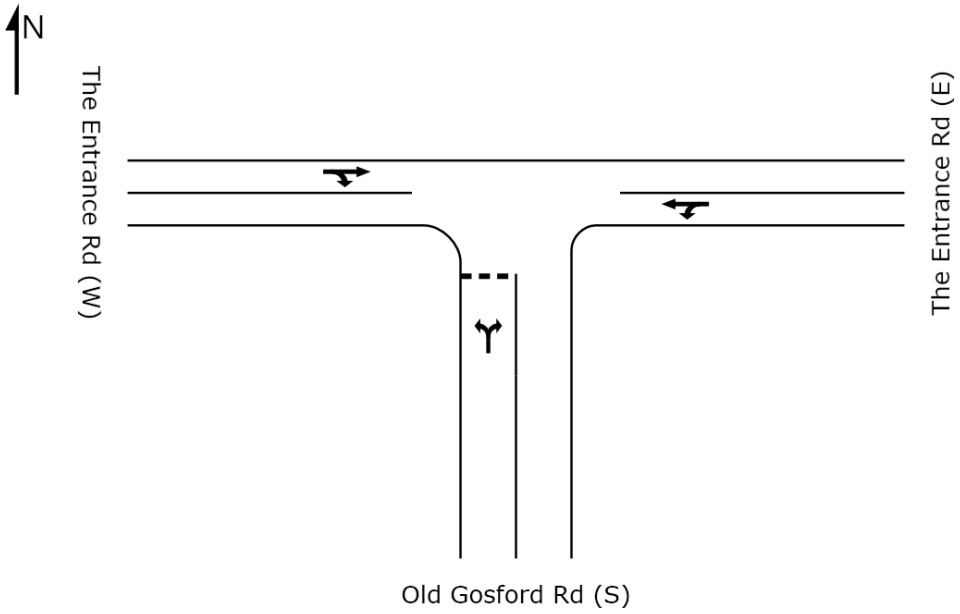
Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	95% Back of Queue Distance	Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: McGee Ave (S)											
1	L	6	17.0	0.031	8.3	LOS A	0.1	1.0	0.22	0.57	42.9
3	R	26	0.0	0.031	8.1	LOS A	0.1	1.0	0.22	0.64	42.8
Approach		32	3.2	0.031	8.1	LOS A	0.1	1.0	0.22	0.63	42.8
East: Old Gosford Rd (E)											
4	L	13	23.0	0.050	8.1	LOS A	0.0	0.0	0.00	1.09	48.6
5	T	77	9.0	0.050	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		90	11.0	0.050	1.2	LOS A	0.0	0.0	0.00	0.16	58.1
West: Old Gosford Rd (W)											
11	T	32	13.0	0.021	0.3	LOS A	0.1	1.0	0.19	0.00	56.2
12	R	5	0.0	0.021	8.1	LOS A	0.1	1.0	0.19	1.03	48.4
Approach		37	11.2	0.021	1.3	LOS A	0.1	1.0	0.19	0.14	55.0
All Vehicles		159	9.5	0.050	2.6	NA	0.1	1.0	0.09	0.25	53.6

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS A. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

2011 SIDRA Assessment Summaries

Existing Saturday Midday Peak

1-The Entrance Road / Old Gosford Road



MOVEMENT SUMMARY

Site: The Entrance Rd/Old Gosford Rd

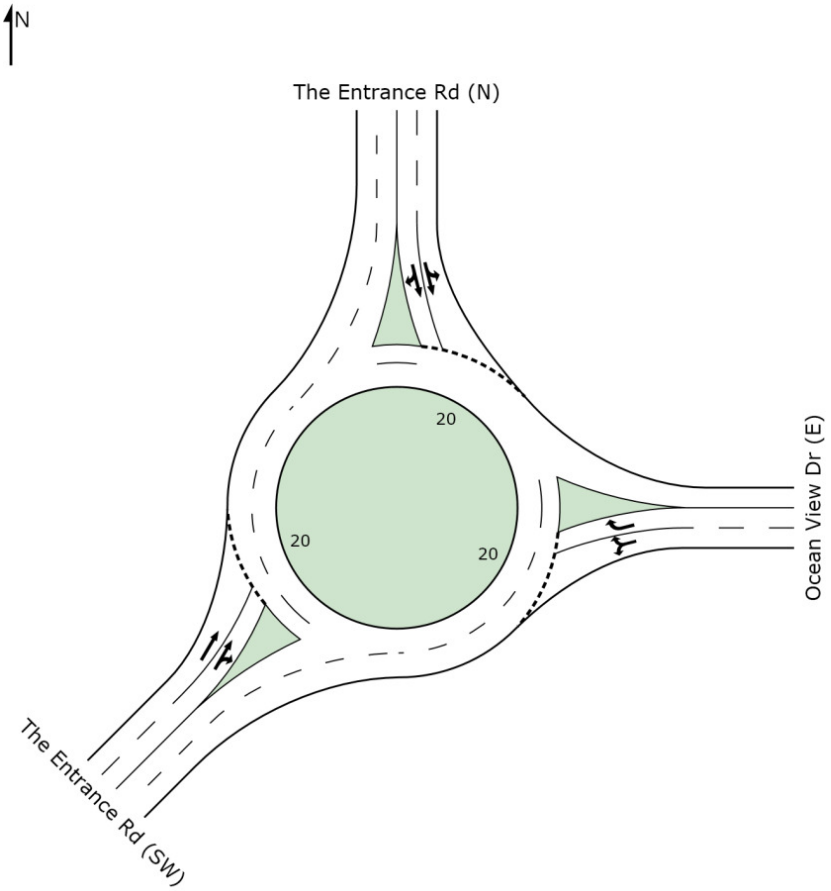
89010133 The Entrance Road / Old Gosford Road
2011 Saturday Midday Existing (11:30-12:30)
Giveway / Yield (Two-Way)

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
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Old Gosford Rd (S)											
1	L	63	2.0	0.201	17.7	LOS B	0.8	5.9	0.77	0.93	36.2
3	R	1	2.0	0.200	17.6	LOS B	0.8	5.9	0.77	0.93	36.2
Approach		64	2.0	0.201	17.7	LOS B	0.8	5.9	0.77	0.93	36.2
East: The Entrance Rd (E)											
4	L	11	0.0	0.440	7.4	LOS A	0.0	0.0	0.00	1.17	48.6
5	T	841	2.0	0.443	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		852	2.0	0.443	0.1	LOS A	0.0	0.0	0.00	0.02	59.8
West: The Entrance Rd (W)											
11	T	884	2.0	0.514	12.0	LOS A	11.7	83.4	1.00	0.00	41.9
12	R	35	3.0	0.515	19.5	LOS B	11.7	83.4	1.00	1.20	41.5
Approach		919	2.0	0.514	12.3	LOS B	11.7	83.4	1.00	0.05	41.9
All Vehicles		1835	2.0	0.514	6.8	NA	11.7	83.4	0.53	0.06	48.3

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS B. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

2-The Entrance Road / Ocean View Drive



MOVEMENT SUMMARY

Site: The Entrance Rd/Ocean View Dr

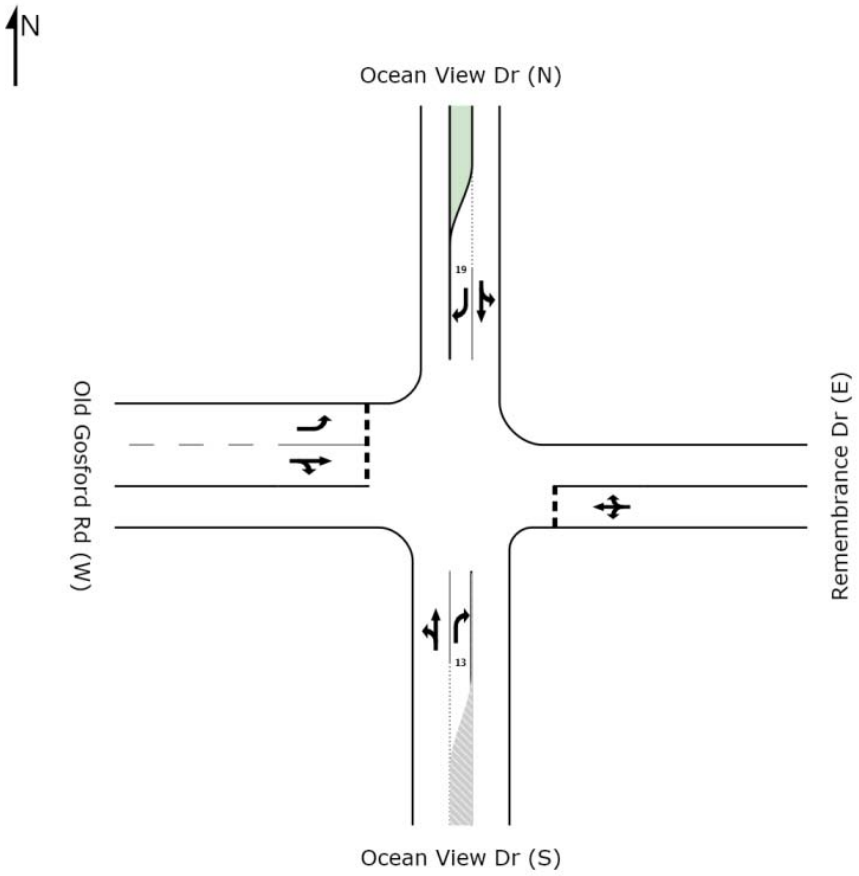
89010133 The Entrance Rd / Ocean View Drive
2011 Saturday Midday Existing (11:30-12:30)
Roundabout

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
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
East: Ocean View Dr (E)											
4	L	86	1.0	0.406	9.8	LOS A	3.1	22.0	0.77	0.87	46.1
6	R	502	2.0	0.406	16.2	LOS B	3.1	22.0	0.77	0.96	42.4
Approach		588	1.9	0.406	15.3	LOS B	3.1	22.0	0.77	0.95	42.9
North: The Entrance Rd (N)											
7	L	486	2.0	0.502	7.2	LOS A	5.4	38.3	0.44	0.54	48.3
8	T	836	1.0	0.502	10.9	LOS A	5.4	38.3	0.45	0.64	45.6
9	R	12	0.0	0.500	14.1	LOS A	5.3	37.5	0.46	0.66	43.3
Approach		1334	1.4	0.502	9.6	LOS A	5.4	38.3	0.45	0.60	46.5
South West: The Entrance Rd (SW)											
31	T	859	2.0	0.544	9.0	LOS A	5.0	35.8	0.76	0.83	47.1
32	R	114	1.5	0.543	14.9	LOS B	4.9	35.2	0.76	0.97	44.1
Approach		973	1.9	0.544	9.7	LOS B	5.0	35.8	0.76	0.85	46.7
All Vehicles		2895	1.7	0.544	10.8	LOS A	5.4	38.3	0.62	0.75	45.8

Level of Service (Aver. Int. Delay): LOS A. Based on average delay for all vehicle movements. LOS Method: Delay (RTA NSW).
Level of Service (Worst Movement): LOS B. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.
Roundabout Capacity Model: SIDRA Standard.

3- Ocean View Drive / Old Gosford Road /



MOVEMENT SUMMARY

Site: Ocean View Dr/ Old Gosford Rd

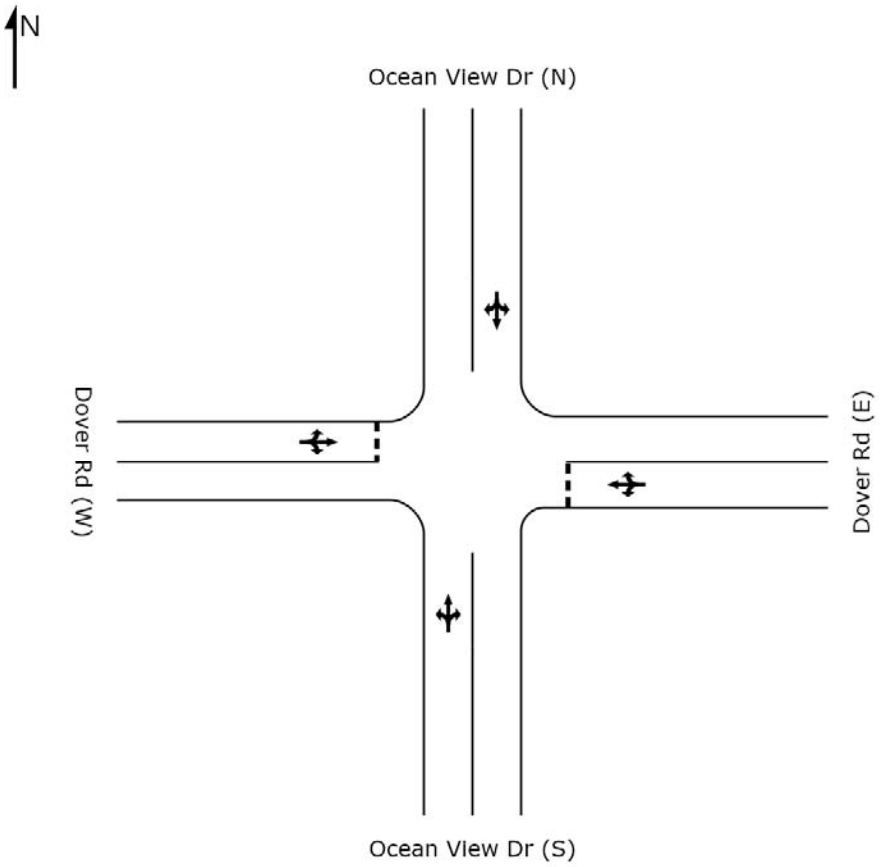
89010133 Ocean View Drive / Old Gosford Road / Remembrance Drive
2011 Saturday Midday Existing (11:30-12:30)
Giveway / Yield (Two-Way)

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
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Ocean View Dr (S)											
1	L	34	0.0	0.333	8.2	LOS A	0.0	0.0	0.00	1.05	49.0
2	T	604	2.0	0.332	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
3	R	9	0.0	0.016	11.6	LOS A	0.1	0.4	0.54	0.73	45.4
Approach		647	1.9	0.332	0.6	LOS A	0.1	0.4	0.01	0.07	59.0
East: Remembrance Dr (E)											
4	L	9	0.0	0.188	35.9	LOS C	0.7	5.2	0.87	0.97	30.2
5	T	4	0.0	0.190	34.6	LOS C	0.7	5.2	0.87	0.95	30.4
6	R	12	0.0	0.188	35.9	LOS C	0.7	5.2	0.87	0.96	30.2
Approach		25	0.0	0.189	35.7	LOS C	0.7	5.2	0.87	0.96	30.2
North: Ocean View Dr (N)											
7	L	10	0.0	0.323	8.2	LOS A	0.0	0.0	0.00	1.08	49.0
8	T	612	1.0	0.321	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
9	R	22	9.0	0.035	12.5	LOS A	0.2	1.2	0.57	0.78	45.0
Approach		644	1.3	0.321	0.6	LOS A	0.2	1.2	0.02	0.04	59.1
West: Old Gosford Rd (W)											
10	L	39	3.0	0.073	13.0	LOS A	0.3	2.2	0.57	0.84	44.2
11	T	1	0.0	0.333	57.6	LOS E	1.6	11.3	0.94	1.02	23.0
12	R	34	0.0	0.386	58.8	LOS E	1.6	11.3	0.94	1.02	22.9
Approach		74	1.6	0.385	34.7	LOS E	1.6	11.3	0.75	0.93	30.7
All Vehicles		1390	1.5	0.385	3.0	NA	1.6	11.3	0.07	0.12	55.4

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS E. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

4- Ocean View Drive / Dover Road



MOVEMENT SUMMARY

Site: Ocean View Dr/ Dover Rd

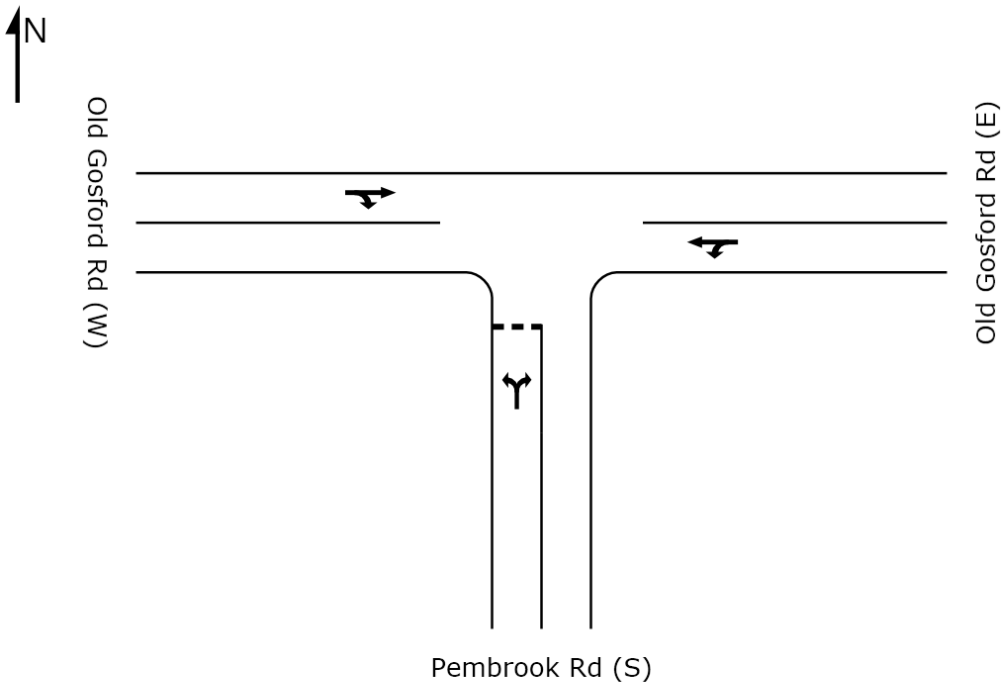
89010133 Ocean View Drive / Dover Road
2011 Saturday Midday Existing (11:30-12:30)
Giveway / Yield (Two-Way)

