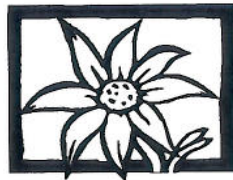


URaP – T T W



Consulting Engineers

Queenscliff Traffic and Parking Study



Warringah Council

March 2010

URaP – TTW Pty Ltd

L3, 48 Chandos Street
St Leonards NSW 2065
Phone: (02) 9439 7288
Fax: (02) 9439 3146
Email: urap@ttw.com.au
ABN 24 101 643 010
ACN 101 643 010

TABLE OF CONTENTS	Page No
1.0 INTRODUCTION.....	3
1.1 Background	5
1.2 Study Approach.....	5
1.3 Scope of the Report	6
2.0 PUBLIC CONSULTATION	7
2.1 General	7
2.2 Survey Results	7
3.0 EXISTING PARKING SITUATION.....	12
3.1 Summary of the Major Issues	12
3.2 Parking Supply	12
3.3 Parking Demand.....	14
4.0 PARKING STRATEGY	26
4.1 Parking Objectives	26
4.2 Parking Management Measures	26
4.3 Parking Strategy for Queenscliff Area.....	29
5.0 TRAFFIC MANAGEMENT.....	34
5.1 Summary of the Major Issues	34
5.2 Level of Service.....	34
5.3 Street System.....	35
5.4 Traffic Management Measures	36
6.0 WHAT NEXT	39
Appendix A	40

1.0 INTRODUCTION

1.1 Background

Warringah Council at its meeting on 11 August 2009 resolved in part that Council:

1. Undertake a traffic and parking study of the Queenscliff area to include but not be limited to the following:
 - › 45 angled parking along one side of each of Crown Road, Pavilion Street (west of Bridge Closed Road), Bridge Closed Road (between Queenscliff Road and Greycliffe Street)
 - › Line marking on the road to delineate driveway boundaries
 - › Speed amelioration devices and a reduced speed limit in Greycliffe Street
 - › Greater consistency of parking signage and restrictions
2. Cost the implementation of the above proposed recommendations and then submit to the Traffic Committee and Council for approval and implementation.

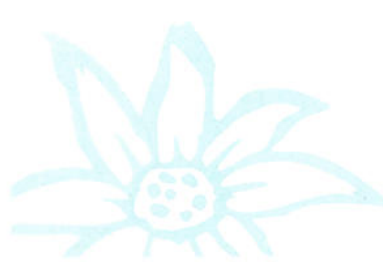
The main purpose of this study has been to identify the parking issues in relation to parking demand and land uses in the study area and then to develop practical and viable measures.

The study also aims to provide a strategic framework to manage existing and or likely future public car parking needs and traffic management problems in the context of pedestrian and vehicular traffic safety.

Accordingly, appropriate strategies are developed for the resolution of the traffic and parking issues. It is within the scope of this study to establish traffic and parking improvements to ensure road safety, traffic movement efficiency and maintain viability for the Queenscliff area.

This report has been prepared to present the findings from the Traffic and Parking Study and outline the recommended strategies for the Queenscliff study area.

The study area which is shown in **Figure 1** (shown on the next page).



