



**TPSGROUP™**  
Traffic & Parking Systems

**Proposed Residential Development  
Pt Lot 3115 DP1233800 Harrington  
Traffic Engineering Report**

**Prepared for  
Roche Group Pty Ltd**

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13<sup>th</sup> September 2017  
TPS Ref : TPS137Rep3

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## 1. Background

Roche Group propose to develop land at Harrington, NSW for residential purposes.

The purpose of this report is to describe the traffic engineering character of the development and particularly to respond to traffic engineering matters raised by Council officers at a pre-lodgement meeting held at Council's Taree offices on 13<sup>th</sup> December 2016.

The location of the subject site is shown in Fig 1.1.



Fig 1.1 Location of Subject Development Site

## 2. The Proposed Development

The proposed development plan is shown in Figs 2.1 and 2.2.

The development will consist of the following residential dwellings.

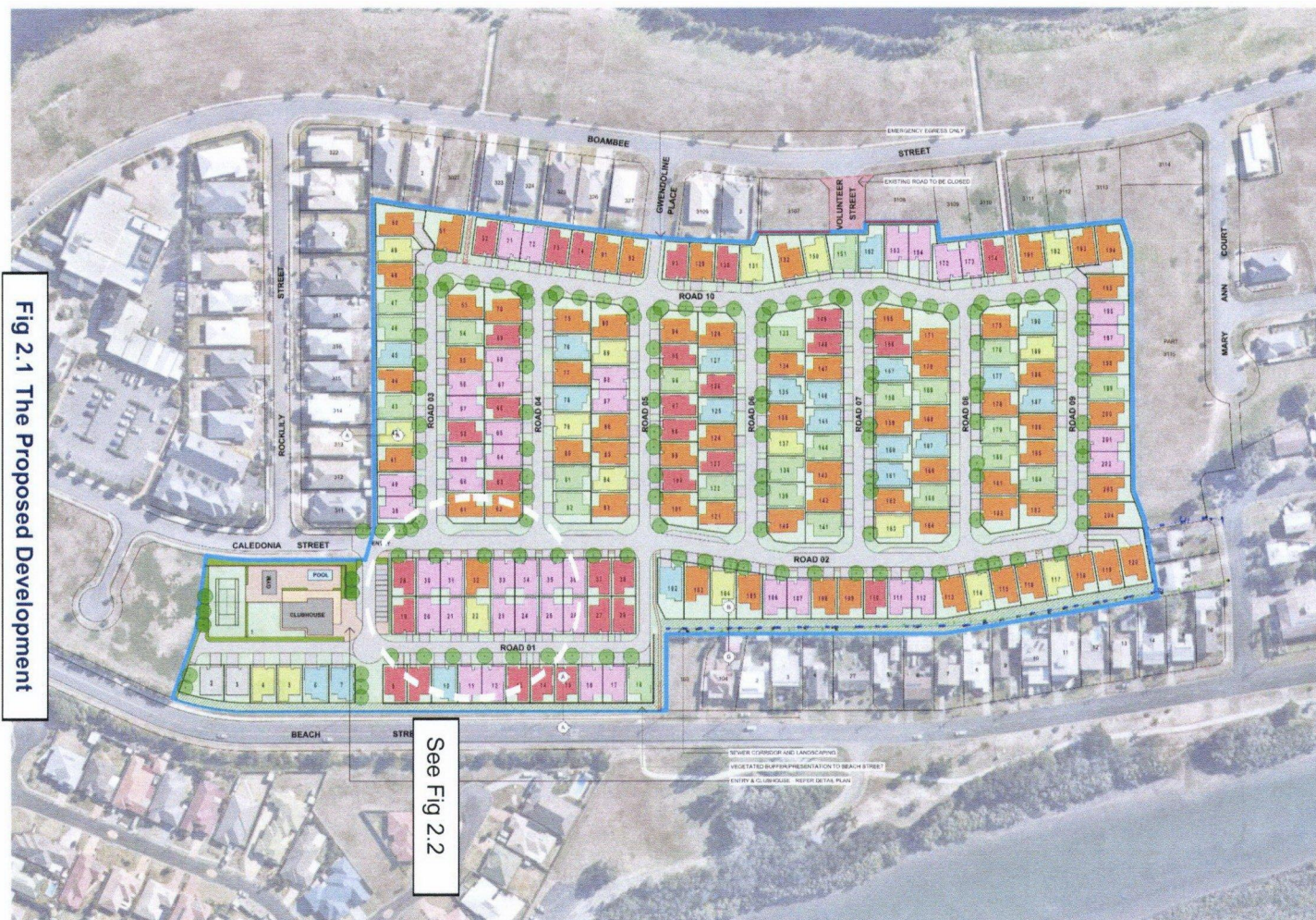
**Table 2.1 The Proposed Development Content**