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
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Ocean View Dr (S)											
1	L	22	9.0	0.361	15.2	LOS B	7.1	50.4	0.86	0.15	45.7
2	T	591	2.0	0.361	6.6	LOS A	7.1	50.4	0.86	0.00	46.3
3	R	28	0.0	0.359	14.8	LOS B	7.1	50.4	0.86	1.08	45.7
Approach		641	2.2	0.361	7.3	LOS B	7.1	50.4	0.86	0.05	46.3
East: Dover Rd (E)											
4	L	24	0.0	0.233	29.5	LOS C	1.0	6.7	0.83	0.97	33.1
5	T	2	0.0	0.222	28.2	LOS B	1.0	6.7	0.83	0.94	33.4
6	R	15	0.0	0.231	29.4	LOS C	1.0	6.7	0.83	0.96	33.1
Approach		41	0.0	0.232	29.4	LOS C	1.0	6.7	0.83	0.96	33.1
North: Ocean View Dr (N)											
7	L	25	0.0	0.347	14.3	LOS A	6.7	47.0	0.85	0.16	46.2
8	T	603	1.0	0.346	6.2	LOS A	6.7	47.0	0.85	0.00	46.5
9	R	15	0.0	0.349	14.3	LOS A	6.7	47.0	0.85	1.07	46.2
Approach		643	0.9	0.346	6.7	LOS A	6.7	47.0	0.85	0.03	46.5
West: Dover Rd (W)											
10	L	22	5.0	0.250	32.0	LOS C	1.0	7.4	0.84	0.98	32.0
11	T	3	0.0	0.250	30.6	LOS C	1.0	7.4	0.84	0.95	32.2
12	R	16	0.0	0.250	31.8	LOS C	1.0	7.4	0.84	0.97	32.0
Approach		41	2.7	0.250	31.8	LOS C	1.0	7.4	0.84	0.97	32.0
All Vehicles		1366	1.5	0.361	8.4	NA	7.1	50.4	0.85	0.10	45.2

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS C. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

5-Old Gosford Road / Pembrook Road



MOVEMENT SUMMARY

Site: Old Gosford Rd/Pembrook Rd

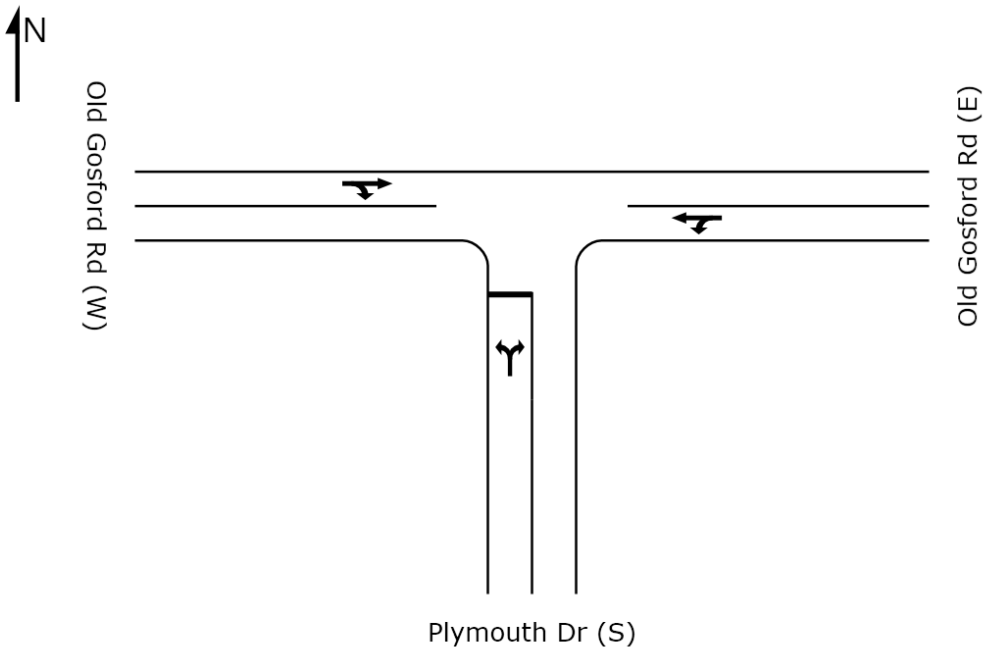
89010133 Old Gosford Road / Pembrook Road
2011 Saturday Midday Existing (11:30-12:30)
Giveway / Yield (Two-Way)

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 Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Pembrook Rd (S)											
1	L	3	0.0	0.021	7.9	LOS A	0.1	0.6	0.22	0.58	43.0
3	R	14	0.0	0.021	7.9	LOS A	0.1	0.6	0.22	0.60	43.0
Approach		17	0.0	0.021	7.9	LOS A	0.1	0.6	0.22	0.60	43.0
East: Old Gosford Rd (E)											
4	L	10	0.0	0.037	7.4	LOS A	0.0	0.0	0.00	1.05	48.6
5	T	61	2.0	0.037	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		71	1.7	0.037	1.0	LOS A	0.0	0.0	0.00	0.15	58.2
West: Old Gosford Rd (W)											
11	T	41	2.0	0.025	0.3	LOS A	0.2	1.3	0.19	0.00	56.3
12	R	4	0.0	0.025	7.8	LOS A	0.2	1.3	0.19	0.96	48.7
Approach		45	1.8	0.025	1.0	LOS A	0.2	1.3	0.19	0.09	55.6
All Vehicles		133	1.5	0.037	1.9	NA	0.2	1.3	0.09	0.18	54.8

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS A. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

6-Old Gosford Road / Plymouth Drive



MOVEMENT SUMMARY

Site: Old Gosford Rd/Plymouth Dr

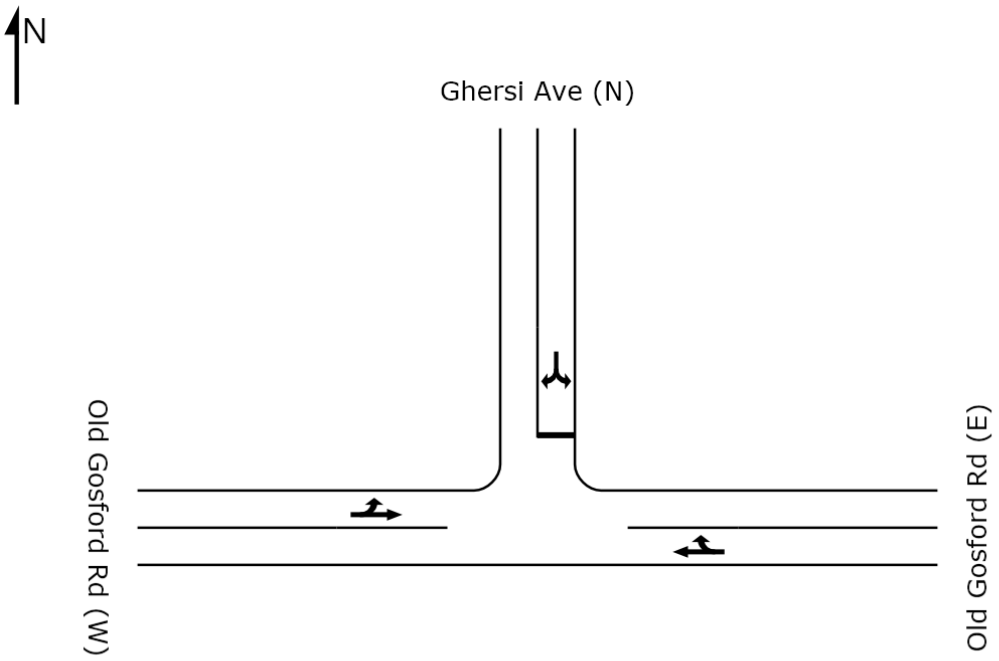
89010133 Old Gosford Road / Plymouth Dr
2011 Saturday Midday Existing (11:30-12:30)
Stop (Two-Way)

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
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Plymouth Dr (S)											
1	L	35	0.0	0.074	10.5	LOS A	0.3	2.4	0.19	0.87	41.3
3	R	45	0.0	0.074	10.4	LOS A	0.3	2.4	0.19	0.92	41.4
Approach		80	0.0	0.074	10.5	LOS A	0.3	2.4	0.19	0.90	41.4
East: Old Gosford Rd (E)											
4	L	46	0.0	0.048	7.4	LOS A	0.0	0.0	0.00	0.82	48.6
5	T	45	2.0	0.048	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		91	1.0	0.048	3.8	LOS A	0.0	0.0	0.00	0.42	53.8
West: Old Gosford Rd (W)											
11	T	41	2.0	0.034	0.3	LOS A	0.2	1.5	0.20	0.00	55.8
12	R	17	0.0	0.034	7.9	LOS A	0.2	1.5	0.20	0.86	48.4
Approach		58	1.4	0.034	2.6	LOS A	0.2	1.5	0.20	0.25	53.5
All Vehicles		229	0.8	0.074	5.8	NA	0.3	2.4	0.12	0.54	48.6

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS A. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

7-Old Gosford Road / Ghersi Avenue



MOVEMENT SUMMARY

Site: Old Gosford Rd/Ghersi Ave

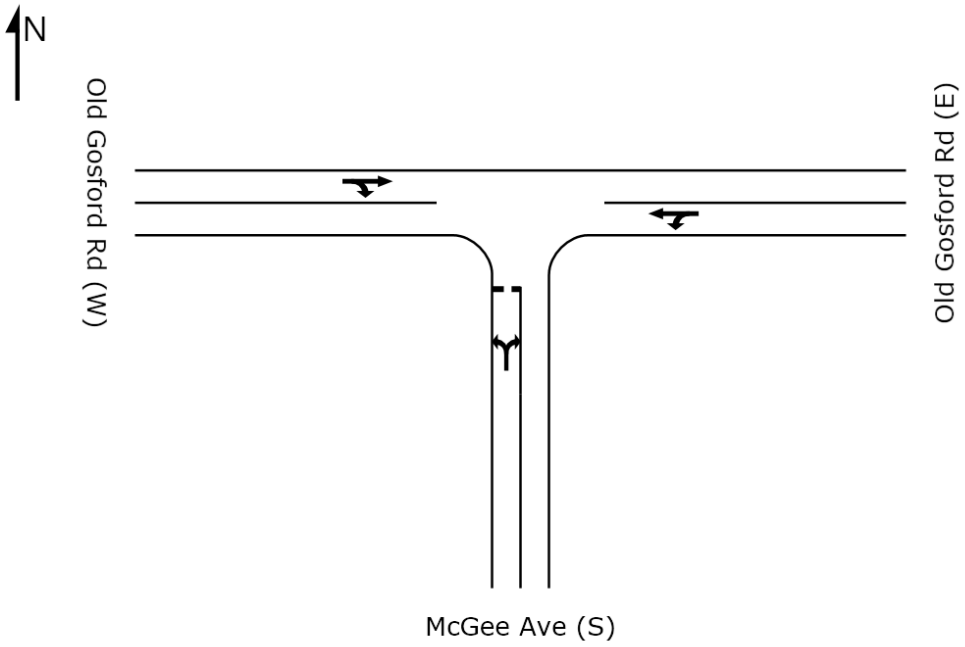
89010133 Old Gosford Road / Ghersi Avenue
2011 Saturday Midday Existing (11:30-12:30)
Stop (Two-Way)

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
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
East: Old Gosford Rd (E)											
11	T	36	3.0	0.030	0.3	LOS A	0.2	1.4	0.19	0.00	55.9
12	R	15	0.0	0.030	8.0	LOS A	0.2	1.4	0.19	0.88	48.3
Approach		51	2.1	0.030	2.6	LOS A	0.2	1.4	0.19	0.26	53.6
North: Ghersi Ave (N)											
1	L	27	0.0	0.073	10.5	LOS A	0.3	2.4	0.19	0.86	41.3
3	R	53	2.0	0.073	10.5	LOS A	0.3	2.4	0.19	0.91	41.4
Approach		80	1.3	0.073	10.5	LOS A	0.3	2.4	0.19	0.90	41.4
West: Old Gosford Rd (W)											
4	L	50	0.0	0.046	7.4	LOS A	0.0	0.0	0.00	0.79	48.6
5	T	37	3.0	0.046	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		87	1.3	0.046	4.3	LOS A	0.0	0.0	0.00	0.45	53.0
All Vehicles		218	1.5	0.073	6.2	NA	0.3	2.4	0.11	0.57	48.1

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS A. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

8-Old Gosford Road / McGee Avenue



MOVEMENT SUMMARY

Site: Old Gosford Rd/McGee Ave

89010133 Old Gosford Road / McGee Avenue
2011 Saturday Midday Existing (11:30-12:30)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

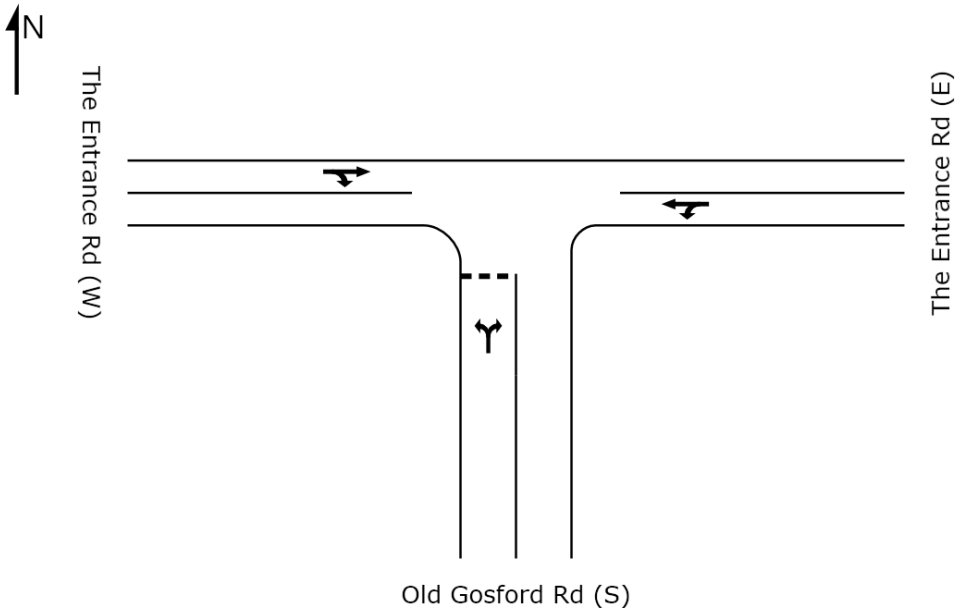
Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: McGee Ave (S)											
1	L	6	0.0	0.026	7.6	LOS A	0.1	0.8	0.17	0.56	43.1
3	R	22	0.0	0.026	8.0	LOS A	0.1	0.8	0.17	0.64	42.9
Approach		28	0.0	0.026	7.9	LOS A	0.1	0.8	0.17	0.63	43.0
East: Old Gosford Rd (E)											
4	L	27	4.0	0.032	7.6	LOS A	0.0	0.0	0.00	0.85	48.6
5	T	32	3.0	0.032	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		59	3.5	0.032	3.5	LOS A	0.0	0.0	0.00	0.39	54.3
West: Old Gosford Rd (W)											
11	T	55	2.0	0.032	0.2	LOS A	0.2	1.4	0.15	0.00	57.0
12	R	5	0.0	0.031	8.0	LOS A	0.2	1.4	0.15	1.11	48.4
Approach		60	1.8	0.031	0.8	LOS A	0.2	1.4	0.15	0.09	56.2
All Vehicles		147	2.1	0.032	3.2	NA	0.2	1.4	0.09	0.31	52.4

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS A. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