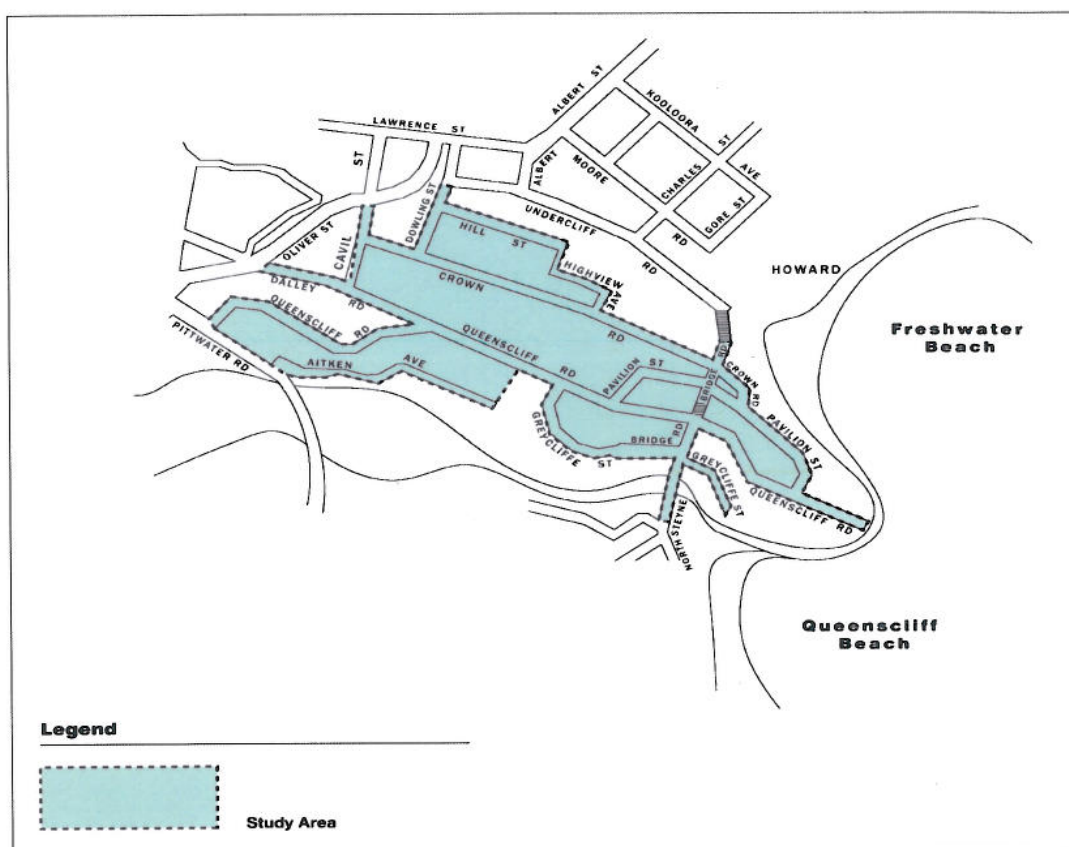


Figure 1.1

Study Area

1.2 Study Approach

As part of the study a survey questionnaire was distributed within the study area to seek community's input on traffic and parking issues in Queenscliff area.

The study process has included the following two main activities:

1. Parking Study

This study has involved surveys of the existing supply and occupancy of parking within the study area and the patterns of public parking from 7 AM to 7 PM on a weekday and on a Weekend.

The inputs from the community consultation and residents' submissions with regard to the parking situation within the study area have also been considered. These together with the findings from a number of related studies have been reviewed and are utilised in the formulation of parking strategies for the study area.

The main aspects of the study tasks included:

- Review of the existing situation and data analysis
- Site inspection and parking surveys to assess the parkers' activity patterns
- Seek community's view on the parking issues and assess their comments
- Develop parking strategies including time limit and long term parking as relevant
- Prepare a parking management strategy for the study area

2. Traffic Study

As part of the traffic study the following tasks were carried out:

- Traffic speed surveys and volumes counts at major locations within the study area
- Accident analysis within the study area
- Identification of issues by review of correspondence and traffic committee items
- Assess the results of the community questionnaire on traffic and parking issues within the study area
- Investigation and observation of traffic patterns in terms of vehicular movements as well as pedestrian activities.

- Development of a traffic management plan for the study area

1.3 Scope of the Report

This report is divided into six sections:

- **Section 1** covers the introduction
- **Section 2** summarises the findings of public consultation.
- **Section 3** assess the existing parking situation
- **Section 4** provides a parking strategy for the area
- **Section 5** is devoted to review of the existing traffic and road network within the and develops a traffic management plan for the study area
- **Section 6** includes summary and recommendations



2.0 PUBLIC CONSULTATION

2.1 General

To identify traffic and parking issues and problems in the study area and develop a suitable traffic and parking management plan that would be responsive to the community's needs and views, a survey questionnaire was prepared and distributed to every household and business within the study area. A copy of the questionnaire is shown in **Appendix A** (page 40).

The survey questionnaire sought information on travel patterns, parking activities and traffic issues from the respondents within the study area.

A total of some 400 completed questionnaires were received from residents from all streets. These questionnaires have been coded and analysed. One of the objectives of the study is to achieve a high level of public participation and to seek community's views. A review of past experiences and literature has shown that a response level of over 10% is sufficient to determine the main problems and issues in the study area. It is therefore likely that the major issues affecting the community have been identified from the various investigations carried out (considering a response rate of 18% has been achieved i.e. 400 returned questionnaires out of 2180 total premises within the study area with 2900 distributed questionnaires including owners and occupiers).

2.2 Survey Results

The results of the community survey are summarised and shown in the graphs of this report

The main issues of concern identified by all respondents are finding a parking spot and illegal and dangerous parking.

The survey showed that the main mode of transport among the residents is car with over 70% (driving a car or as a passenger) while about 14% catching a public transport as their mode of transport to work. The remaining 16% includes other modes of travel including walking, push bike and motor bike.

The respondents' views on various issues on traffic and parking are shown in form of a percentage based on a total number of responses to the questionnaire (see **Table 2.1**). This relates to Question 10 of the Resident Survey where residents were asked to name major issues of concern related to traffic and parking matters.