<u>Dwelling Type</u>	<u>No.</u>
1 Storey / 3 BR Unattached	128
1 Storey / 2 BR Duplex	42
1 Storey / 2 BR Unattached	31
1 Storey / 2BR Custom	2
Total Dwellings	203

Other (Recreation Centre)



Fig 2.1 The Proposed Development



LEGEND

HOUSING LEGEND	
TYPE	No.
A - SINGLE STOREY 3 BEDROOM	68
B - SINGLE STOREY 3 BEDROOM	23
C - SINGLE STOREY 3 BEDROOM	17
D - SINGLE STOREY 3 BEDROOM	30
E - SINGLE STOREY 2 BEDROOM DUPLEX	42
F - SINGLE STOREY 2 BEDROOM	31
G - SINGLE STOREY 2 BEDROOM	2
TOTAL	213

BOTANICAL NAME	COMMON NAME
Elaeocarpus eumundi	Quandong
Tristania laurifolia	Water Gum
Coprosma laurifolia	Tuckeroo
Syzygium australe	Brush Cherry

GENERAL GARDEN BED PLANTING
WATER QUALITY CONTROL VEGETATION
TURF
PAVED AREA
HEDGE PLANTING
RETAINING WALL
FEATURE WALL
MAIN PEDESTRIAN PATH CONNECTION
EXISTING SEWER
EXISTING STORMWATER
SITE BOUNDARY

See Fig 2.2

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NO.	DATE	DESCRIPTION
1	20/01/17	ISSUE FOR INFORMATION
2	20/01/17	ISSUE FOR INFORMATION
3	20/01/17	ISSUE FOR INFORMATION
4	20/01/17	ISSUE FOR INFORMATION
5	20/01/17	ISSUE FOR INFORMATION
6	20/01/17	ISSUE FOR INFORMATION
7	20/01/17	ISSUE FOR INFORMATION
8	20/01/17	ISSUE FOR INFORMATION
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PROJECT NO.	1001
DATE	20/01/17
DESIGNED BY	1001
DRAWN BY	1001
CHECKED BY	1001
DATE CREATED	20/01/17

PROJECT TITLE	SITE MASTERPLAN
PROJECT	PT LOT 3115 DP 1238800 HARRINGTON WATERS ESTATE, BOAMBE STREET, HARRINGTON NSW
CLIENT	ROCHE GROUP PTY LTD
DATE	20/01/17
REVISION	1

Proposed Residential Development  
Pt Lot 3115 DP1238800 Harrington  
Traffic Engineering Report  
13<sup>th</sup> September 2017

NON SUBMISSION A1





Fig 2.2 The Proposed Development

### 3. Pre-Lodgement Meeting

The following traffic engineering matter (shown in italics) was recorded in minutes from the pre-lodgement meeting held at Council officers on 16<sup>th</sup> December 2016.

- 8 *Graham raised the issue of traffic and access. The 'stub' road off Boambee Street are to be addressed as they are of no use to Council should this proposal proceed. A Traffic Report addressing the capacity of surrounding road and intersections will be required at lodgement. Tony/David were advised to contact grant Calvin at Council to discuss any existing traffic counts for the roundabout on Harrington Road.*