2011 SIDRA Assessment Summaries

Existing PM Peak

1-The Entrance Road / Old Gosford Road



MOVEMENT SUMMARY

Site: The Entrance Rd/Old Gosford Rd

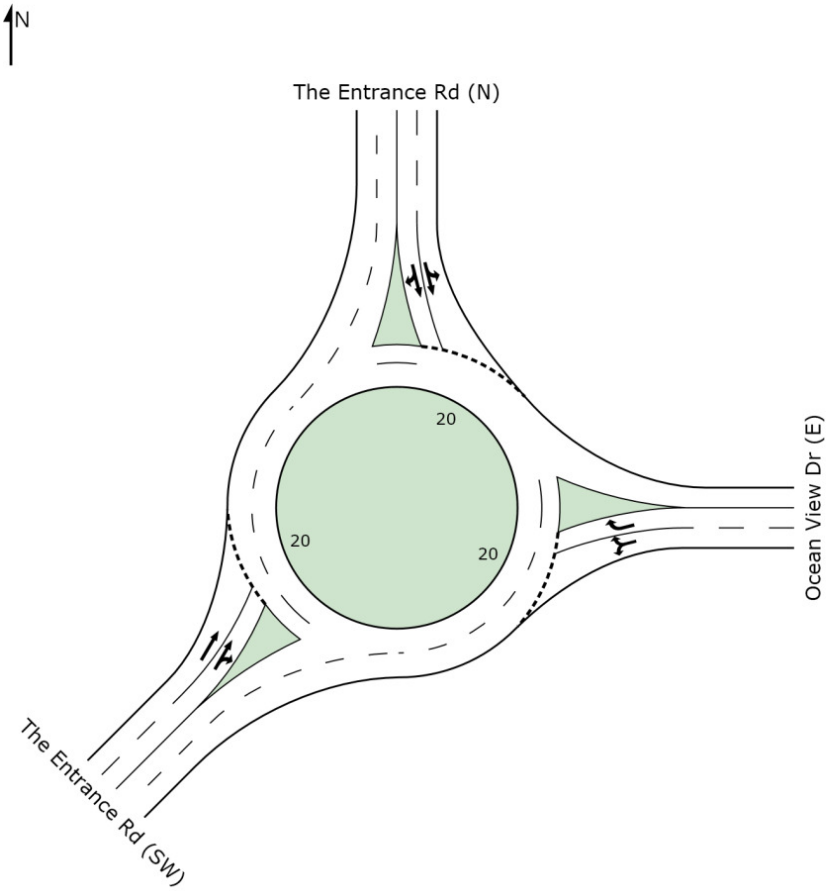
89010133 The Entrance Road / Old Gosford Road
2011 PM Existing (16:45-17:45)
Giveway / Yield (Two-Way)

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
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Old Gosford Rd (S)											
1	L	48	2.0	0.143	15.8	LOS B	0.6	4.0	0.70	0.89	37.3
3	R	2	0.0	0.143	15.8	LOS B	0.6	4.0	0.70	0.89	37.3
Approach		50	1.9	0.143	15.8	LOS B	0.6	4.0	0.70	0.89	37.3
East: The Entrance Rd (E)											
4	L	14	0.0	0.359	7.4	LOS A	0.0	0.0	0.00	1.17	48.6
5	T	678	3.0	0.362	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		692	2.9	0.362	0.2	LOS A	0.0	0.0	0.00	0.02	59.7
West: The Entrance Rd (W)											
11	T	1121	3.0	0.667	12.4	LOS A	16.1	115.4	1.00	0.00	41.5
12	R	67	1.0	0.670	19.9	LOS B	16.1	115.4	1.00	1.31	41.1
Approach		1188	2.9	0.667	12.8	LOS B	16.1	115.4	1.00	0.07	41.5
All Vehicles		1930	2.9	0.667	8.4	NA	16.1	115.4	0.63	0.08	46.4

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS B. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

2-The Entrance Road / Ocean View Drive



MOVEMENT SUMMARY

Site: The Entrance Rd/Ocean View Dr

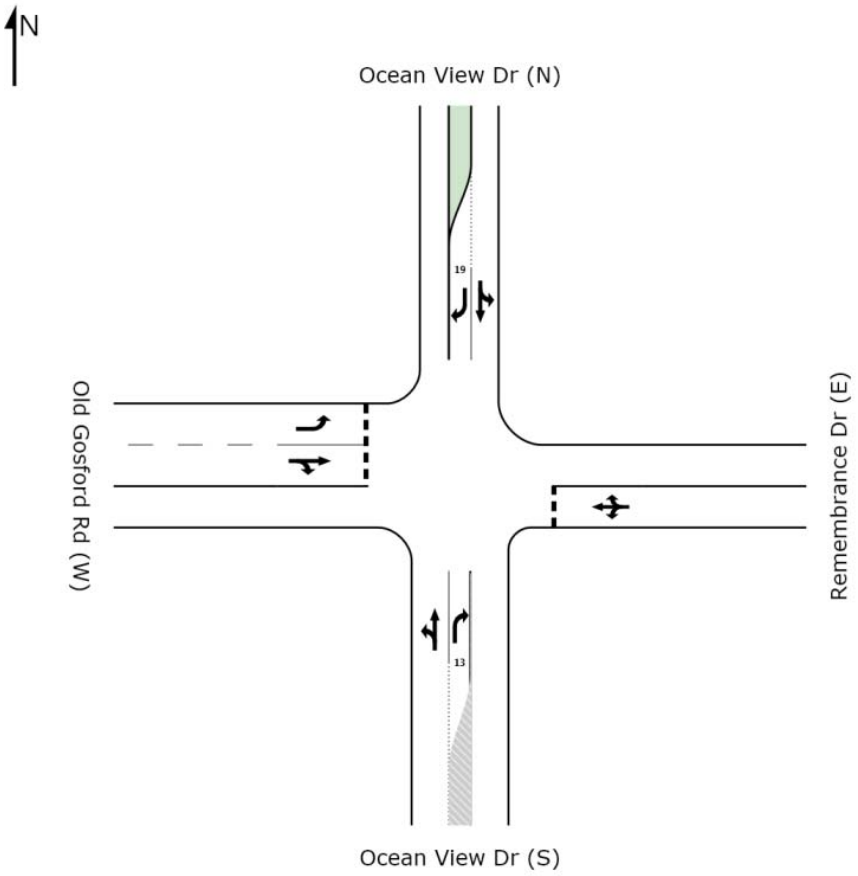
89010133 The Entrance Rd / Ocean View Drive
2011 PM Existing (16:45-17:45)
Roundabout

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
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
East: Ocean View Dr (E)											
4	L	60	0.0	0.370	8.9	LOS A	2.7	19.1	0.72	0.78	46.3
6	R	529	2.0	0.370	15.2	LOS B	2.7	19.1	0.73	0.90	43.2
Approach		589	1.8	0.370	14.5	LOS B	2.7	19.1	0.73	0.89	43.4
North: The Entrance Rd (N)											
7	L	540	1.0	0.456	6.9	LOS A	4.8	33.9	0.37	0.52	48.8
8	T	701	2.0	0.455	10.7	LOS A	4.8	33.9	0.38	0.62	45.8
9	R	13	0.0	0.448	13.9	LOS A	4.7	33.6	0.38	0.65	43.6
Approach		1254	1.5	0.456	9.1	LOS A	4.8	33.9	0.37	0.58	47.0
South West: The Entrance Rd (SW)											
31	T	1110	3.0	0.676	10.8	LOS A	7.6	54.8	0.84	0.98	46.2
32	R	83	3.6	0.675	17.1	LOS B	7.5	53.6	0.84	1.07	42.7
Approach		1193	3.0	0.677	11.3	LOS B	7.6	54.8	0.84	0.99	46.0
All Vehicles		3036	2.2	0.677	11.0	LOS A	7.6	54.8	0.63	0.80	45.9

Level of Service (Aver. Int. Delay): LOS A. Based on average delay for all vehicle movements. LOS Method: Delay (RTA NSW).
Level of Service (Worst Movement): LOS B. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.
Roundabout Capacity Model: SIDRA Standard.

3-Old Gosford Road / Ocean View Drive



MOVEMENT SUMMARY

Site: Ocean View Dr/ Old Gosford Rd

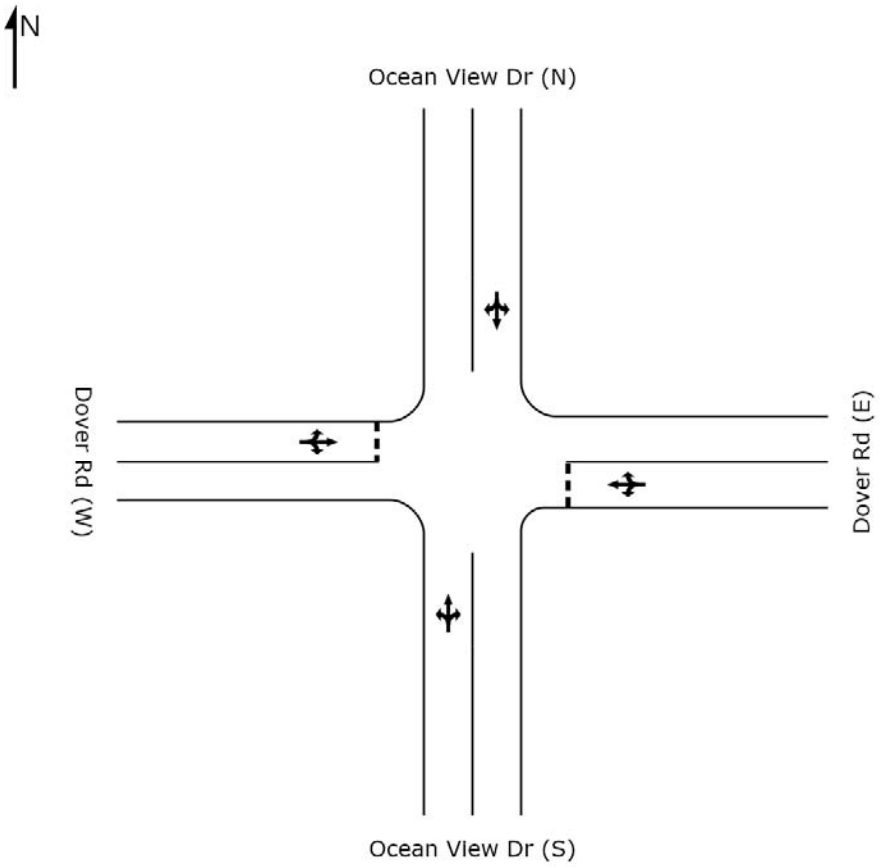
89010133 Ocean View Drive / Old Gosford Road / Remembrance Drive
2011 PM Existing (16:45-17:45)
Giveway / Yield (Two-Way)

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
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Ocean View Dr (S)											
1	L	35	3.0	0.327	8.3	LOS A	0.0	0.0	0.00	1.06	49.0
2	T	594	2.0	0.328	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
3	R	9	0.0	0.016	11.4	LOS A	0.1	0.4	0.53	0.72	45.6
Approach		638	2.0	0.328	0.6	LOS A	0.1	0.4	0.01	0.07	59.0
East: Remembrance Dr (E)											
4	L	2	0.0	0.105	39.2	LOS C	0.4	2.8	0.88	0.95	28.9
5	T	2	0.0	0.105	37.9	LOS C	0.4	2.8	0.88	0.95	29.1
6	R	8	0.0	0.105	39.2	LOS C	0.4	2.8	0.88	0.96	28.9
Approach		12	0.0	0.106	39.0	LOS C	0.4	2.8	0.88	0.96	28.9
North: Ocean View Dr (N)											
7	L	6	0.0	0.316	8.2	LOS A	0.0	0.0	0.00	1.08	49.0
8	T	590	1.0	0.308	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
9	R	27	4.0	0.040	11.8	LOS A	0.2	1.3	0.55	0.77	45.4
Approach		623	1.1	0.308	0.6	LOS A	0.2	1.3	0.02	0.04	59.0
West: Old Gosford Rd (W)											
10	L	39	0.0	0.072	12.8	LOS A	0.3	2.1	0.57	0.84	44.4
11	T	1	0.0	0.333	50.1	LOS D	1.3	8.8	0.92	1.00	25.0
12	R	29	0.0	0.305	51.3	LOS D	1.3	8.8	0.92	1.00	24.9
Approach		69	0.0	0.305	29.5	LOS D	1.3	8.8	0.72	0.91	33.1
All Vehicles		1342	1.5	0.328	2.4	NA	1.3	8.8	0.06	0.11	56.2

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS D. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

4-Dover Road / Ocean View Drive



MOVEMENT SUMMARY

Site: Ocean View Dr/ Dover Rd

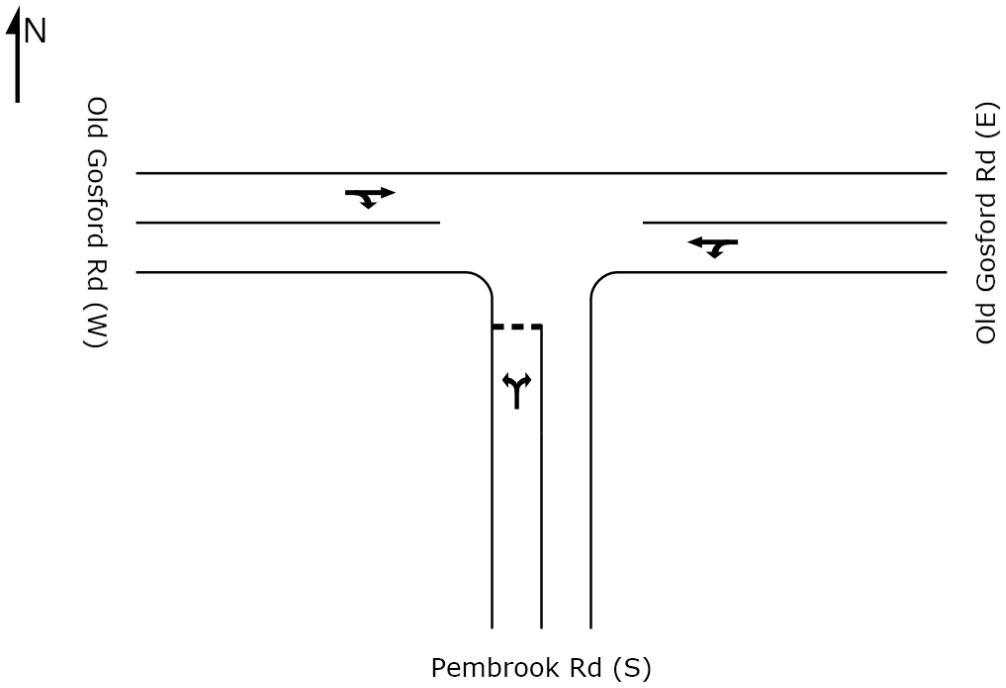
89010133 Ocean View Drive / Dover Road
2011 PM Existing (16:45-17:45)
Giveway / Yield (Two-Way)

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
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Ocean View Dr (S)											
1	L	16	13.0	0.340	14.8	LOS B	6.5	46.4	0.84	0.18	46.2
2	T	608	2.0	0.340	6.1	LOS A	6.5	46.4	0.84	0.00	46.7
3	R	10	0.0	0.345	14.2	LOS A	6.5	46.4	0.84	1.07	46.2
Approach		634	2.2	0.340	6.5	LOS B	6.5	46.4	0.84	0.02	46.7
East: Dover Rd (E)											
4	L	6	0.0	0.107	33.0	LOS C	0.4	2.9	0.85	0.95	31.5
5	T	1	0.0	0.111	31.7	LOS C	0.4	2.9	0.85	0.93	31.7
6	R	8	0.0	0.108	32.9	LOS C	0.4	2.9	0.85	0.95	31.5
Approach		15	0.0	0.107	32.8	LOS C	0.4	2.9	0.85	0.95	31.5
North: Ocean View Dr (N)											
7	L	4	0.0	0.333	14.3	LOS A	6.4	45.1	0.83	0.18	46.3
8	T	614	1.0	0.334	6.2	LOS A	6.4	45.1	0.83	0.00	46.9
9	R	10	0.0	0.333	14.3	LOS A	6.4	45.1	0.83	1.07	46.3
Approach		628	1.0	0.334	6.3	LOS A	6.4	45.1	0.83	0.02	46.9
West: Dover Rd (W)											
10	L	16	0.0	0.051	16.4	LOS B	0.2	1.4	0.66	0.85	41.3
11	T	1	0.0	0.050	15.2	LOS B	0.2	1.4	0.66	0.85	41.9
12	R	1	0.0	0.050	16.4	LOS B	0.2	1.4	0.66	0.89	41.3
Approach		18	0.0	0.051	16.4	LOS B	0.2	1.4	0.66	0.85	41.3
All Vehicles		1295	1.6	0.340	6.9	NA	6.5	46.4	0.83	0.04	46.4

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS C. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