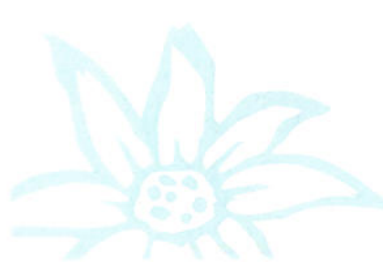
Table 2.1 Summary of Traffic and Parking Issues – Survey Questionnaire

Issues	(% of respondents)
Traffic speed	10
High traffic volumes	5
Finding a parking spot	51
Need for traffic facilities	7
Dangerous or illegal parking	15
Non compliance e.g. drive wrong way	6
Narrow Streets	4
Other	2
Total	100

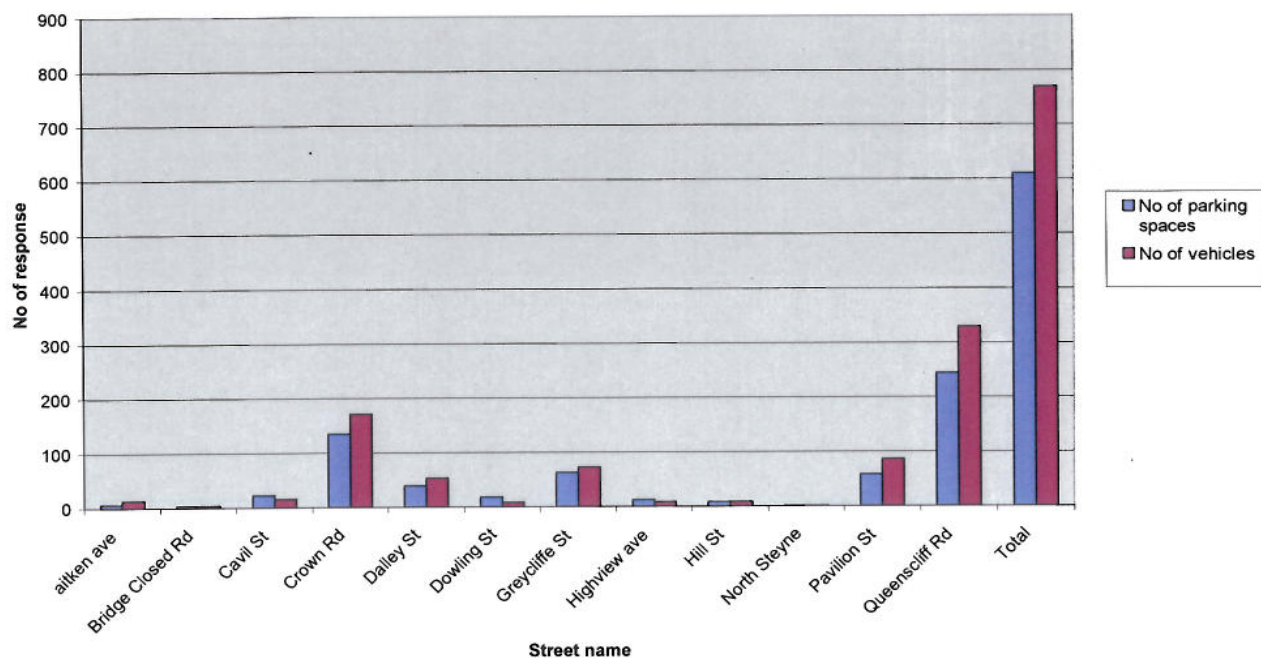
Other findings of the survey included the following:

- Over **70%** of respondents use their off-street car parking while **40%** of respondents also indicated that park their vehicles on street. This shows that most residents who use their off streets car parks, they also use on street parking (i.e. almost 40% use both on and off street parking while 30% use only off street parking).
- The total car ownership among all respondents recorded at 770 vehicles while they indicated that only 610 off street car parking spaces are available for their use.
- Over **50%** of the respondents disagree to introduction of any time restriction to on-street parking while the remaining some 50% mainly favour an introduction of 2 or 4 hour parking restrictions.
- Over **75%** of respondents indicated that during weekends (all day) and on evenings during weekdays they have difficulty to find on-street parking.
- Majority of respondents (**48%**) experience that “sometimes” they have difficulty to find on street parking near their residences while over **40%** expressed that they “rarely” can find parking near their premises.