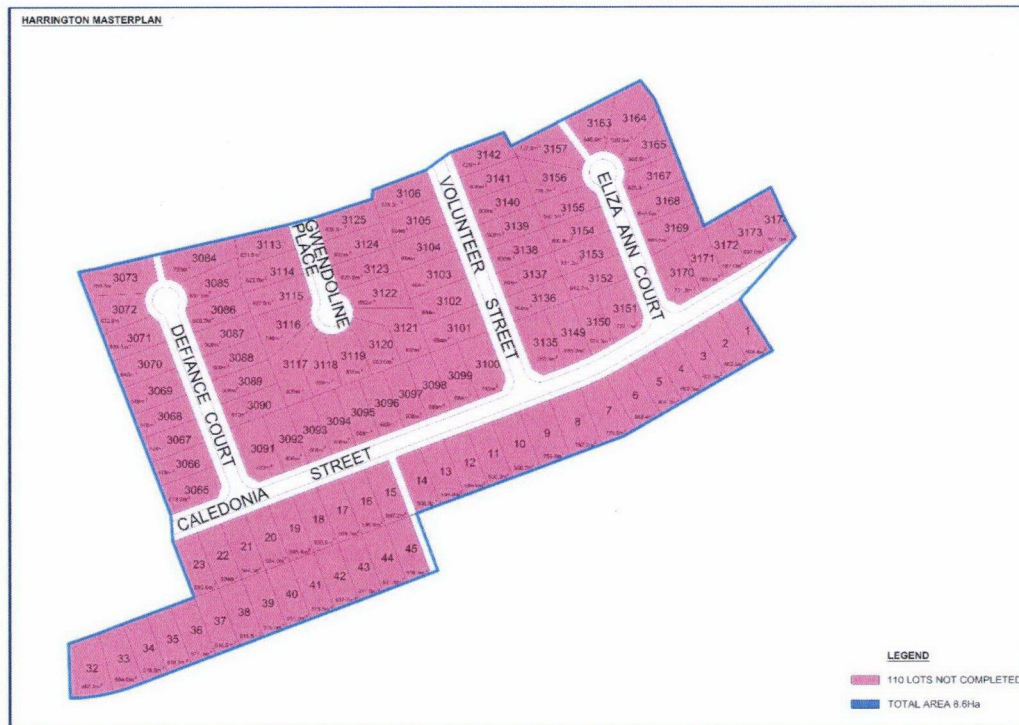
#### The objective of this report is to address to the above matter.

TPS has contacted Council to enquire regarding the availability of traffic data and was advised that no data exists. Consequently, TPS has conducted traffic surveys to enable an assessment to be made of the capacity of the surrounding road network to accommodate the subject development.



#### 4. History

The original Harrington Waters Master Plan (see Fig 4.1) shows residential development in the subject area occurring at a rate of approximately 12.5 dwellings/hectare, resulting in approximately 110 residential dwellings. This compares with the now proposed 203 dwellings, representing a 84% increase in dwellings. However, it should be recognised that the now proposed development contains a significantly higher proportion of 2-bedroom dwellings than was originally proposed. Consequently, the consequential increase in traffic generation arising from the now proposed higher density development will be less than the 84% increase in dwellings due to 2-bedroom dwellings having a lower traffic generation rate than 3-bedroom dwellings.



**Fig 4.1 Extract from Harrington Waters Development Master Plan  
(The Subject Development Area)**

## 5. Existing Traffic Volumes

TPS commissioned peak period traffic surveys to be undertaken at the Harrington Rd / Harbour Blvd intersection on Thursday 11<sup>th</sup> May 2017 in the periods 0700-0900 and 1500-1800. The surveys indicated that peak hours occur in the periods 0800-0900 and 1500-1600.