5-Old Gosford Road / Pembrook Road



MOVEMENT SUMMARY

Site: Old Gosford Rd/Pembrook Rd

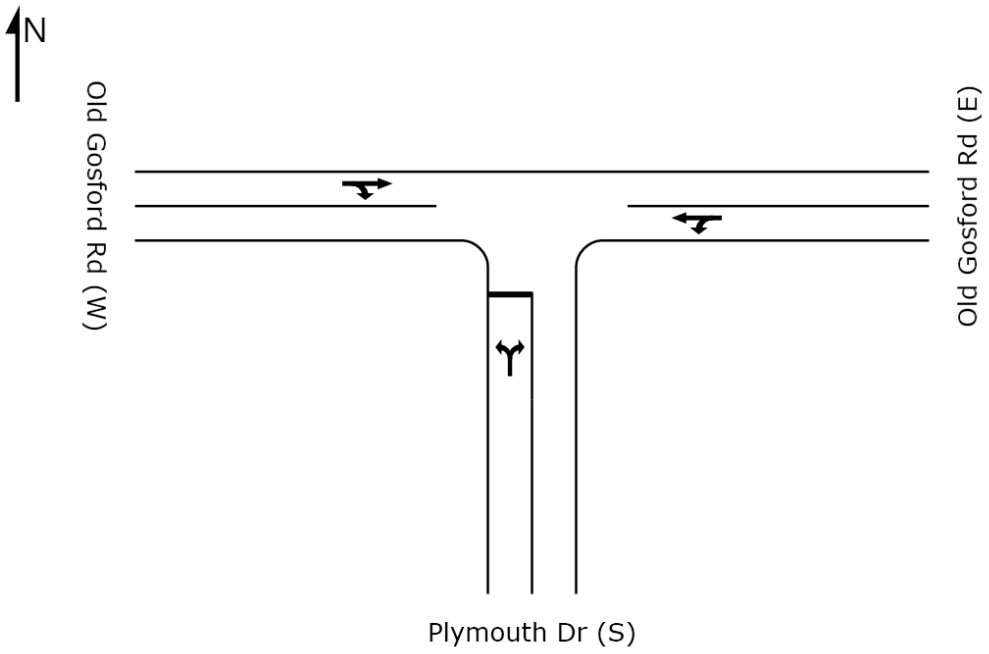
89010133 Old Gosford Road / Pembrook Road
2011 PM Existing (16:45-17:45)
Giveway / Yield (Two-Way)

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 Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Pembrook Rd (S)											
1	L	5	0.0	0.023	7.9	LOS A	0.1	0.7	0.19	0.57	43.1
3	R	14	0.0	0.023	7.9	LOS A	0.1	0.7	0.19	0.61	43.1
Approach		19	0.0	0.023	7.9	LOS A	0.1	0.7	0.19	0.60	43.1
East: Old Gosford Rd (E)											
4	L	13	8.0	0.029	7.7	LOS A	0.0	0.0	0.00	0.99	48.6
5	T	42	2.0	0.029	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		55	3.4	0.029	1.8	LOS A	0.0	0.0	0.00	0.23	57.0
West: Old Gosford Rd (W)											
11	T	74	1.0	0.043	0.2	LOS A	0.3	2.2	0.17	0.00	56.8
12	R	5	0.0	0.043	7.7	LOS A	0.3	2.2	0.17	0.99	48.7
Approach		79	0.9	0.043	0.7	LOS A	0.3	2.2	0.17	0.06	56.2
All Vehicles		153	1.7	0.043	2.0	NA	0.3	2.2	0.11	0.19	54.4

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS A. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

6-Old Gosford Road / Plymouth Drive



MOVEMENT SUMMARY

Site: Old Gosford Rd/Plymouth Dr

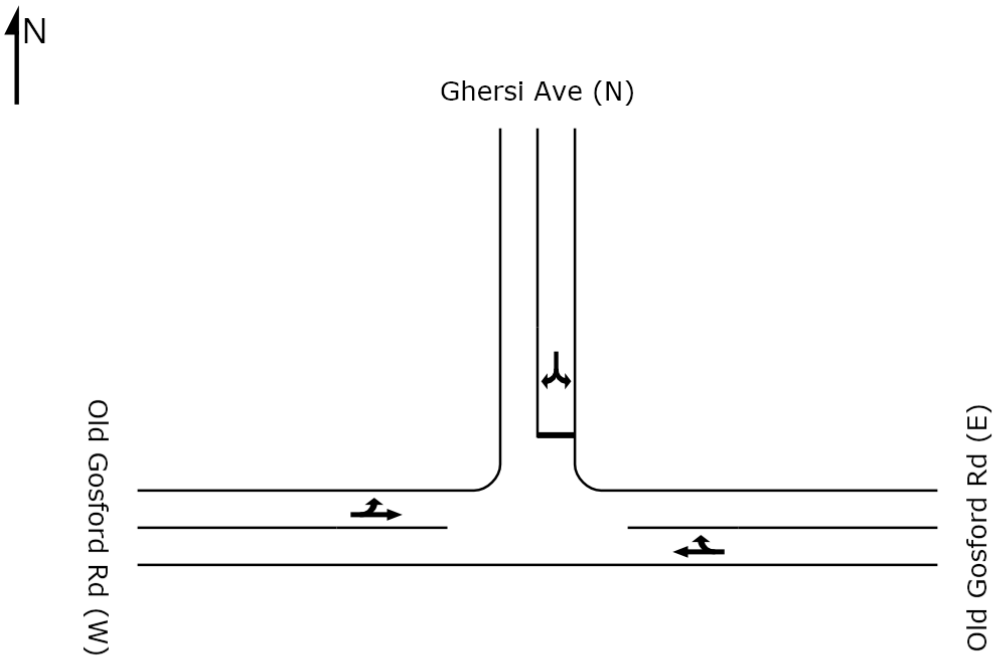
89010133 Old Gosford Road / Plymouth Dr
2011 PM Existing (16:45-17:45)
Stop (Two-Way)

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
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Plymouth Dr (S)											
1	L	23	0.0	0.062	10.6	LOS A	0.3	2.0	0.19	0.86	41.3
3	R	43	2.0	0.062	10.6	LOS A	0.3	2.0	0.19	0.92	41.3
Approach		66	1.3	0.062	10.6	LOS A	0.3	2.0	0.19	0.90	41.3
East: Old Gosford Rd (E)											
4	L	52	6.0	0.046	7.6	LOS A	0.0	0.0	0.00	0.77	48.6
5	T	32	6.0	0.046	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		84	6.0	0.046	4.7	LOS A	0.0	0.0	0.00	0.48	52.5
West: Old Gosford Rd (W)											
11	T	55	2.0	0.056	0.3	LOS A	0.3	2.5	0.19	0.00	55.8
12	R	36	0.0	0.056	7.9	LOS A	0.3	2.5	0.19	0.82	48.2
Approach		91	1.2	0.056	3.3	LOS A	0.3	2.5	0.19	0.32	52.7
All Vehicles		241	2.9	0.062	5.8	NA	0.3	2.5	0.12	0.54	48.9

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS A. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

7-Old Gosford Road / Ghersi Avenue



MOVEMENT SUMMARY

Site: Old Gosford Rd/Ghersi Ave

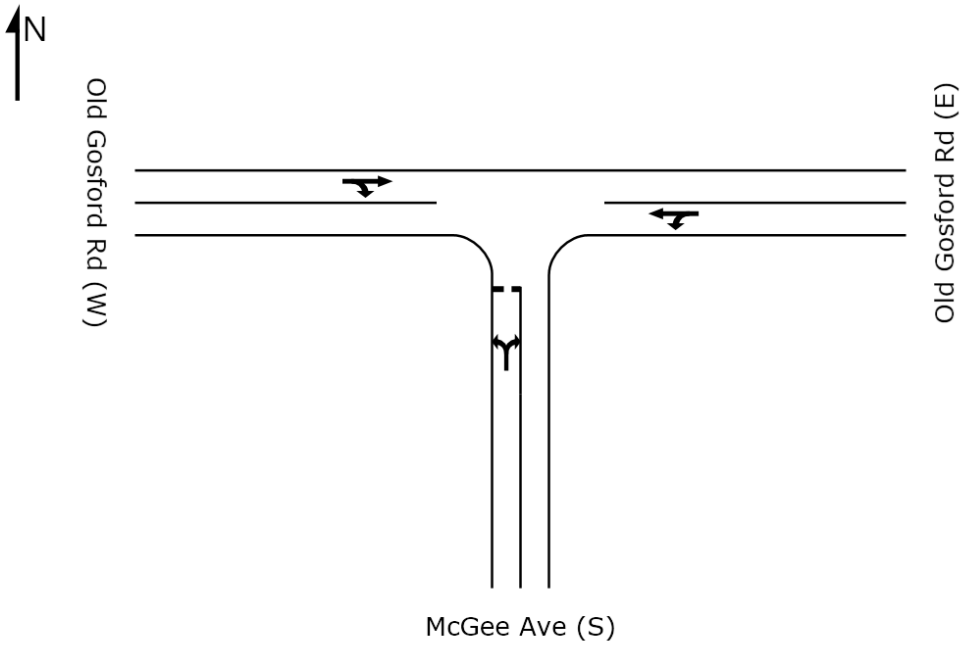
89010133 Old Gosford Road / Ghersi Avenue
2011 PM Existing (16:45-17:45)
Stop (Two-Way)

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
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
East: Old Gosford Rd (E)											
11	T	46	11.0	0.031	0.3	LOS A	0.2	1.5	0.21	0.00	55.9
12	R	8	0.0	0.031	8.0	LOS A	0.2	1.5	0.21	0.97	48.5
Approach		54	9.4	0.031	1.5	LOS A	0.2	1.5	0.21	0.14	54.7
North: Ghersi Ave (N)											
1	L	53	0.0	0.081	10.4	LOS A	0.4	2.6	0.17	0.88	41.4
3	R	36	0.0	0.081	10.3	LOS A	0.4	2.6	0.17	0.93	41.5
Approach		89	0.0	0.081	10.4	LOS A	0.4	2.6	0.17	0.90	41.4
West: Old Gosford Rd (W)											
4	L	67	1.0	0.051	7.5	LOS A	0.0	0.0	0.00	0.74	48.6
5	T	27	4.0	0.051	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		94	1.9	0.051	5.3	LOS A	0.0	0.0	0.00	0.53	51.5
All Vehicles		237	2.9	0.081	6.3	NA	0.4	2.6	0.11	0.58	47.7

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS A. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

8-Old Gosford Road / McGee Avenue



MOVEMENT SUMMARY

Site: Old Gosford Rd/McGee Ave

89010133 Old Gosford Road / McGee Avenue
2011 PM Existing (16:45-17:45)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

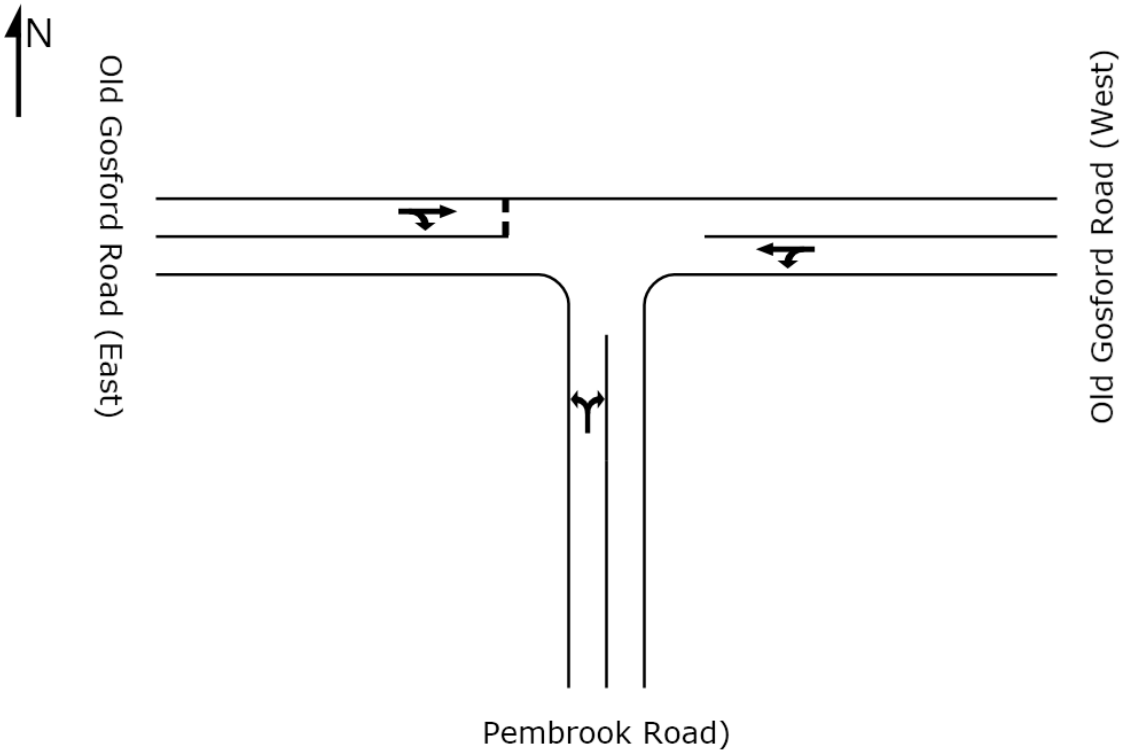
Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: McGee Ave (S)											
1	L	6	0.0	0.027	7.6	LOS A	0.1	0.8	0.18	0.56	43.1
3	R	23	0.0	0.027	8.0	LOS A	0.1	0.8	0.18	0.64	42.9
Approach		29	0.0	0.027	7.9	LOS A	0.1	0.8	0.18	0.63	42.9
East: Old Gosford Rd (E)											
4	L	29	0.0	0.035	7.4	LOS A	0.0	0.0	0.00	0.85	48.6
5	T	36	6.0	0.035	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		65	3.3	0.035	3.3	LOS A	0.0	0.0	0.00	0.38	54.5
West: Old Gosford Rd (W)											
11	T	49	0.0	0.032	0.2	LOS A	0.2	1.5	0.16	0.00	56.6
12	R	11	9.0	0.032	8.3	LOS A	0.2	1.5	0.16	1.02	48.3
Approach		60	1.7	0.032	1.7	LOS A	0.2	1.5	0.16	0.19	55.0
All Vehicles		154	2.0	0.035	3.5	NA	0.2	1.5	0.10	0.35	52.0

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS A. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

2011 SIDRA Assessment Summaries

Option 1 [Bus Access Only] AM Peak

1-Old Gosford Road / Pembrook Road



MOVEMENT SUMMARY

Site: Old Gosford Road/Pembrook Rd

89010133 Pembrook Road/Old Gosford Road
2011 AM Option 1 [Bus Only]
Giveway / Yield (Two-Way)

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
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Pembrook Road)											
1	L	6	0.0	0.024	8.2	LOS A	0.0	0.0	0.00	0.64	49.0
3	R	38	0.0	0.024	8.4	LOS A	0.0	0.0	0.00	0.70	48.6
Approach		44	0.0	0.024	8.4	LOS A	0.0	0.0	0.00	0.70	48.7
East: Old Gosford Road (West)											
4	L	92	0.0	0.087	8.2	LOS A	0.0	0.0	0.00	0.80	49.0
5	T	73	0.0	0.087	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		165	0.0	0.087	4.5	LOS A	0.0	0.0	0.00	0.44	53.3
West: Old Gosford Road (East)											
11	T	25	0.0	0.020	7.1	LOS A	0.1	0.7	0.11	0.55	49.7
12	R	2	0.0	0.019	8.6	LOS A	0.1	0.7	0.11	0.75	48.3
Approach		27	0.0	0.020	7.2	LOS A	0.1	0.7	0.11	0.57	49.6
All Vehicles		236	0.0	0.087	5.6	NA	0.1	0.7	0.01	0.51	52.0

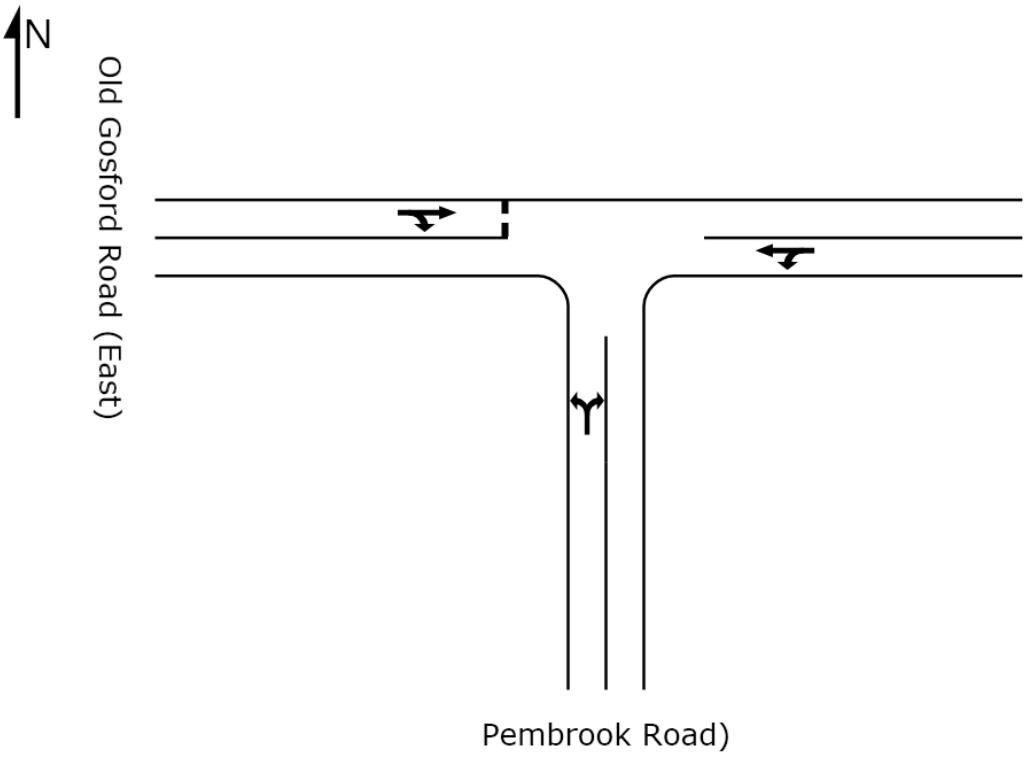
LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS A. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