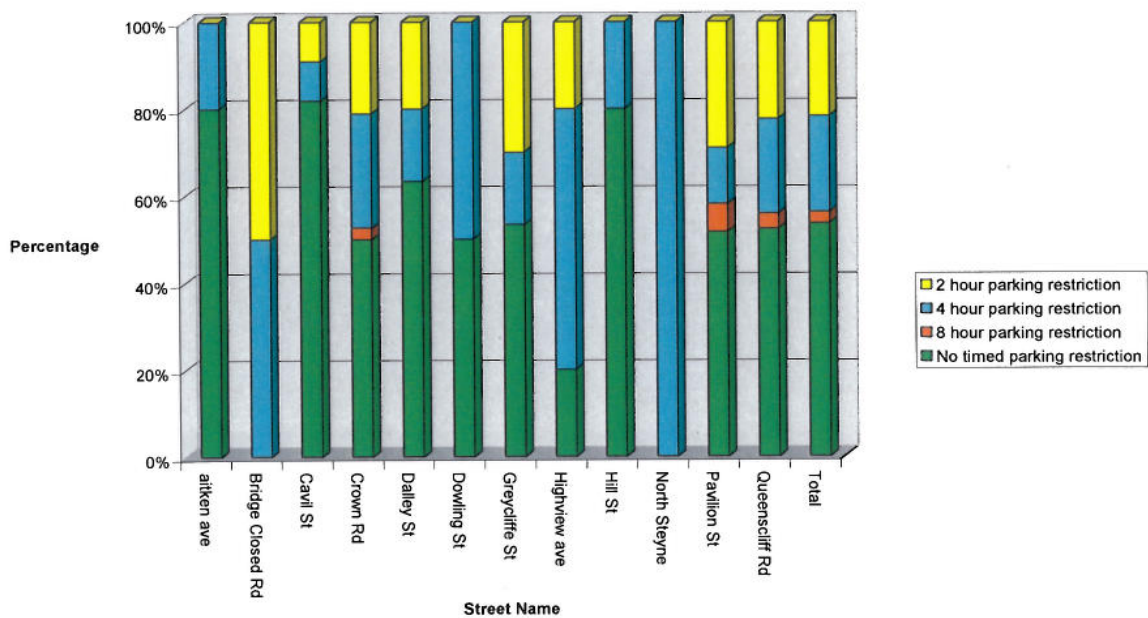
The results of completed survey questionnaire have been summarised and are illustrated in the following figures/charts. They provide information on various questions that are contained as part of the resident survey.