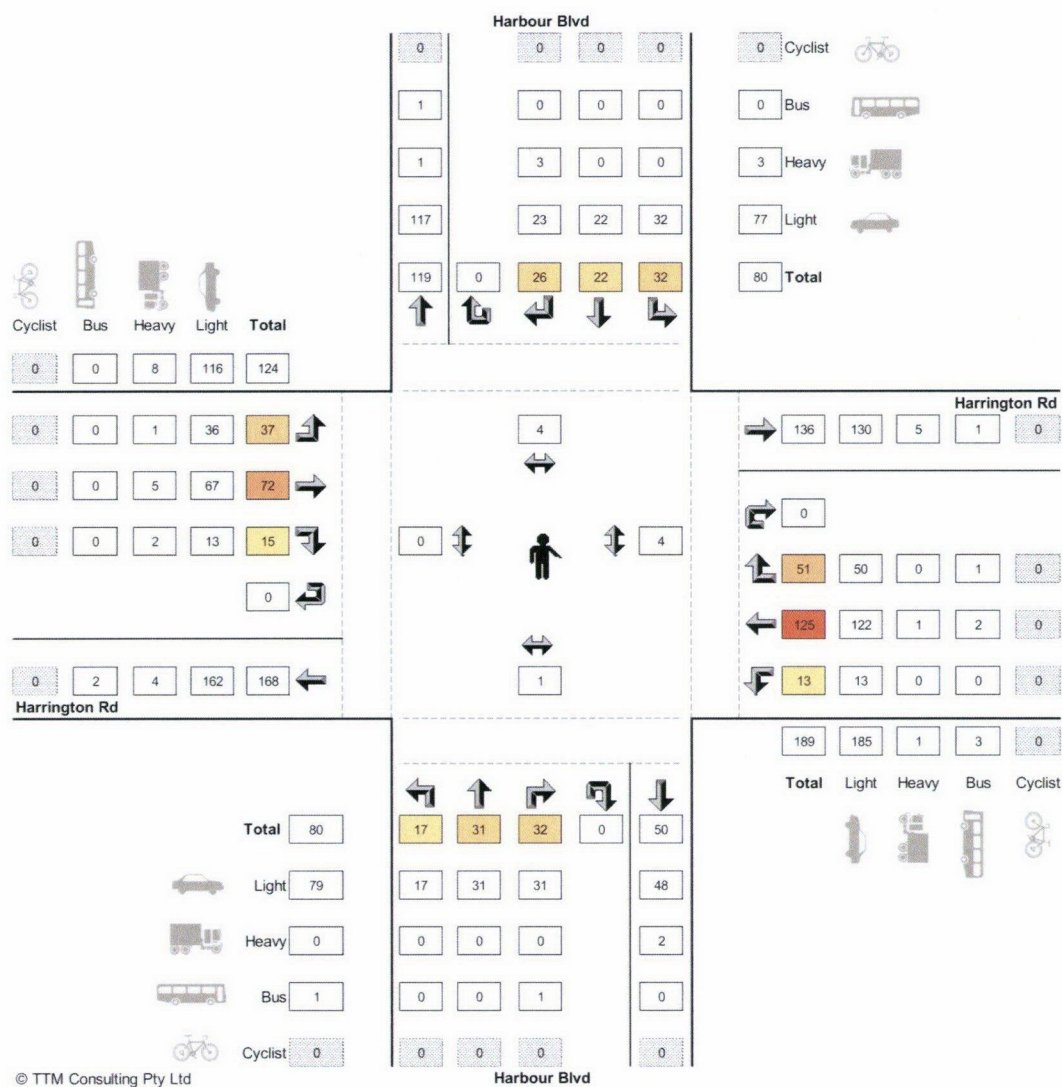
The relatively early timing of the afternoon peak hour reflects school and shopping activity. However, the survey result indicates that the rate of traffic movements at the intersection in the hours between 3pm and 5pm was relatively consistent.

Surveyed peak hour traffic movements are shown in Figs 5.1 and 5.2.

The traffic surveys indicate that Harrington Road is currently carrying approximately 3000 vehs/day and 3500 vehs/day on weekdays to the west and east of Harbour Blvd respectively. Harbour Blvd is carrying approximately 1250 vehs/day and 2500 vehs/day to the south and north of Harrington Road respectively. All these volumes are 'modest' in traffic engineering terms and are orders of magnitude less than the capacity of roads on which they are occurring.