SIDRA INTERSECTION

2011 SIDRA Assessment Summaries

Option 1 [Bus Access Only] PM Peak

1-Old Gosford Road / Pembrook Road



MOVEMENT SUMMARY

Site: Old Gosford Rd/Pembrook Rd

89010133 Pembrook Road/Old Gosford Road
2011 PM Option 1 [Bus Only]
Giveway / Yield (Two-Way)

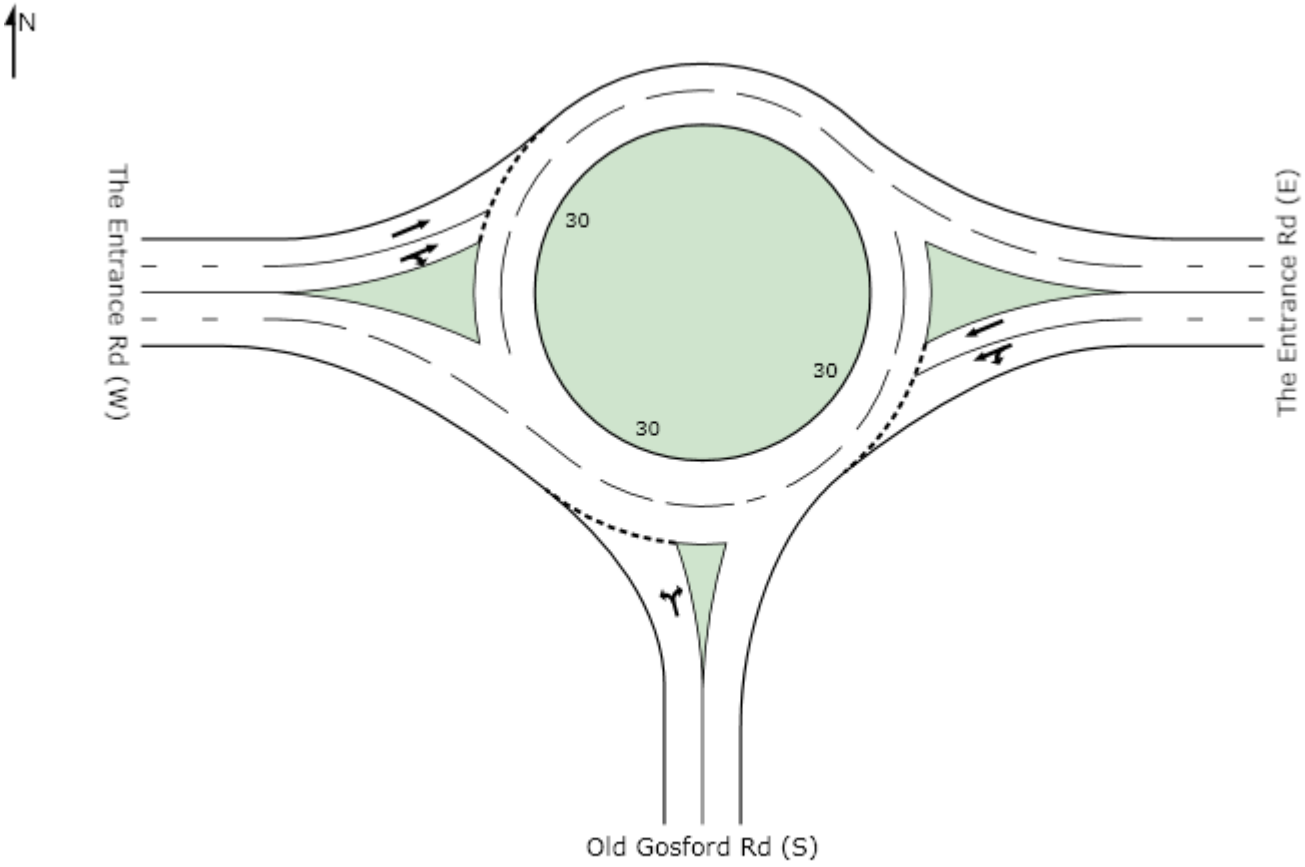
Movement Performance - Vehicles

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Pembrook Road)											
1	L	4	0.0	0.046	8.2	LOS A	0.0	0.0	0.00	0.64	49.0
3	R	82	0.0	0.046	8.4	LOS A	0.0	0.0	0.00	0.70	48.6
Approach		86	0.0	0.046	8.4	LOS A	0.0	0.0	0.00	0.70	48.6
East: Old Gosford Road (West)											
4	L	60	0.0	0.054	8.2	LOS A	0.0	0.0	0.00	0.79	49.0
5	T	43	0.0	0.054	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		103	0.0	0.054	4.8	LOS A	0.0	0.0	0.00	0.46	53.0
West: Old Gosford Road (East)											
11	T	67	0.0	0.054	7.3	LOS A	0.3	1.9	0.18	0.55	49.3
12	R	5	0.0	0.054	8.8	LOS A	0.3	1.9	0.18	0.74	48.1
Approach		72	0.0	0.054	7.4	LOS A	0.3	1.9	0.18	0.56	49.2
All Vehicles		260	0.0	0.054	6.7	NA	0.3	1.9	0.05	0.57	50.5

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS A. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

SIDRA INTERSECTION

Project: N:\Traffic\PROJECTS\Current\89010133 Wamberal LATM\SIDRA\89010133 SIDRA Pembrook.sip
8000955, CARDNO, ENTERPRISE


N
The Entrance Rd (W)
The Entrance Rd (E)
30
30
30
Old Gosford Rd (S)

MOVEMENT SUMMARY

Site: 1-The Entrance Rd/Old Gosford Rd - Conversion

89010133 The Entrance Rd/Old Gosford Rd - Roundabout
2011 AM Future (07:45-08:45)
Roundabout

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 Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Old Gosford Rd (S)											
1	L	154	4.0	0.165	6.3	LOS A	0.5	3.8	0.47	0.60	43.9
3	R	1	0.0	0.165	12.0	LOS A	0.5	3.8	0.47	0.91	41.5
Approach		155	4.0	0.165	6.3	LOS A	0.5	3.8	0.47	0.61	43.9
East: The Entrance Rd (E)											
4	L	6	33.0	0.321	5.6	LOS A	1.8	13.3	0.16	0.48	51.0
5	T	970	5.0	0.321	4.7	LOS A	1.8	13.3	0.16	0.39	52.3
Approach		976	5.2	0.321	4.7	LOS A	1.8	13.3	0.16	0.39	52.3
West: The Entrance Rd (W)											
11	T	533	8.0	0.177	4.5	LOS A	1.0	7.5	0.02	0.38	53.5
12	R	42	8.0	0.177	10.0	LOS A	1.0	7.4	0.02	0.94	46.3
Approach		575	8.0	0.177	4.9	LOS A	1.0	7.5	0.02	0.42	52.9
All Vehicles		1706	6.0	0.321	4.9	LOS A	1.8	13.3	0.14	0.42	51.6

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: 1-The Entrance Rd/Old Gosford Rd - Conversion

89010133 The Entrance Road / Old Gosford Road
2011 PM Future (16:45-17:45)
Roundabout

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 Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Old Gosford Rd (S)											
1	L	63	2.0	0.061	5.5	LOS A	0.2	1.1	0.34	0.53	44.6
3	R	2	0.0	0.061	11.2	LOS A	0.2	1.1	0.34	0.83	41.9
Approach		65	1.9	0.061	5.6	LOS A	0.2	1.1	0.34	0.54	44.5
East: The Entrance Rd (E)											
4	L	14	0.0	0.214	4.8	LOS A	1.1	7.7	0.09	0.48	51.4
5	T	663	3.0	0.214	4.5	LOS A	1.1	7.7	0.09	0.38	52.9
Approach		677	2.9	0.214	4.5	LOS A	1.1	7.7	0.09	0.38	52.8
West: The Entrance Rd (W)											
11	T	1108	3.0	0.337	4.4	LOS A	2.2	15.7	0.03	0.39	53.4
12	R	19	1.0	0.337	9.8	LOS A	2.2	15.6	0.03	0.99	46.4
Approach		1127	3.0	0.337	4.5	LOS A	2.2	15.7	0.03	0.40	53.3
All Vehicles		1869	2.9	0.337	4.5	LOS A	2.2	15.7	0.06	0.40	52.7

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

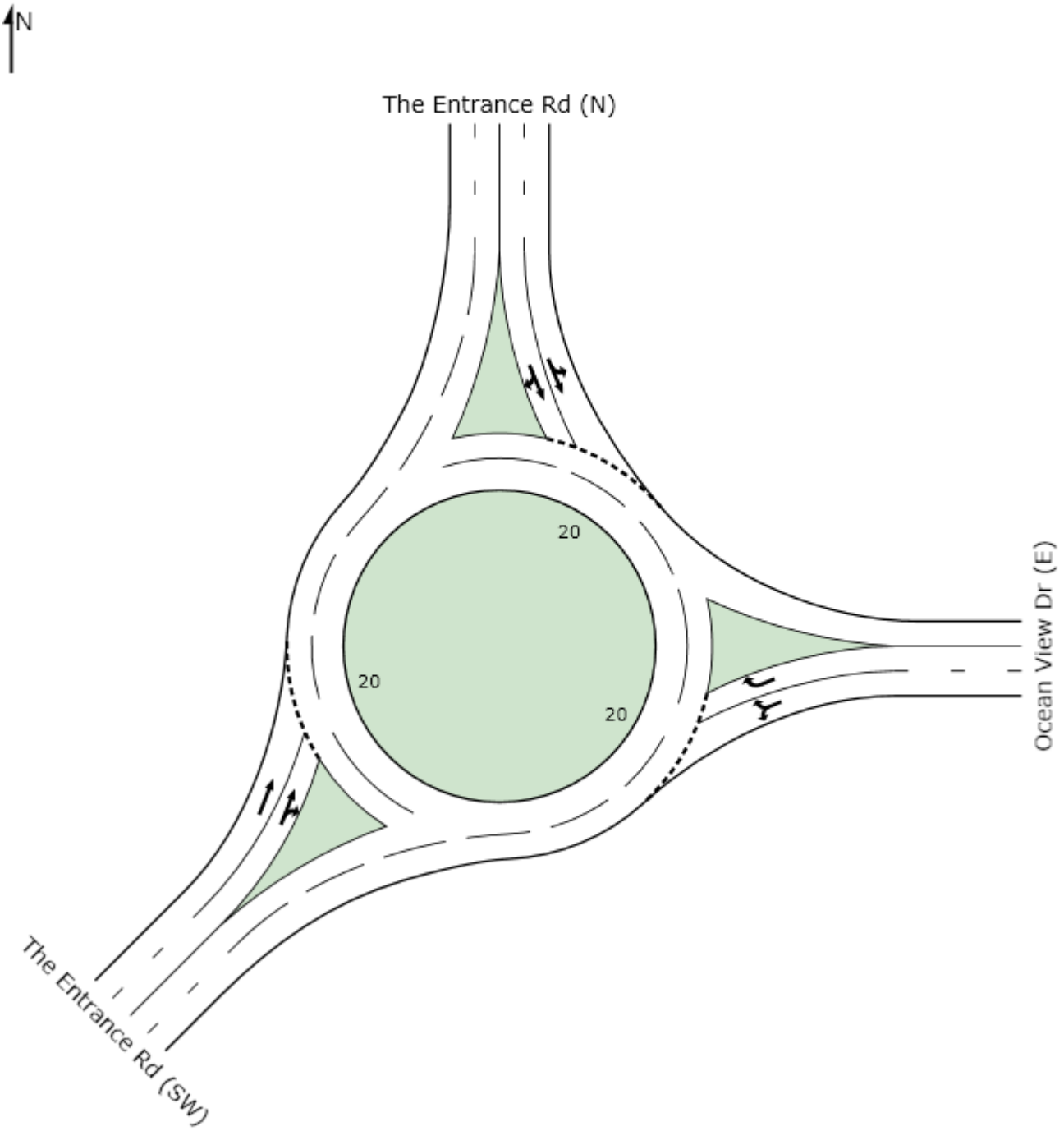
Site: 1-The Entrance Rd/Old Gosford Rd - Conversion

89010133 The Entrance Road / Old Gosford Road
2011 Saturday Midday Future (11:30-12:30)
Roundabout

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 Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Old Gosford Rd (S)											
1	L	102	2.0	0.103	5.8	LOS A	0.3	2.1	0.41	0.56	44.3
3	R	1	2.0	0.103	11.6	LOS A	0.3	2.1	0.41	0.86	41.8
Approach		103	2.0	0.103	5.8	LOS A	0.3	2.1	0.41	0.56	44.3
East: The Entrance Rd (E)											
4	L	11	0.0	0.267	4.9	LOS A	1.4	10.1	0.15	0.48	51.0
5	T	802	2.0	0.267	4.6	LOS A	1.4	10.1	0.15	0.39	52.4
Approach		813	2.0	0.267	4.6	LOS A	1.4	10.1	0.15	0.39	52.3
West: The Entrance Rd (W)											
11	T	845	2.0	0.265	4.4	LOS A	1.6	11.5	0.02	0.39	53.5
12	R	42	3.0	0.265	9.9	LOS A	1.6	11.4	0.02	0.96	46.4
Approach		887	2.0	0.265	4.7	LOS A	1.6	11.5	0.02	0.41	53.1
All Vehicles		1803	2.0	0.267	4.7	LOS A	1.6	11.5	0.10	0.41	52.2

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.


N
The Entrance Rd (N)
20
20
20
Ocean View Dr (E)
The Entrance Rd (SW)

MOVEMENT SUMMARY

Site: 2-The Entrance Rd/Ocean View Dr

89010133 The Entrance Rd / Ocean View Drive
2011 AM Future (07:45-08:45)
Roundabout

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 Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Ocean View Dr (E)											
4	L	34	4.0	0.580	14.2	LOS A	4.5	32.4	0.86	1.03	42.1
6	R	679	4.0	0.580	20.7	LOS B	4.5	32.4	0.86	1.07	39.1
Approach		713	4.0	0.580	20.4	LOS B	4.5	32.4	0.86	1.07	39.3
North: The Entrance Rd (N)											
7	L	547	5.0	0.556	7.0	LOS A	5.6	41.1	0.38	0.50	48.6
8	T	976	5.0	0.556	10.8	LOS A	5.6	41.1	0.39	0.61	45.8
9	R	9	0.0	0.556	13.8	LOS A	5.6	40.7	0.39	0.64	43.6
Approach		1532	5.0	0.556	9.5	LOS A	5.6	41.1	0.39	0.57	46.8
South West: The Entrance Rd (SW)											
31	T	617	18.0	0.582	13.0	LOS A	4.2	33.7	0.83	0.99	44.6
32	R	56	24.0	0.582	20.8	LOS B	4.1	33.1	0.83	1.08	40.7
Approach		673	18.5	0.582	13.7	LOS A	4.2	33.7	0.83	1.00	44.2
All Vehicles		2918	7.9	0.582	13.1	LOS A	5.6	41.1	0.61	0.79	44.1

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: 2-The Entrance Rd/Ocean View Dr

89010133 The Entrance Rd / Ocean View Drive
2011 PM Future (16:45-17:45)
Roundabout

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 Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Ocean View Dr (E)											
4	L	45	0.0	0.381	9.4	LOS A	2.2	15.9	0.73	0.82	46.2
6	R	529	2.0	0.381	15.6	LOS B	2.2	15.9	0.73	0.92	42.8
Approach		574	1.8	0.381	15.1	LOS B	2.2	15.9	0.73	0.91	43.0
North: The Entrance Rd (N)											
7	L	540	1.0	0.462	6.9	LOS A	4.1	28.8	0.35	0.51	48.9
8	T	701	2.0	0.462	10.6	LOS A	4.1	28.8	0.36	0.62	45.9
9	R	13	0.0	0.462	13.8	LOS A	4.0	28.7	0.36	0.65	43.7
Approach		1254	1.5	0.462	9.1	LOS A	4.1	28.8	0.35	0.57	47.1
South West: The Entrance Rd (SW)											
31	T	1110	3.0	0.730	12.6	LOS A	7.5	53.7	0.88	1.06	44.6
32	R	70	4.3	0.730	18.7	LOS B	7.4	53.2	0.88	1.12	41.6
Approach		1180	3.1	0.730	12.9	LOS A	7.5	53.7	0.88	1.07	44.4
All Vehicles		3008	2.2	0.730	11.7	LOS A	7.5	53.7	0.63	0.83	45.2