Comparasion between on site parking and vehicle ownership

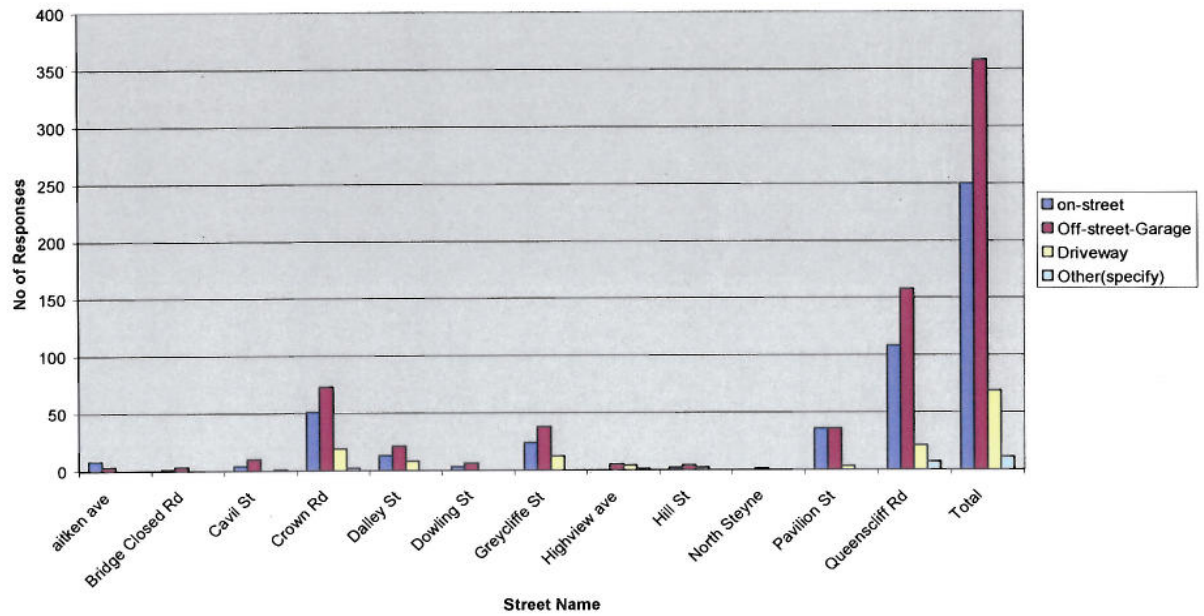


Timed Restriction Parking Choice

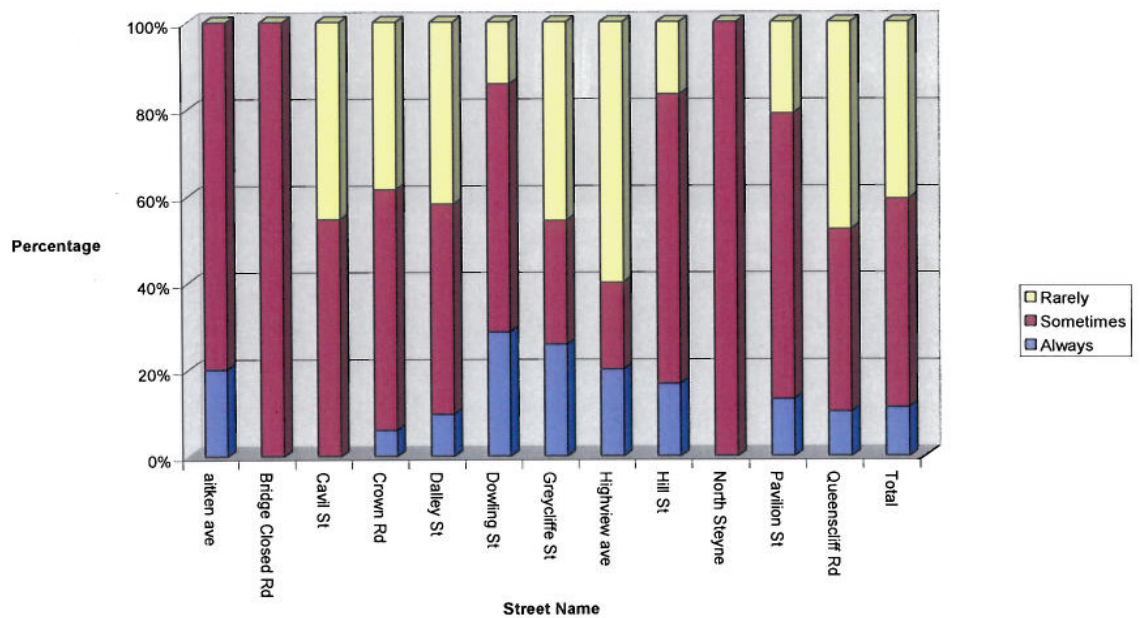


The above chart indicates the level of support among residents for parking restrictions along streets in the study area.