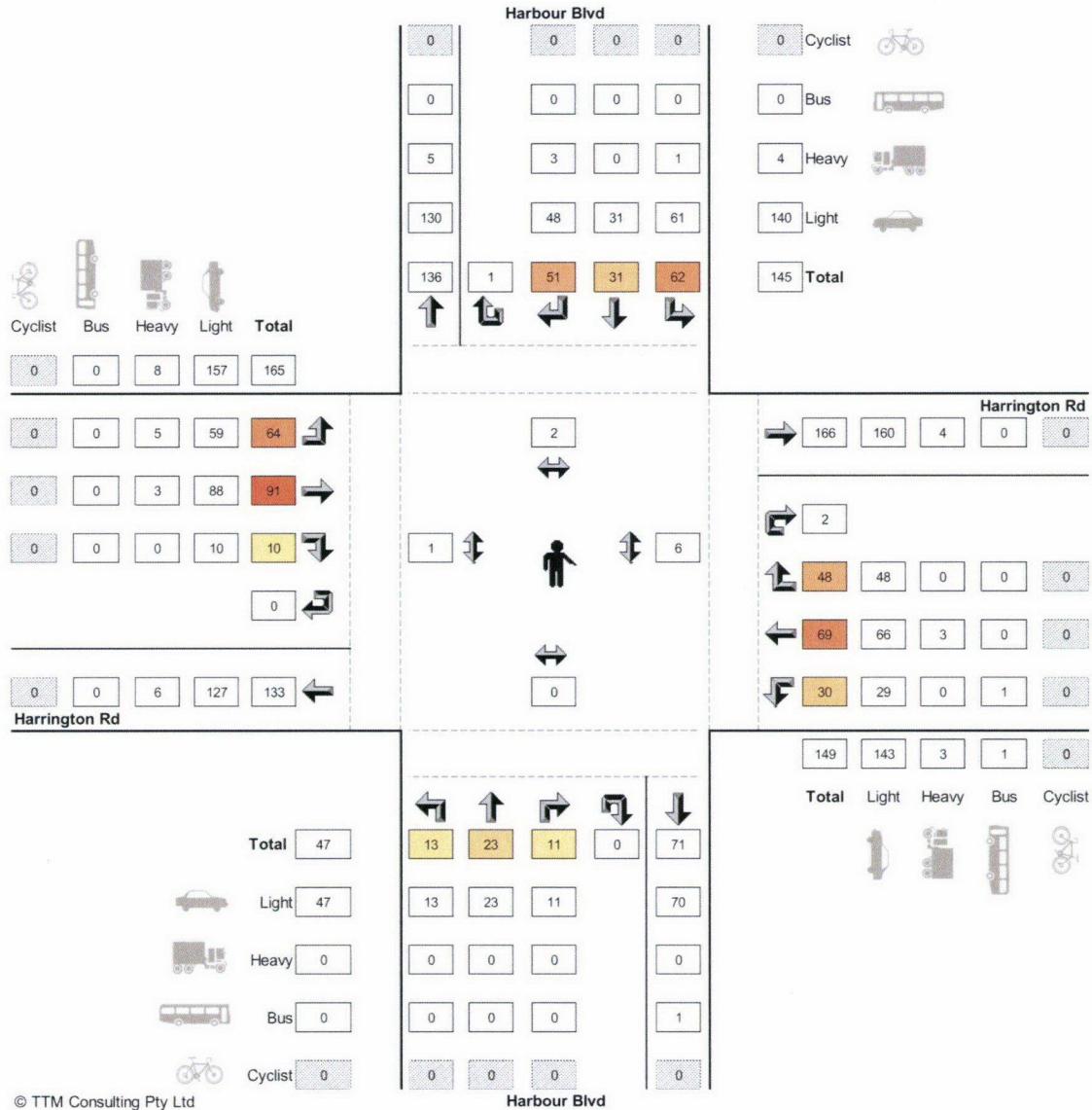


Proposed Residential Development  
Pt Lot 3115 DP1233800 Harrington  
Traffic Engineering Report  
13<sup>th</sup> September 2017



**Fig 5.1 Existing Traffic Volumes**  
Harrington Rd / Harbour Blvd  
0800-0900 Thursday 11<sup>th</sup> May 2017

Proposed Residential Development  
Pt Lot 3115 DP1233800 Harrington  
Traffic Engineering Report  
13<sup>th</sup> September 2017



**Fig 5.2 Existing Traffic Volumes**  
**Harrington Rd / Harbour Blvd**  
**1500-1600 Thursday 11<sup>th</sup> May 2017**



## 6. Estimated Future Traffic Volumes

### 6.1 Future Traffic Generation

Table 6.1 shows a TPS estimate of the probable future traffic demand generated by the area in which the proposed development will be located. The estimates assume that all traffic associated with the proposed development will potentially enter and leave the area via the Harrington Rd / Harbour Blvd intersection.