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

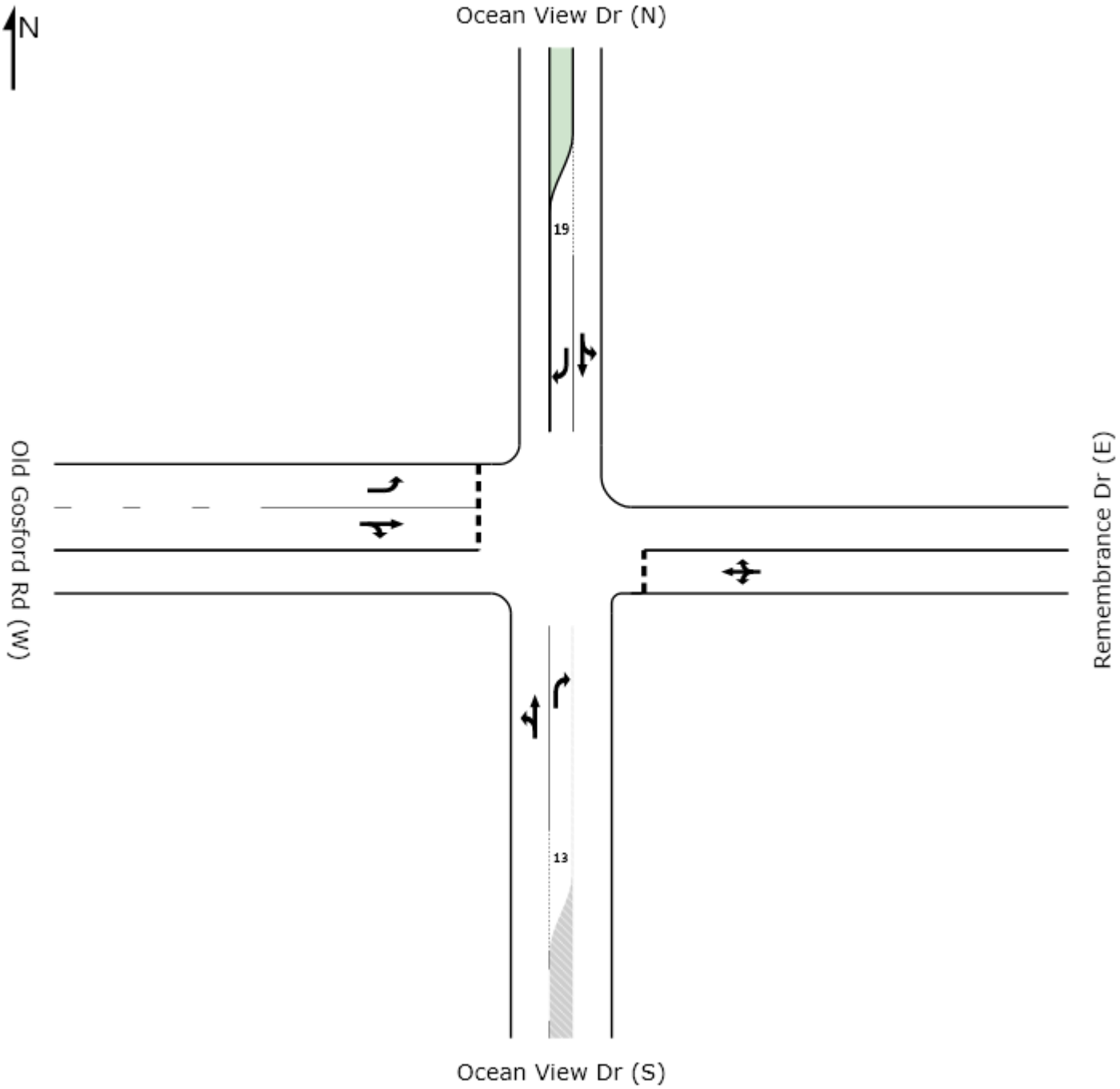
Site: 2-The Entrance Rd/Ocean View Dr

89010133 The Entrance Rd / Ocean View Drive
2011 Saturday Midday Peak Future (11:30-12:30)
Roundabout

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 Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Ocean View Dr (E)											
4	L	47	1.0	0.396	10.2	LOS A	2.4	16.7	0.76	0.88	45.7
6	R	502	2.0	0.396	16.5	LOS B	2.4	16.7	0.76	0.96	42.1
Approach		549	1.9	0.396	15.9	LOS B	2.4	16.7	0.76	0.95	42.4
North: The Entrance Rd (N)											
7	L	486	2.0	0.491	6.9	LOS A	4.4	31.3	0.36	0.51	48.8
8	T	836	1.0	0.491	10.7	LOS A	4.4	31.3	0.37	0.62	45.9
9	R	12	0.0	0.491	13.8	LOS A	4.4	30.8	0.37	0.65	43.6
Approach		1334	1.4	0.491	9.3	LOS A	4.4	31.3	0.37	0.58	46.9
South West: The Entrance Rd (SW)											
31	T	859	2.0	0.567	9.7	LOS A	4.4	31.1	0.77	0.90	47.0
32	R	75	1.8	0.567	15.9	LOS B	4.3	30.9	0.78	1.01	43.5
Approach		934	2.0	0.567	10.2	LOS A	4.4	31.1	0.77	0.91	46.7
All Vehicles		2817	1.7	0.567	10.9	LOS A	4.4	31.3	0.58	0.76	45.9

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.


N
Ocean View Dr (N)
19
Old Gosford Rd (W)
Remembrance Dr (E)
13
Ocean View Dr (S)

MOVEMENT SUMMARY

Site: 3-Ocean View Dr/Old Gosford Rd

89010133 Ocean View Drive /Old Gosford Road/Remembrance Drive
2011 AM Future (07:45-08:45)
Giveway / Yield (Two-Way)

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 Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Ocean View Dr (S)											
1	L	55	0.0	0.416	8.2	LOS A	0.0	0.0	0.00	1.04	49.0
2	T	739	3.0	0.416	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
3	R	2	0.0	0.004	11.7	LOS A	0.0	0.1	0.55	0.68	45.3
Approach		796	2.8	0.416	0.6	NA	0.0	0.1	0.00	0.07	59.0
East: Remembrance Dr (E)											
4	L	5	0.0	0.080	35.7	LOS C	0.2	1.7	0.87	0.95	30.3
5	T	4	0.0	0.080	34.5	LOS C	0.2	1.7	0.87	0.94	30.5
6	R	1	0.0	0.080	35.8	LOS C	0.2	1.7	0.87	0.96	30.3
Approach		10	0.0	0.080	35.2	LOS C	0.2	1.7	0.87	0.95	30.4
North: Ocean View Dr (N)											
7	L	3	0.0	0.338	8.2	LOS A	0.0	0.0	0.00	1.09	49.0
8	T	640	4.0	0.338	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
9	R	49	20.0	0.132	17.5	LOS B	0.5	3.7	0.73	0.91	41.1
Approach		692	5.1	0.338	1.3	NA	0.5	3.7	0.05	0.07	58.0
West: Old Gosford Rd (W)											
10	L	33	12.0	0.095	17.3	LOS B	0.3	2.4	0.71	0.90	41.0
11	T	2	0.0	0.699	124.5	LOS F	2.6	18.0	0.98	1.11	13.5
12	R	39	0.0	0.699	125.7	LOS F	2.6	18.0	0.98	1.11	13.5
Approach		74	5.4	0.699	77.3	LOS F	2.6	18.0	0.86	1.02	19.2
All Vehicles		1572	3.9	0.699	4.7	NA	2.6	18.0	0.07	0.12	53.1

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: 3-Ocean View Dr/Old Gosford Rd

89010133 Ocean View Drive / Old Gosford Road / Remembrance Drive
2011 PM Future (16:45-17:45)
Giveway / Yield (Two-Way)

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 Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Ocean View Dr (S)											
1	L	57	3.0	0.328	8.3	LOS A	0.0	0.0	0.00	1.03	49.0
2	T	572	2.0	0.328	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
3	R	9	0.0	0.016	11.2	LOS A	0.0	0.3	0.52	0.71	45.8
Approach		638	2.1	0.328	0.9	NA	0.0	0.3	0.01	0.10	58.6
East: Remembrance Dr (E)											
4	L	2	0.0	0.097	36.4	LOS C	0.3	2.1	0.87	0.93	30.0
5	T	2	0.0	0.097	35.2	LOS C	0.3	2.1	0.87	0.94	30.2
6	R	8	0.0	0.097	36.4	LOS C	0.3	2.1	0.87	0.96	30.0
Approach		12	0.0	0.097	36.2	LOS C	0.3	2.1	0.87	0.95	30.0
North: Ocean View Dr (N)											
7	L	6	0.0	0.296	8.2	LOS A	0.0	0.0	0.00	1.08	49.0
8	T	567	1.0	0.296	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
9	R	27	4.0	0.040	11.8	LOS A	0.1	1.0	0.55	0.77	45.4
Approach		600	1.1	0.296	0.6	NA	0.1	1.0	0.02	0.05	59.0
West: Old Gosford Rd (W)											
10	L	39	0.0	0.071	12.6	LOS A	0.2	1.7	0.56	0.83	44.5
11	T	1	0.0	0.502	56.3	LOS D	1.9	13.1	0.94	1.05	23.3
12	R	52	0.0	0.502	57.5	LOS E	1.9	13.1	0.94	1.06	23.2
Approach		92	0.0	0.502	38.5	LOS C	1.9	13.1	0.78	0.96	29.1
All Vehicles		1342	1.5	0.502	3.7	NA	1.9	13.1	0.08	0.14	54.5

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

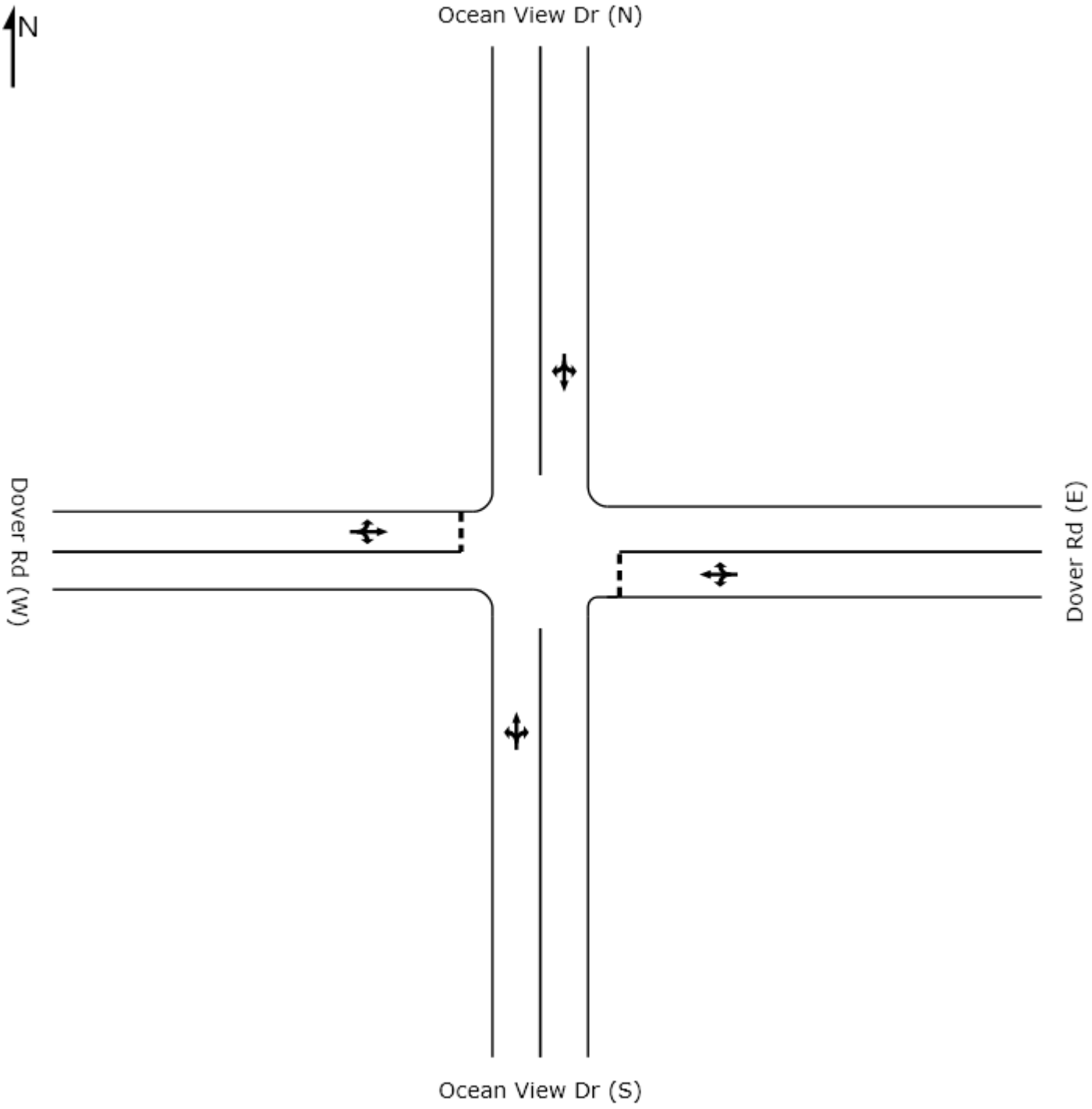
Site: 3-Ocean View Dr/Old Gosford Rd

89010133 Old Gosford Road / Ocean View Drive / Remembrance Drive
2011 Saturday Midday Peak Future (11:30-12:30)
Giveway / Yield (Two-Way)

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 Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Ocean View Dr (S)											
1	L	73	0.0	0.333	8.2	LOS A	0.0	0.0	0.00	1.01	49.0
2	T	565	2.0	0.333	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
3	R	9	0.0	0.016	11.3	LOS A	0.0	0.3	0.53	0.71	45.8
Approach		647	1.7	0.333	1.1	NA	0.0	0.3	0.01	0.12	58.3
East: Remembrance Dr (E)											
4	L	9	0.0	0.163	31.2	LOS C	0.5	3.6	0.85	0.95	32.3
5	T	4	0.0	0.163	30.0	LOS C	0.5	3.6	0.85	0.93	32.6
6	R	12	0.0	0.163	31.2	LOS C	0.5	3.6	0.85	0.95	32.3
Approach		25	0.0	0.163	31.0	LOS C	0.5	3.6	0.85	0.95	32.3
North: Ocean View Dr (N)											
7	L	10	0.0	0.301	8.2	LOS A	0.0	0.0	0.00	1.08	49.0
8	T	573	1.0	0.301	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
9	R	22	9.0	0.035	12.5	LOS A	0.1	0.9	0.57	0.78	45.0
Approach		605	1.3	0.301	0.6	NA	0.1	0.9	0.02	0.05	59.1
West: Old Gosford Rd (W)											
10	L	39	3.0	0.071	12.8	LOS A	0.2	1.7	0.56	0.83	44.5
11	T	1	0.0	0.718	77.1	LOS F	3.2	22.3	0.96	1.17	19.1
12	R	73	0.0	0.718	78.3	LOS F	3.2	22.3	0.96	1.16	19.0
Approach		113	1.0	0.718	55.7	LOS D	3.2	22.3	0.82	1.05	23.7
All Vehicles		1390	1.5	0.718	5.8	NA	3.2	22.3	0.09	0.18	51.7

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.