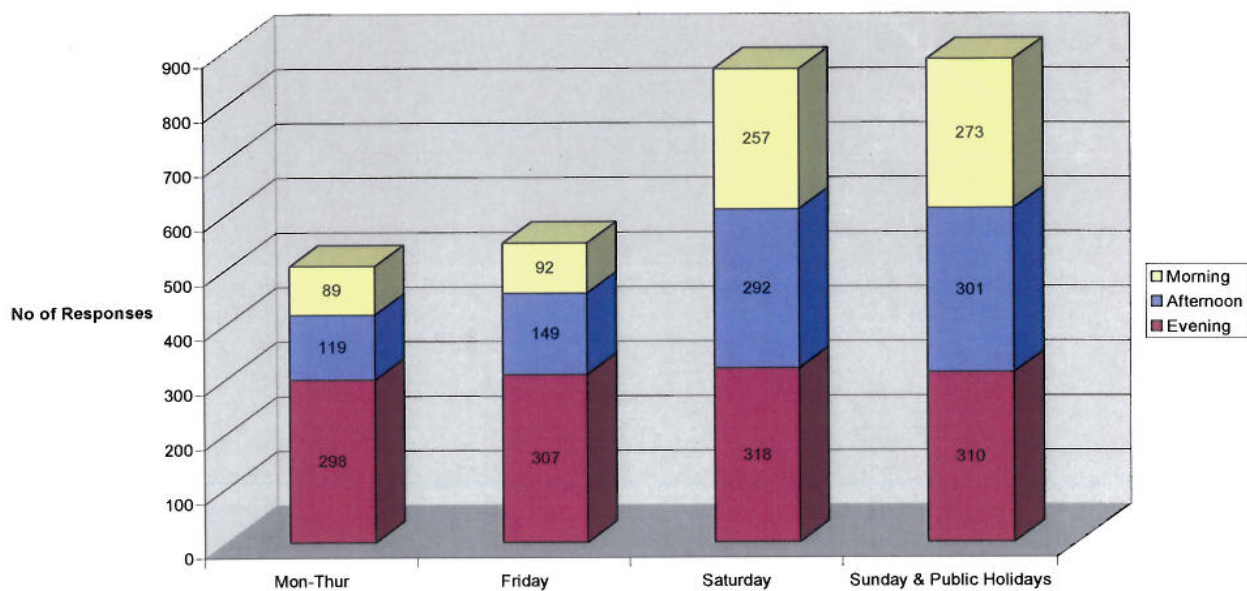
Location of resident parking



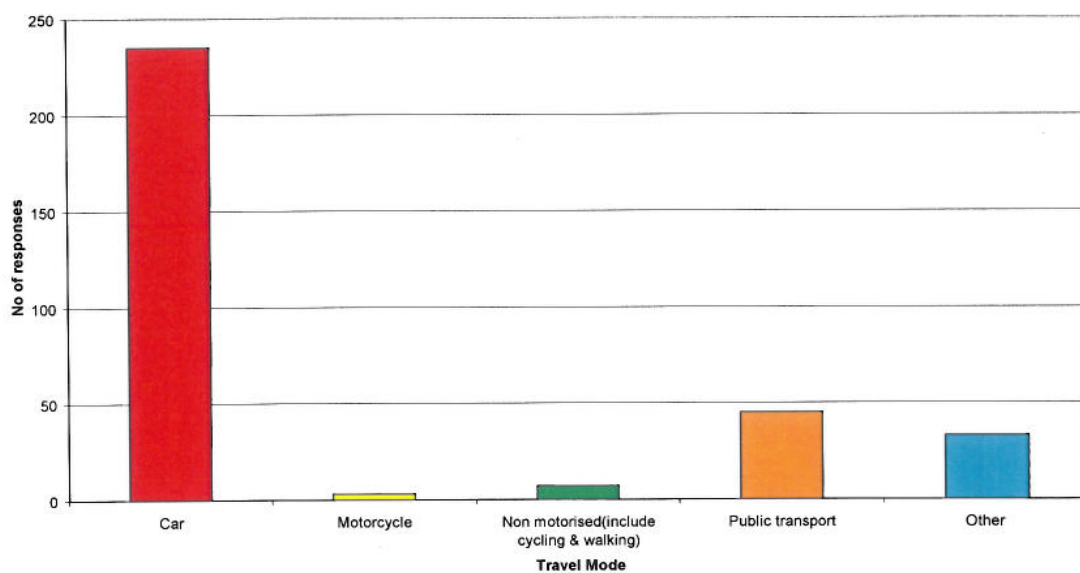
Q6 Can you find parking at or near your residence



Difficult parking time periods in whole area



The above charts show that residents have difficulty in finding parking spaces during weekends and evenings on weekdays .



3.0 EXISTING PARKING SITUATION

3.1 Summary of the Major Issues

The following provides an overview of the major issues, which have been raised during the public consultation process or through historical community correspondence.

An information letter about the study was distributed to premises within the study area seeking their comments and input on parking issues. The following major points were made in the submissions:

- Concerns regarding the lack of on street parking in the study area due to:
 - Introduction of Resident Parking Scheme (RPS) in Manly
 - Many residents in units use on street parking while not utilising their garages
 - New developments exacerbate on street parking demand by not providing appropriate off street parking
 - Boats, vans, trailers parking on street
 - High level of visitors to the area i.e. beach goers
- Issues with cars parking near the driveways/intersections and illegal parking
- Parking activities related to the car rental business activity in Manly

It should be noted that the current period parking restrictions along streets in Manly area with residents exempted as part of the Resident Parking Scheme (RPS) has a direct impact on parking activities along streets within the Queenscliff area. This scheme has resulted that many visitors to Manly and its beach area use Queenscliff streets for their parking purposes as there are no parking restrictions along these streets.

As part of any RPS it is mandatory that parking permits are **only** issued to the households that qualify for on street parking, contrary to the Manly RPS that most residences can obtain a parking permit. It is evident that Manly RPS does not comply with the NSW Roads and Traffic Authority's guidelines and its implications are having a direct adverse impact on amenity of residents and public equity principles.

3.2 Parking Supply

An inventory of parking was conducted, which included all on-street parking spaces available for public use within the study area. Almost all on-street parking spaces in the study area are unrestricted.



A summary of parking supply for each street within the study area is shown in **Table 3.1**. There are about **760** on-street parking spaces in the study area. The street parking capacities are based on the field surveys.

Table 3.1 On-Street Parking Supply

<i>Street</i>	Northern Side	Southern Side	Eastern Side	Western Side	Total
Greycliffe	18	20			38
Queenscliff*	66	80			146
Queenscliff^	43	44			87
Aitken	23	21			44
Dalley	15	13			28
Cavill			13	10	23
Crown - west	58	85			143
Crown - east	9	4			13
Dowling			17	22	39
Pavillon	45	43			88
Hill	18	15			33
Highview	9	2			11
Bridge Closed			10	9	19
Bridge South			10	18	28
North Steyne			19	0	19
*major ^minor					
TOTAL					759

In addition to the on-street surveys, observations of premises (where possible from street) were also carried out to examine the level of off-street parking, as a guide only, within the study area. The findings of this exercise indicate that some estimated 80 (subject to a detailed verification) premises within the study area have no off street parking (with Queenscliff and Crown Roads having the highest number of residences with no off street parking). It should be noted that the actual number would be different than the estimated figure. However, due to access restriction at sites or use of the parking area/driveway as storage space, an accurate inventory of parking sites would be difficult.



3.3 Parking Demand

The surveys of on-street parking demand (including parking occupancy and number plate surveys) were undertaken on weekdays and weekends during December 2009 and January and February 2010. Parking surveys took place during the hours of 7.00am to 7.00pm and were undertaken on the following dates:

- › From 9 December 2009 to 15 December 2009.
- › on Wednesday 20 January 2010 and on weekend 23 and 24 January 2010
- › on Wednesday 3 February 2010 and on weekend 20 and 21 February 2010

Note: Wednesday 9 December 2009, Saturday 23 January 2010 and Sunday 21 February 2010 included number plate surveys.