In the view of TPS the rate of 7.5 vpd/dwelling applied into the estimates is highly conservative and is likely to be up to 20% higher than will occur, due in part to the relatively high proportion of 2 bedroom and duplex dwellings which is contained in the proposed development.

Apart from the proposed development, TPS estimates that there is a potential for approximately 150 additional dwellings to be constructed in the area served by the northern leg of the Harrington Rd / Harbour Blvd roundabout. That is, additional to those which currently exist. The traffic effects of these future dwellings are also included in the future traffic estimates shown in Table 6.1.

In view of the traffic estimates shown in Table 6.1 being conservatively high, it has been assumed that the peak hour traffic generation effects of the proposed recreation area shown in the development plans are also represented in the estimates shown in Table 6.1, particularly given that the recreation centre is unlikely to generate significant traffic movements in peak traffic hours.

**Table 6.1 Potential Future (2028) Additional Peak Hour Traffic Volumes  
Via the Harrington Rd / Harbour Blvd Intersection**

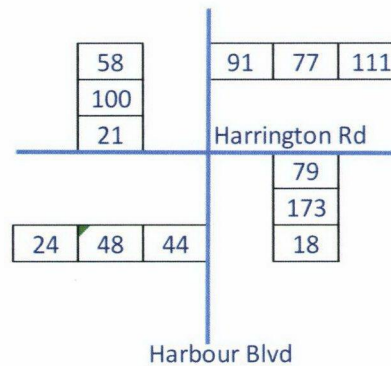
Period	Comment	Vehicles / Hour		
		Inbound	Outbound	Total
AM Peak Hour				
Surveyed at 11/5/17		119	80	199
Proposed Development @ 7.5vpd/dwelling	Based on 10% in peak hour and 75:25 split	38	114	152
Other Development	Approx 150 dwellings at above rates	28	84	113
2028 Traffic on Roundabout North Approach		185	279	464
PM Peak Hour				
Surveyed at 11/5/17		136	145	281
Proposed Development @ 7.5vpd/dwelling	Based on 10% in peak hour and 75:25 split	114	38	152
Other Development	Approx 150 dwellings at above rates	84	28	113
2028 Traffic on Roundabout North Approach		335	211	546

## 6.2 Estimated Future (2028) Traffic Volumes at Harrington Rd / Harbour Blvd Intersection

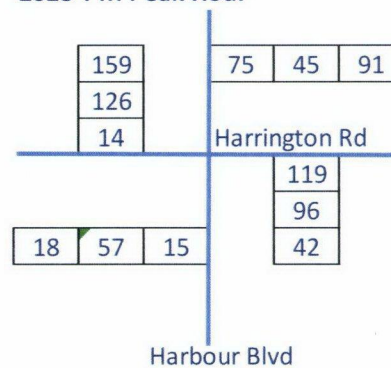
Fig 6.1 shows estimated future (2028) peak hour traffic movements at the Harrington Road / Harbour Blvd intersection based on the following assumptions.

- Traffic movements to and from the north leg of the roundabout increase to the extent shown in Table 6.1 with the distribution of traffic to and from the east, west and south being maintained as surveyed in 2017.
- Traffic on all other movements grows at an average compound rate of 3% per annum.

### 2028 AM Peak Hour



### 2028 PM Peak Hour



**Fig 6.1 Estimated Future (2028) Peak Hour Traffic Volumes at Harrington Rd / Harbour Blvd Intersection**



## 7. Estimated Future Intersection Performance Harrington Rd / Harbour Blvd Intersection

Tables 7.1 and 7.2 show estimated future (2028) peak hour intersection performance at the Harrington Rd / Harbour Blvd roundabout based on SIDRA 7 software. The analyses indicate that the roundabout will operate efficiently in peak hours to beyond 2028 under the effects of the proposed development and other developments which can be expected to occur in the areas which affect roundabout operation.