N
Ocean View Dr (N)
Dover Rd (W)
Dover Rd (E)
Ocean View Dr (S)

MOVEMENT SUMMARY

Site: 4-Ocean View Dr/Dover Rd

89010133 Ocean View Drive / Dover Road
2011 AM Future (07:45-08:45)
Giveway / Yield (Two-Way)

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 Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Ocean View Dr (S)											
1	L	17	29.0	0.454	18.7	LOS B	9.5	69.3	1.00	0.00	43.7
2	T	753	4.0	0.454	9.5	LOS A	9.5	69.3	1.00	0.00	43.9
3	R	29	0.0	0.454	17.6	LOS B	9.5	69.3	1.00	1.16	43.7
Approach		799	4.4	0.454	10.0	NA	9.5	69.3	1.00	0.04	43.9
East: Dover Rd (E)											
4	L	8	0.0	0.164	44.0	LOS D	0.5	3.3	0.90	0.97	27.2
5	T	2	0.0	0.164	42.7	LOS D	0.5	3.3	0.90	0.96	27.3
6	R	6	0.0	0.164	43.9	LOS D	0.5	3.3	0.90	0.97	27.2
Approach		16	0.0	0.164	43.8	LOS D	0.5	3.3	0.90	0.97	27.2
North: Ocean View Dr (N)											
7	L	10	0.0	0.376	18.2	LOS B	8.1	58.3	1.00	0.00	43.3
8	T	672	4.0	0.376	10.1	LOS A	8.1	58.3	1.00	0.00	43.5
9	R	9	0.0	0.376	18.2	LOS B	8.1	58.3	1.00	1.11	43.3
Approach		691	3.9	0.376	10.3	NA	8.1	58.3	1.00	0.01	43.5
West: Dover Rd (W)											
10	L	8	0.0	0.058	27.0	LOS B	0.2	1.2	0.82	0.94	34.4
11	T	1	0.0	0.058	25.8	LOS B	0.2	1.2	0.82	0.92	34.7
12	R	1	0.0	0.058	27.0	LOS B	0.2	1.2	0.82	0.94	34.4
Approach		10	0.0	0.058	26.9	LOS B	0.2	1.2	0.82	0.94	34.4
All Vehicles		1516	4.1	0.454	10.6	NA	9.5	69.3	1.00	0.05	43.4

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: 4-Ocean View Dr/Dover Rd

89010133 Ocean View Drive / Dover Road
2011 PM Future (16:45-17:45)
Giveway / Yield (Two-Way)

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 Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Ocean View Dr (S)											
1	L	16	13.0	0.340	14.8	LOS B	5.4	38.5	0.84	0.18	46.2
2	T	608	2.0	0.340	6.1	LOS A	5.4	38.5	0.84	0.00	46.7
3	R	10	0.0	0.340	14.2	LOS A	5.4	38.5	0.84	1.07	46.2
Approach		634	2.2	0.340	6.5	NA	5.4	38.5	0.84	0.02	46.7
East: Dover Rd (E)											
4	L	6	0.0	0.107	33.0	LOS C	0.3	2.3	0.85	0.95	31.5
5	T	1	0.0	0.107	31.7	LOS C	0.3	2.3	0.85	0.93	31.7
6	R	8	0.0	0.107	32.9	LOS C	0.3	2.3	0.85	0.95	31.5
Approach		15	0.0	0.107	32.8	LOS C	0.3	2.3	0.85	0.95	31.5
North: Ocean View Dr (N)											
7	L	4	0.0	0.334	14.3	LOS A	5.3	37.4	0.83	0.18	46.3
8	T	614	1.0	0.334	6.2	LOS A	5.3	37.4	0.83	0.00	46.9
9	R	10	0.0	0.334	14.3	LOS A	5.3	37.4	0.83	1.07	46.3
Approach		628	1.0	0.334	6.3	NA	5.3	37.4	0.83	0.02	46.9
West: Dover Rd (W)											
10	L	16	0.0	0.051	16.4	LOS B	0.2	1.1	0.66	0.85	41.3
11	T	1	0.0	0.051	15.2	LOS B	0.2	1.1	0.66	0.85	41.9
12	R	1	0.0	0.051	16.4	LOS B	0.2	1.1	0.66	0.89	41.3
Approach		18	0.0	0.051	16.4	LOS B	0.2	1.1	0.66	0.85	41.3
All Vehicles		1295	1.6	0.340	6.9	NA	5.4	38.5	0.83	0.04	46.4

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

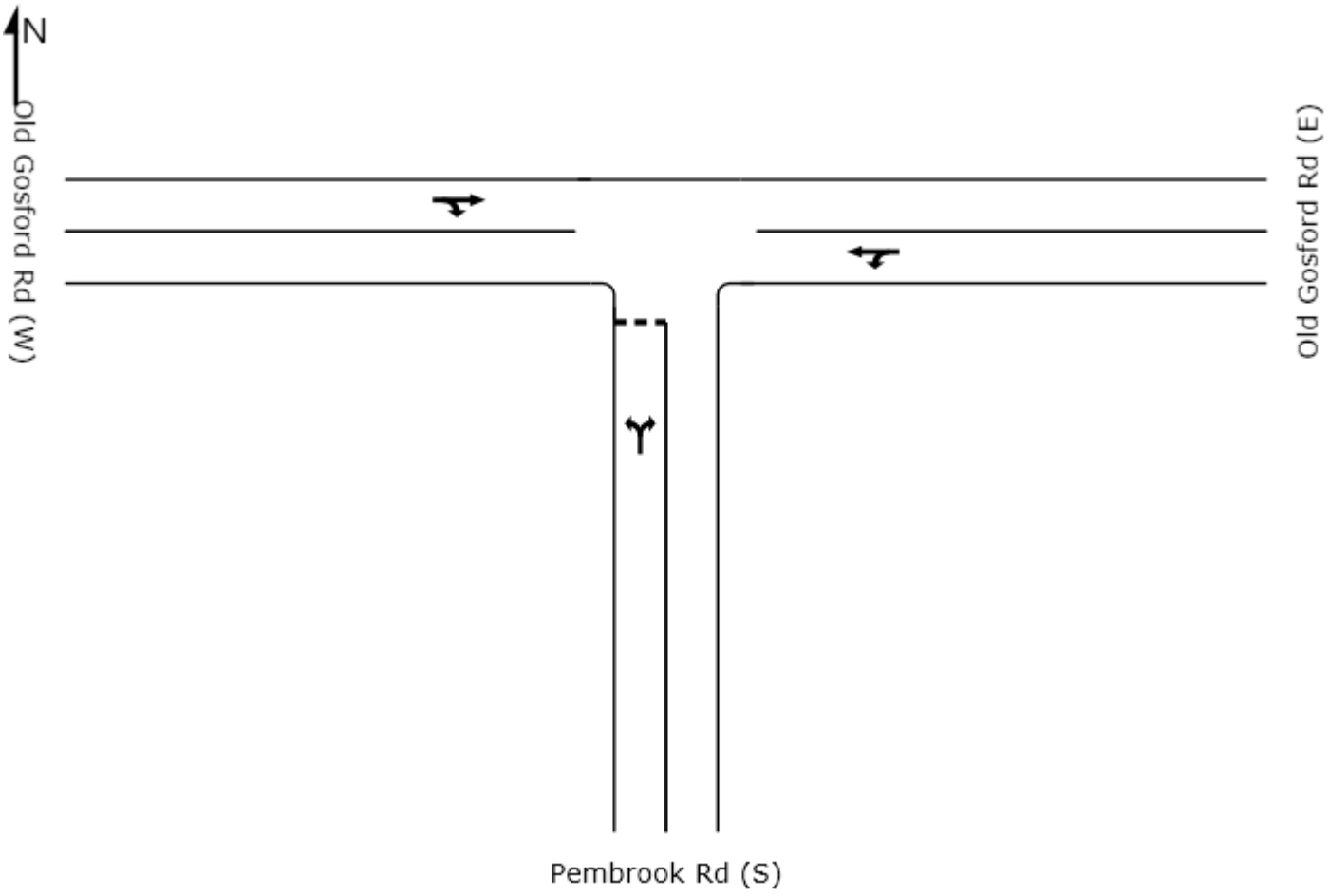
Site: 4-Ocean View Dr/Dover Rd

89010133 Dover Road / Ocean View Drive
2011 Saturday Midday Peak Future (11:30-12:30)
Giveway / Yield (Two-Way)

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 Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Ocean View Dr (S)											
1	L	22	9.0	0.361	15.2	LOS B	5.9	42.0	0.86	0.15	45.7
2	T	591	2.0	0.361	6.6	LOS A	5.9	42.0	0.86	0.00	46.3
3	R	28	0.0	0.361	14.8	LOS B	5.9	42.0	0.86	1.08	45.7
Approach		641	2.2	0.361	7.3	NA	5.9	42.0	0.86	0.05	46.3
East: Dover Rd (E)											
4	L	24	0.0	0.232	29.5	LOS C	0.8	5.3	0.83	0.97	33.1
5	T	2	0.0	0.232	28.2	LOS B	0.8	5.3	0.83	0.94	33.4
6	R	15	0.0	0.232	29.4	LOS C	0.8	5.3	0.83	0.96	33.1
Approach		41	0.0	0.232	29.4	LOS C	0.8	5.3	0.83	0.96	33.1
North: Ocean View Dr (N)											
7	L	25	0.0	0.346	14.3	LOS A	5.5	39.1	0.85	0.16	46.2
8	T	603	1.0	0.346	6.2	LOS A	5.5	39.1	0.85	0.00	46.5
9	R	15	0.0	0.346	14.3	LOS A	5.5	39.1	0.85	1.07	46.2
Approach		643	0.9	0.346	6.7	NA	5.5	39.1	0.85	0.03	46.5
West: Dover Rd (W)											
10	L	22	5.0	0.250	32.0	LOS C	0.8	5.9	0.84	0.98	32.0
11	T	3	0.0	0.250	30.6	LOS C	0.8	5.9	0.84	0.95	32.2
12	R	16	0.0	0.250	31.8	LOS C	0.8	5.9	0.84	0.97	32.0
Approach		41	2.7	0.250	31.8	LOS C	0.8	5.9	0.84	0.97	32.0
All Vehicles		1366	1.5	0.361	8.4	NA	5.9	42.0	0.85	0.10	45.2

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.


N
Old Gosford Rd (W)
Old Gosford Rd (E)
Pembrook Rd (S)

MOVEMENT SUMMARY

Site: 5-Old Gosford Rd/Pembrook Rd

89010133 Old Gosford Road / Pembrook Road
2011 AM Future (07:45-08:45)
Giveway / Yield (Two-Way)

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 Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Pembrook Rd (S)											
1	L	5	0.0	0.040	8.7	LOS A	0.1	1.0	0.33	0.60	42.5
3	R	24	4.0	0.040	8.8	LOS A	0.1	1.0	0.33	0.64	42.5
Approach		29	3.3	0.040	8.8	LOS A	0.1	1.0	0.33	0.63	42.5
East: Old Gosford Rd (E)											
4	L	29	3.0	0.092	7.5	LOS A	0.0	0.0	0.00	1.03	48.6
5	T	145	4.0	0.092	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		174	3.8	0.092	1.3	NA	0.0	0.0	0.00	0.17	57.8
West: Old Gosford Rd (W)											
11	T	43	7.0	0.024	0.8	LOS A	0.2	1.1	0.33	0.00	54.1
12	R	1	0.0	0.024	8.3	LOS A	0.2	1.1	0.33	0.96	49.0
Approach		44	6.8	0.024	1.0	NA	0.2	1.1	0.33	0.02	54.0
All Vehicles		247	4.3	0.092	2.1	NA	0.2	1.1	0.10	0.20	54.8

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: 5-Old Gosford Rd/Pembrook Rd

89010133 Old Gosford Road / Pembrook Road
2011 PM Future (16:45-17:45)
Giveway / Yield (Two-Way)

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 Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Pembrook Rd (S)											
1	L	5	0.0	0.024	8.1	LOS A	0.1	0.6	0.23	0.57	43.0
3	R	14	0.0	0.024	8.1	LOS A	0.1	0.6	0.23	0.62	43.0
Approach		19	0.0	0.024	8.1	LOS A	0.1	0.6	0.23	0.61	43.0
East: Old Gosford Rd (E)											
4	L	13	8.0	0.037	7.7	LOS A	0.0	0.0	0.00	1.03	48.6
5	T	57	2.0	0.037	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		70	3.1	0.037	1.4	NA	0.0	0.0	0.00	0.19	57.6
West: Old Gosford Rd (W)											
11	T	87	1.0	0.049	0.3	LOS A	0.3	2.1	0.19	0.00	56.3
12	R	5	0.0	0.049	7.8	LOS A	0.3	2.1	0.19	0.99	48.8
Approach		92	0.9	0.049	0.7	NA	0.3	2.1	0.19	0.05	55.8
All Vehicles		181	1.7	0.049	1.8	NA	0.3	2.1	0.12	0.16	54.8

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

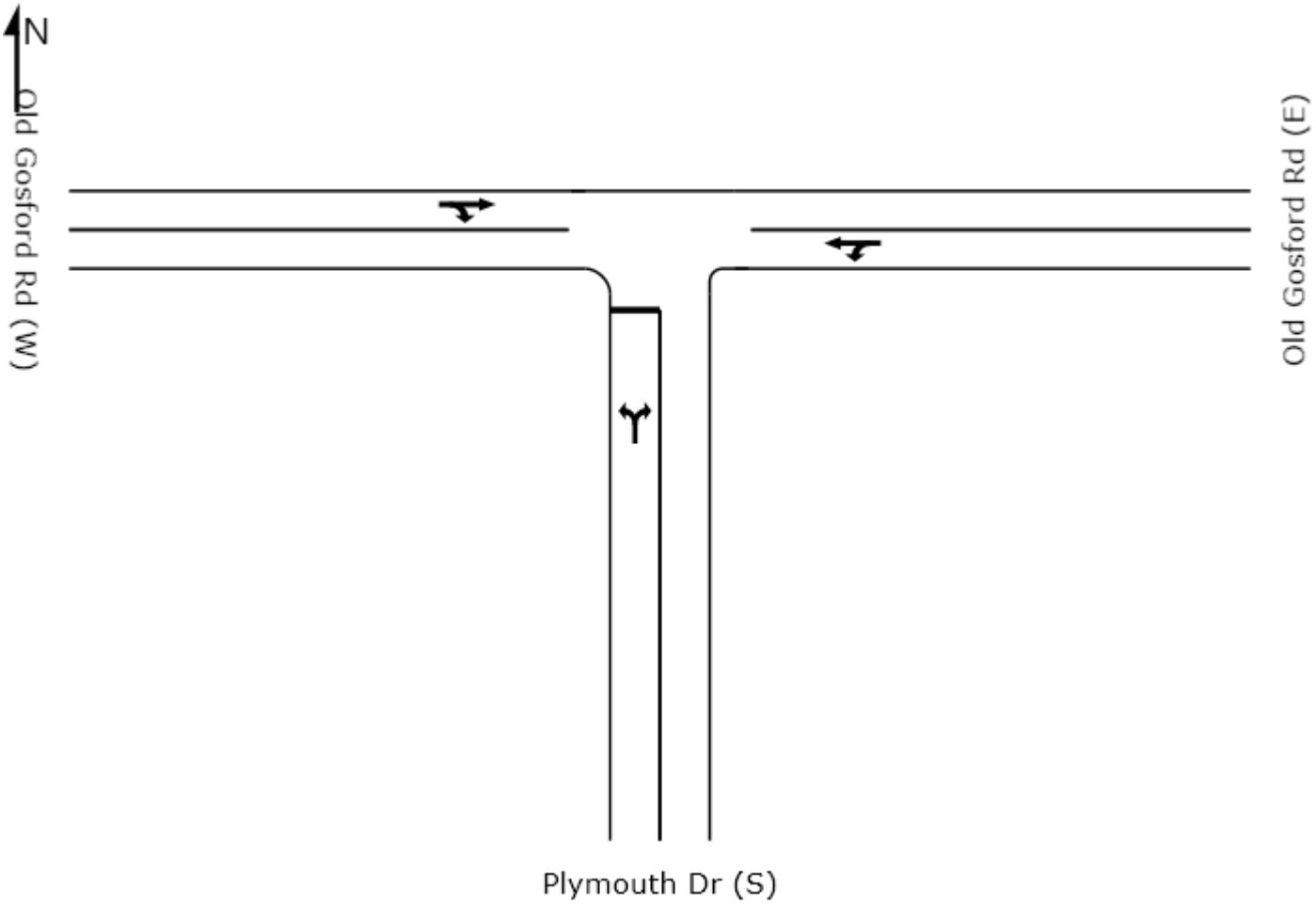
Site: 5-Old Gosford Rd/Pembrook Rd

89010133 Old Gosford Road / Pembrook Road
2011 Saturday Midday Peak Future (11:30-12:30)
Giveway / Yield (Two-Way)

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 Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Pembrook Rd (S)											
1	L	3	0.0	0.022	8.3	LOS A	0.1	0.5	0.26	0.57	42.9
3	R	14	0.0	0.022	8.3	LOS A	0.1	0.5	0.26	0.62	42.9
Approach		17	0.0	0.022	8.3	LOS A	0.1	0.5	0.26	0.61	42.9
East: Old Gosford Rd (E)											
4	L	10	0.0	0.042	7.4	LOS A	0.0	0.0	0.00	1.06	48.6
5	T	70	2.0	0.042	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		80	1.8	0.042	0.9	NA	0.0	0.0	0.00	0.13	58.4
West: Old Gosford Rd (W)											
11	T	80	2.0	0.045	0.4	LOS A	0.3	1.9	0.21	0.00	56.0
12	R	4	0.0	0.045	7.8	LOS A	0.3	1.9	0.21	0.98	48.8
Approach		84	1.9	0.045	0.7	NA	0.3	1.9	0.21	0.05	55.6
All Vehicles		181	1.7	0.045	1.5	NA	0.3	1.9	0.12	0.14	55.2

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.