The surveys indicated that highest parking demand period generally occurred before 8.00 AM and after 6.00 PM during a weekday while on Saturdays the high parking demand period included the hours after 1.00PM.

The overall parking occupancy rates for typical weekday and weekend day are shown in **Figures 3.1 to 3.6** on the next two pages.

The results from parking occupancy surveys revealed that:

- › Most streets within the study area experience a high level of on street parking activity during **weekends** (i.e. with **over 85%** utility rates). These include:
 - Greycliff Street
 - **Queenscliff Road**
 - **Dalley Street**
 - Crown Road East
 - Pavilion Street
 - Highview Avenue
 - Bridge Closed Road
 - North Steyne
- › A number of streets within the study area have a moderate to high level of on street parking occupancy during **weekdays**. The streets with 70% or higher parking utility rates are:
 - Greycliff Street
 - Queenscliff Road
 - Cavit Street
 - Dowling Street



› Most streets show a high level of need for on street parking during before or after hours, indicating that many residents park their cars on street. The streets that have a high occupancy rate with over 80% during early morning (before 8 AM) or late afternoon (after 6 PM) are:

- Greyscliff Street
- Queenscliff Road
- Dalley Street
- Cavil Street
- Crown Road
- Dowling Street
- Pavilion Street
- Hill Street
- Bridge St South