**Table 7.1**

 **Site: 101 [Harrington/Harbour AM Peak Hour 2028]**

AM Peak Hour  
Roundabout

Lane Use and Performance									
	Demand Total veh/h	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m
South: Harbour									
Lane 1 <sup>d</sup>	122	0.0	977	0.125	100	7.9	LOS A	0.7	4.8
Approach	122	0.0		0.125		7.9	LOS A	0.7	4.8
East: Harrington									
Lane 1 <sup>d</sup>	284	0.0	1090	0.261	100	7.0	LOS A	1.6	10.9
Approach	284	0.0		0.261		7.0	LOS A	1.6	10.9
North: Harbour									
Lane 1 <sup>d</sup>	287	0.0	1134	0.253	100	6.8	LOS A	1.5	10.4
Approach	287	0.0		0.253		6.8	LOS A	1.5	10.4
West: Harrington									
Lane 1 <sup>d</sup>	187	0.0	1102	0.170	100	6.1	LOS A	0.9	6.4
Approach	187	0.0		0.170		6.1	LOS A	0.9	6.4
Intersection	881	0.0		0.261		6.9	LOS A	1.6	10.9

**Table 7.2**

 **Site: 101 [Harrington/Harbour PM Peak Hour 2028]**

AM Peak Hour  
Roundabout

Lane Use and Performance									
	Demand Total veh/h	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m
South: Harbour									
Lane 1 <sup>d</sup>	94	0.0	1028	0.091	100	6.6	LOS A	0.5	3.3
Approach	94	0.0		0.091		6.6	LOS A	0.5	3.3
East: Harrington									
Lane 1 <sup>d</sup>	268	0.0	1156	0.232	100	7.3	LOS A	1.4	9.5
Approach	268	0.0		0.232		7.3	LOS A	1.4	9.5
North: Harbour									
Lane 1 <sup>d</sup>	220	0.0	1101	0.200	100	7.0	LOS A	1.1	8.0
Approach	220	0.0		0.200		7.0	LOS A	1.1	8.0
West: Harrington									
Lane 1 <sup>d</sup>	312	0.0	1112	0.280	100	5.9	LOS A	1.7	11.7
Approach	312	0.0		0.280		5.9	LOS A	1.7	11.7
Intersection	894	0.0		0.280		6.7	LOS A	1.7	11.7

## 8. Conclusions

Traffic surveys indicate that Harrington Road is currently carrying approximately 3000 vehs/day and 3500 vehs/day on weekdays to the west and east of Harbour Blvd respectively. Harbour Blvd is carrying approximately 1250 vehs/day and 2500 vehs/day to the south and north of Harrington Road respectively. In traffic engineering terms, these are very modest volumes in being an order of magnitude less than the capacity of each of the roads.

The estimates described in this report indicate that the proposed development will result in up to an additional 1500 vehs/day or 150 vehs/hour moving in and out of the development area via the northern leg of the Harrington Rd / Harbour Blvd roundabout. This is a conservatively high estimate based on a generation rate of 7.5 vehs/day/ dwelling and can reasonably be assumed to also include the peak hour traffic generation associated with the proposed recreation centre shown in the development plans.

TPS estimates that up to an additional 150 dwellings are yet to be constructed in the area served by the Harrington Rd / Harbour Blvd roundabout, additional to the 203 dwellings in the proposed development. These additional dwellings will generate no more than an additional 1,150 vehs/day.

In order to be conservative, TPS has assumed that all future traffic increases arising from the proposed development and other anticipated development in the area to the north of Harrington Road will enter and leave the area Harbour Blvd and the Harrington Road roundabout.

Based on the above traffic generation estimates and assuming that other 'base' traffic grows at an average annual compound rate of 3% per annum, TPS has made estimates of future (2028) peak hour traffic movements at the Harrington Rd / Harbour Blvd roundabout. These are shown in Fig 6.1 of this report.

Based on SIDRA 7 software, TPS estimates that the Harrington Rd / Harbour Blvd roundabout will operate at Level of Service "A" and degree of saturation of less than 30% in 2028. That is, when the proposed development and other development in the subject area served by the roundabout is complete.

The estimates shown in Fig 6.1 indicate that Harrington Road will carry approximately 4,750 vehs/day and 5,050 vehs/day to the west and east of Harbour Blvd in 2028 when all development in the area to the north of Harrington Road is complete. In traffic engineering terms, these continue to be very modest volumes in being an order of magnitude less than the capacity of each of the roads.

**TPS concludes that the proposed development can be accommodated within the surrounding road network and associated intersections without the need for any mitigating traffic engineering works.**