N
Old Gosford Rd (W)
Old Gosford Rd (E)
Plymouth Dr (S)

MOVEMENT SUMMARY

Site: 6-Old Gosford Rd/Plymouth Dr

89010133 Old Gosford Road / Plymouth Dr
2011 AM Future (07:45-08:45)
Stop (Two-Way)

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 Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Plymouth Dr (S)											
1	L	39	0.0	0.074	11.0	LOS A	0.3	1.9	0.29	0.86	41.1
3	R	34	0.0	0.074	10.9	LOS A	0.3	1.9	0.29	0.91	41.2
Approach		73	0.0	0.074	11.0	LOS A	0.3	1.9	0.29	0.88	41.2
East: Old Gosford Rd (E)											
4	L	40	3.0	0.089	7.5	LOS A	0.0	0.0	0.00	0.98	48.6
5	T	127	5.0	0.089	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		167	4.5	0.089	1.8	NA	0.0	0.0	0.00	0.23	56.9
West: Old Gosford Rd (W)											
11	T	79	5.0	0.052	0.7	LOS A	0.3	2.1	0.30	0.00	54.3
12	R	12	0.0	0.052	8.3	LOS A	0.3	2.1	0.30	0.94	48.7
Approach		91	4.3	0.052	1.7	NA	0.3	2.1	0.30	0.12	53.6
All Vehicles		331	3.5	0.089	3.8	NA	0.3	2.1	0.14	0.35	51.6

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: 6-Old Gosford Rd/Plymouth Dr

Old Gosford Road / Plymouth Dr
Future PM Peak (16:45-17:45)
Stop (Two-Way)

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 Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Plymouth Dr (S)											
1	L	23	0.0	0.064	10.7	LOS A	0.2	1.6	0.22	0.86	41.2
3	R	43	2.0	0.064	10.7	LOS A	0.2	1.6	0.22	0.92	41.3
Approach		66	1.3	0.064	10.7	LOS A	0.2	1.6	0.22	0.89	41.3
East: Old Gosford Rd (E)											
4	L	52	6.0	0.054	7.6	LOS A	0.0	0.0	0.00	0.82	48.6
5	T	47	6.0	0.054	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		99	6.0	0.054	4.0	NA	0.0	0.0	0.00	0.43	53.6
West: Old Gosford Rd (W)											
11	T	68	2.0	0.063	0.4	LOS A	0.3	2.3	0.21	0.00	55.5
12	R	36	0.0	0.063	8.0	LOS A	0.3	2.3	0.21	0.84	48.3
Approach		104	1.3	0.063	3.0	NA	0.3	2.3	0.21	0.29	52.8
All Vehicles		269	3.0	0.064	5.3	NA	0.3	2.3	0.14	0.49	49.6

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

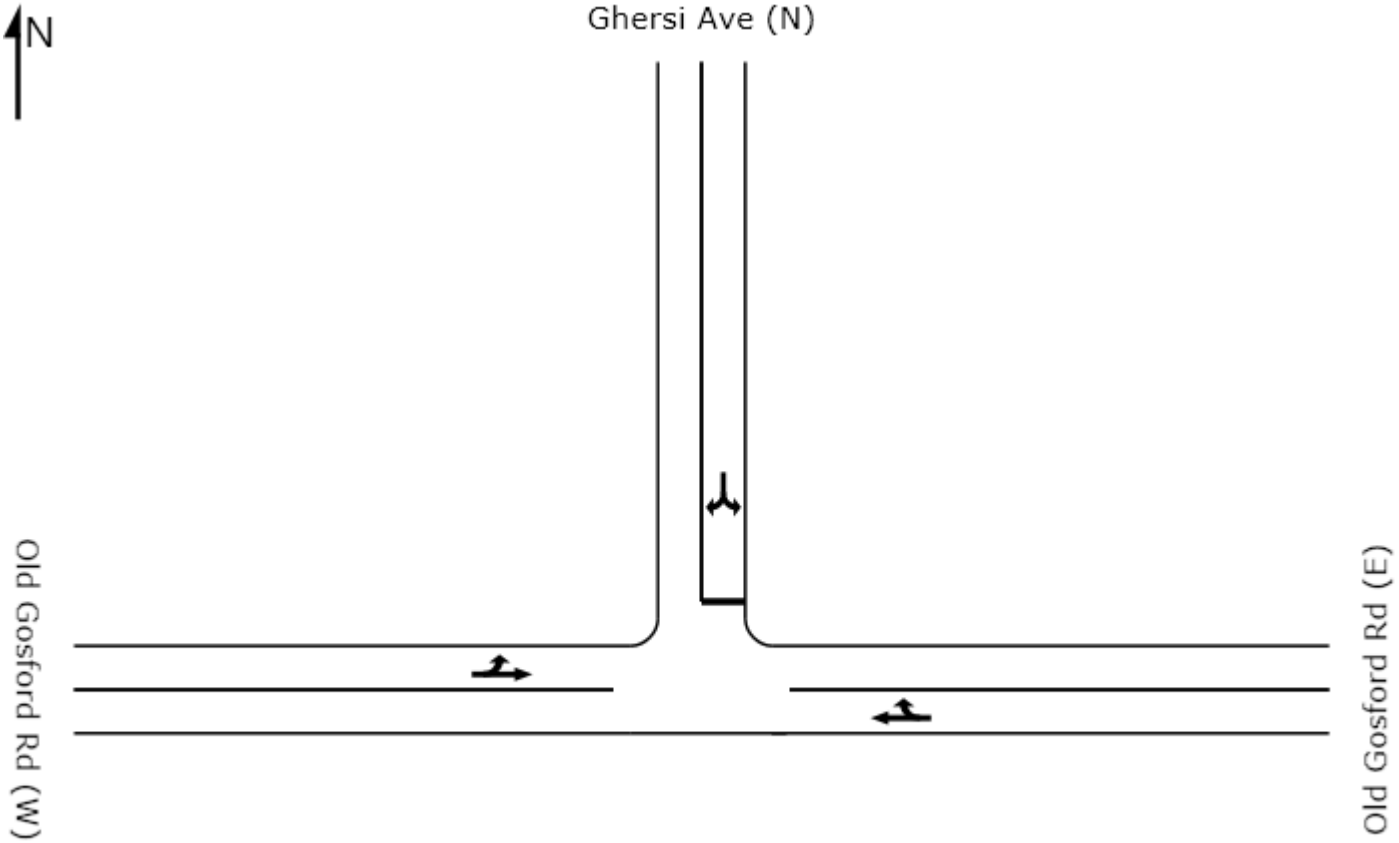
Site: 6-Old Gosford Rd/Plymouth Dr

89010133 Old Gosford Road / Plymouth Dr
2011 Saturday Midday Peak Future (11:30-12:30)
Stop (Two-Way)

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 Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Plymouth Dr (S)											
1	L	35	0.0	0.079	10.9	LOS A	0.3	2.0	0.25	0.86	41.2
3	R	45	0.0	0.079	10.7	LOS A	0.3	2.0	0.25	0.91	41.2
Approach		80	0.0	0.079	10.8	LOS A	0.3	2.0	0.25	0.89	41.2
East: Old Gosford Rd (E)											
4	L	46	0.0	0.068	7.4	LOS A	0.0	0.0	0.00	0.90	48.6
5	T	84	2.0	0.068	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		130	1.3	0.068	2.6	NA	0.0	0.0	0.00	0.32	55.5
West: Old Gosford Rd (W)											
11	T	80	2.0	0.055	0.5	LOS A	0.3	2.2	0.26	0.00	55.0
12	R	17	0.0	0.055	8.1	LOS A	0.3	2.2	0.26	0.92	48.5
Approach		97	1.6	0.055	1.8	NA	0.3	2.2	0.26	0.16	53.8
All Vehicles		307	1.1	0.079	4.5	NA	0.3	2.2	0.15	0.42	50.4

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.


N
Ghersi Ave (N)
Old Gosford Rd (W)
Old Gosford Rd (E)

MOVEMENT SUMMARY

Site: 7-Old Gosford Rd/Ghersi Ave

89010133 Old Gosford Road / Ghersi Avenue
2011 AM Future (07:45-08:45)
Stop (Two-Way)

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 Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Old Gosford Rd (E)											
11	T	107	7.0	0.075	0.4	LOS A	0.4	3.0	0.22	0.00	55.7
12	R	23	0.0	0.075	8.0	LOS A	0.4	3.0	0.22	0.95	48.5
Approach		130	5.8	0.075	1.7	NA	0.4	3.0	0.22	0.17	54.3
North: Ghersi Ave (N)											
1	L	13	8.0	0.068	11.4	LOS A	0.2	1.8	0.25	0.83	41.1
3	R	55	0.0	0.068	10.8	LOS A	0.2	1.8	0.25	0.91	41.2
Approach		68	1.5	0.068	10.9	LOS A	0.2	1.8	0.25	0.89	41.2
West: Old Gosford Rd (W)											
4	L	58	0.0	0.052	7.4	LOS A	0.0	0.0	0.00	0.78	48.6
5	T	38	14.0	0.052	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		96	5.5	0.052	4.5	NA	0.0	0.0	0.00	0.47	52.7
All Vehicles		294	4.7	0.075	4.7	NA	0.4	3.0	0.15	0.43	50.1

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

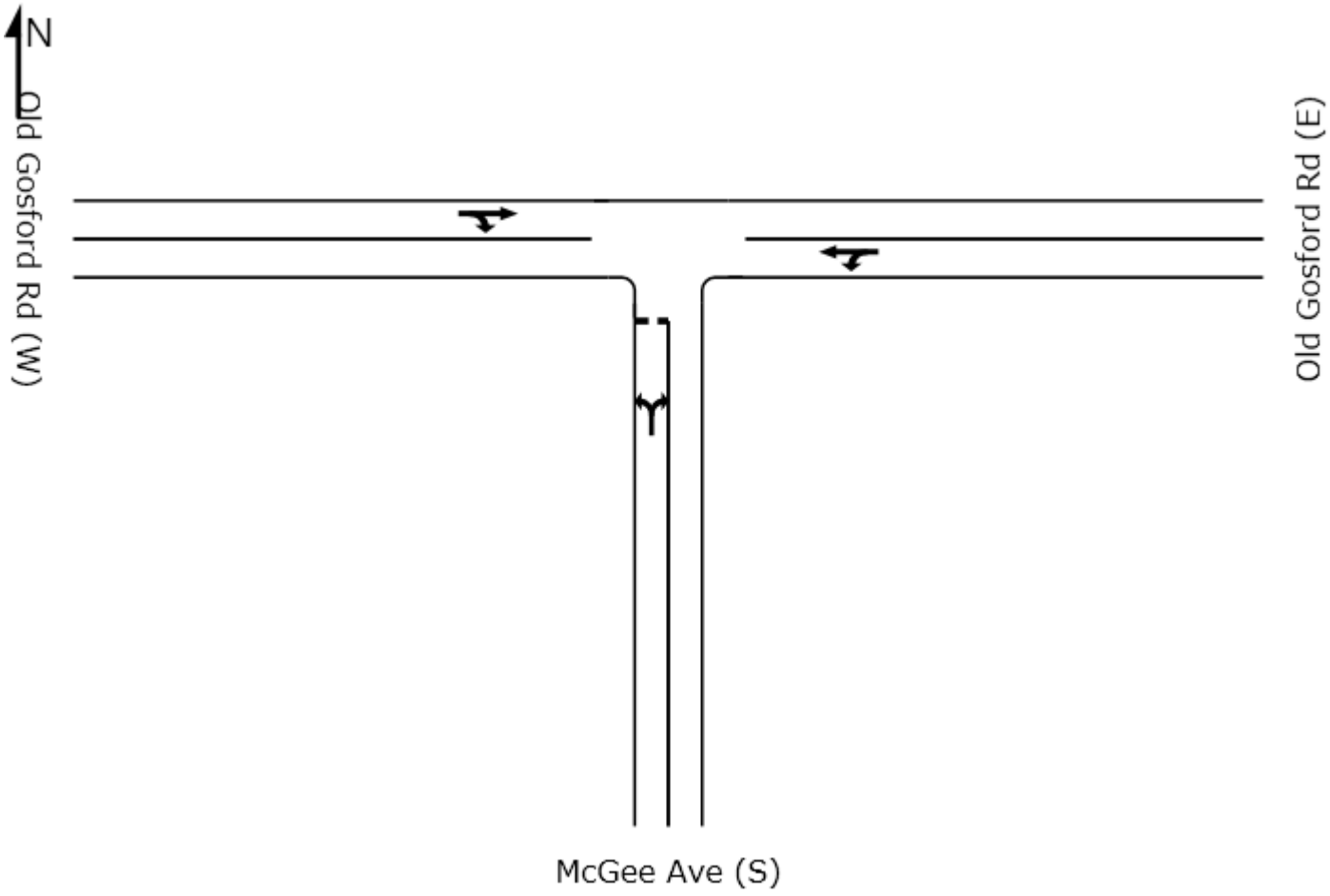
Site: 7-Old Gosford Rd/Ghersi Ave

89010133 Old Gosford Road / Ghersi Avenue
2011 PM Future (16:45-17:45)
Stop (Two-Way)

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 Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Old Gosford Rd (E)											
11	T	61	11.0	0.040	0.4	LOS A	0.2	1.6	0.22	0.00	55.6
12	R	8	0.0	0.040	8.1	LOS A	0.2	1.6	0.22	0.99	48.6
Approach		69	9.7	0.040	1.3	NA	0.2	1.6	0.22	0.12	54.8
North: Ghersi Ave (N)											
1	L	53	0.0	0.082	10.5	LOS A	0.3	2.1	0.19	0.88	41.3
3	R	36	0.0	0.082	10.4	LOS A	0.3	2.1	0.19	0.93	41.4
Approach		89	0.0	0.082	10.5	LOS A	0.3	2.1	0.19	0.90	41.4
West: Old Gosford Rd (W)											
4	L	67	1.0	0.057	7.5	LOS A	0.0	0.0	0.00	0.77	48.6
5	T	40	4.0	0.057	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		107	2.1	0.057	4.7	NA	0.0	0.0	0.00	0.48	52.4
All Vehicles		265	3.4	0.082	5.7	NA	0.3	2.1	0.12	0.53	48.6

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.


N
Old Gosford Rd (W)
Old Gosford Rd (E)
McGee Ave (S)

MOVEMENT SUMMARY

Site: 8-Old Gosford Rd/McGee Ave

89010133 Old Gosford Road / McGee Avenue
2011 AM Future (07:45-08:45)
Giveway / Yield (Two-Way)

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 Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: McGee Ave (S)											
1	L	6	17.0	0.032	8.5	LOS A	0.1	0.8	0.25	0.57	42.8
3	R	26	0.0	0.032	8.3	LOS A	0.1	0.8	0.25	0.65	42.7
Approach		32	3.2	0.032	8.3	LOS A	0.1	0.8	0.25	0.63	42.7
East: Old Gosford Rd (E)											
4	L	13	23.0	0.059	8.1	LOS A	0.0	0.0	0.00	1.11	48.6
5	T	94	9.0	0.059	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		107	10.7	0.059	1.0	NA	0.0	0.0	0.00	0.13	58.4
West: Old Gosford Rd (W)											
11	T	48	13.0	0.030	0.3	LOS A	0.1	1.1	0.22	0.00	55.8
12	R	5	0.0	0.030	8.2	LOS A	0.1	1.1	0.22	1.06	48.5
Approach		53	11.8	0.030	1.1	NA	0.1	1.1	0.22	0.10	55.1
All Vehicles		192	9.7	0.059	2.2	NA	0.1	1.1	0.10	0.21	54.2

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: 8-Old Gosford Rd/McGee Ave

80910133 Old Gosford Road / McGee Avenue
2011 PM Future (16:45-17:45)
Giveway / Yield (Two-Way)

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 Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: McGee Ave (S)											
1	L	6	0.0	0.027	7.7	LOS A	0.1	0.7	0.21	0.56	43.0
3	R	23	0.0	0.027	8.1	LOS A	0.1	0.7	0.21	0.65	42.8
Approach		29	0.0	0.027	8.0	LOS A	0.1	0.7	0.21	0.63	42.8
East: Old Gosford Rd (E)											
4	L	29	0.0	0.043	7.4	LOS A	0.0	0.0	0.00	0.90	48.6
5	T	51	6.0	0.043	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		80	3.8	0.043	2.7	NA	0.0	0.0	0.00	0.32	55.4
West: Old Gosford Rd (W)											
11	T	62	0.0	0.039	0.2	LOS A	0.2	1.5	0.19	0.00	56.2
12	R	11	9.0	0.039	8.4	LOS A	0.2	1.5	0.19	1.04	48.4
Approach		73	1.4	0.039	1.5	NA	0.2	1.5	0.19	0.16	55.0
All Vehicles		182	2.2	0.043	3.1	NA	0.2	1.5	0.11	0.31	52.8

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: 8-Old Gosford Rd/McGee Ave

89010133 Old Gosford Road / McGee Avenue
2011 Saturday Midday Peak Future (11:30-12:30)
Giveway / Yield (Two-Way)

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 Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: McGee Ave (S)											
1	L	6	0.0	0.028	7.9	LOS A	0.1	0.7	0.24	0.56	42.9
3	R	22	0.0	0.028	8.3	LOS A	0.1	0.7	0.24	0.65	42.7
Approach		28	0.0	0.028	8.2	LOS A	0.1	0.7	0.24	0.63	42.7
East: Old Gosford Rd (E)											
4	L	27	4.0	0.052	7.6	LOS A	0.0	0.0	0.00	0.95	48.6
5	T	71	3.0	0.052	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		98	3.3	0.052	2.1	NA	0.0	0.0	0.00	0.26	56.5
West: Old Gosford Rd (W)											
11	T	94	2.0	0.052	0.3	LOS A	0.3	2.0	0.21	0.00	56.0
12	R	5	0.0	0.052	8.1	LOS A	0.3	2.0	0.21	1.11	48.6
Approach		99	1.9	0.052	0.7	NA	0.3	2.0	0.21	0.06	55.6
All Vehicles		225	2.3	0.052	2.2	NA	0.3	2.0	0.12	0.22	54.0

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.