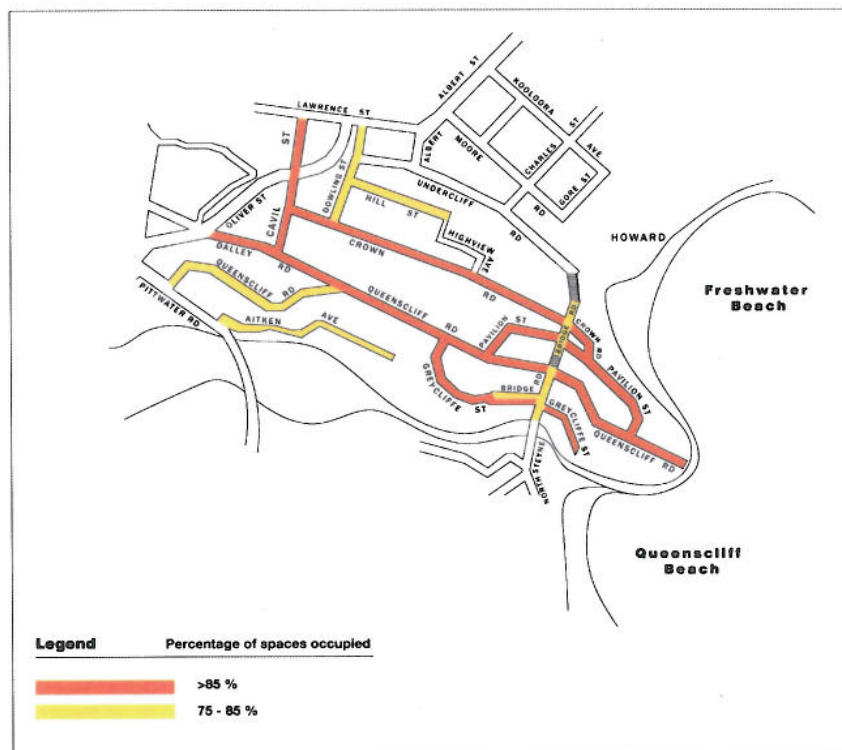


Figure 3.1 Parking Occupancy on a Typical Weekday – Before 8 AM

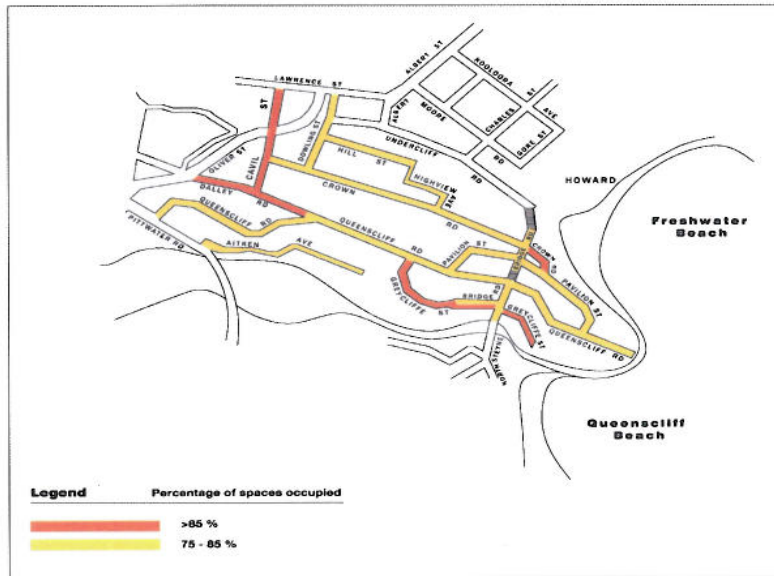


Figure 3.2 Parking Occupancy on a Typical Weekday – After 6 PM

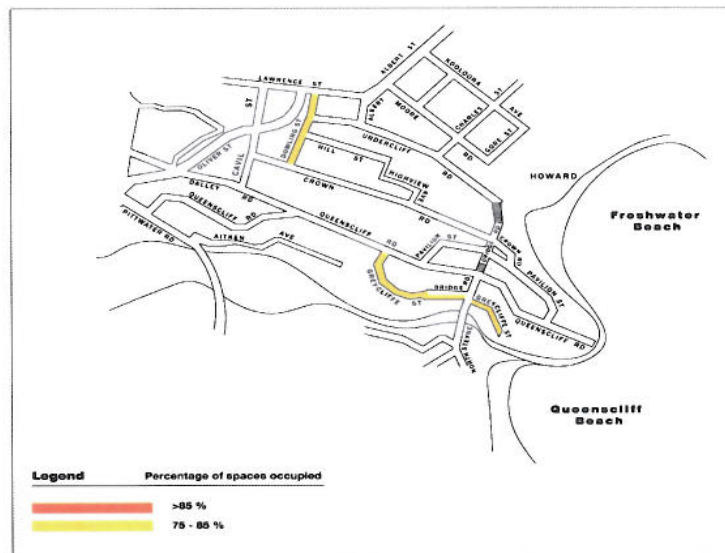


Figure 3.3 Parking Occupancy on a Typical Weekday – Day Time

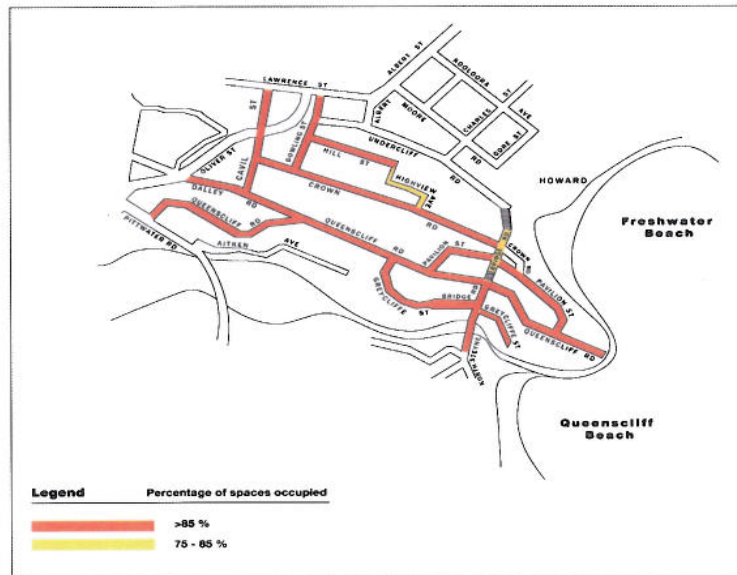


Figure 3.4 Parking Occupancy on a Typical Weekend – Before 8 AM

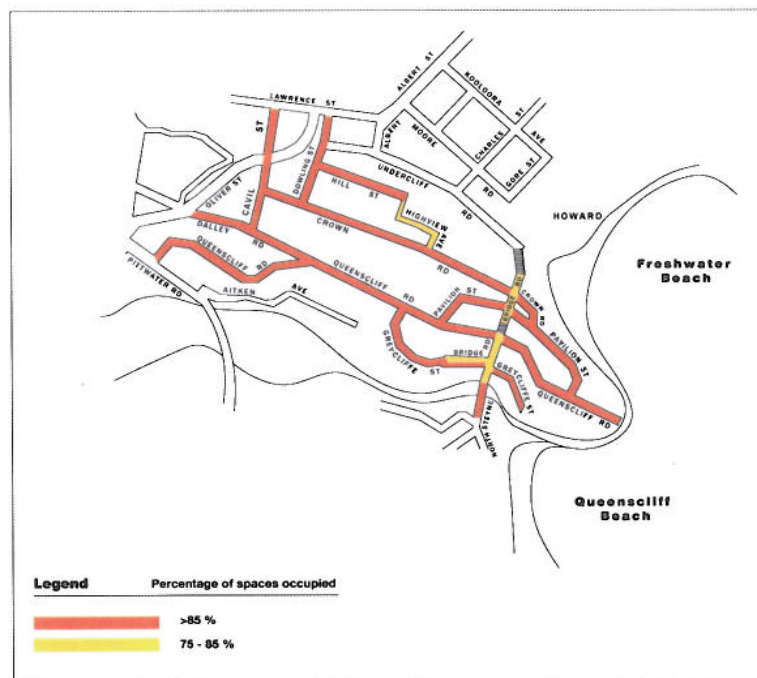


Figure 3.5 Parking Occupancy on a Typical Weekend – After 6 PM

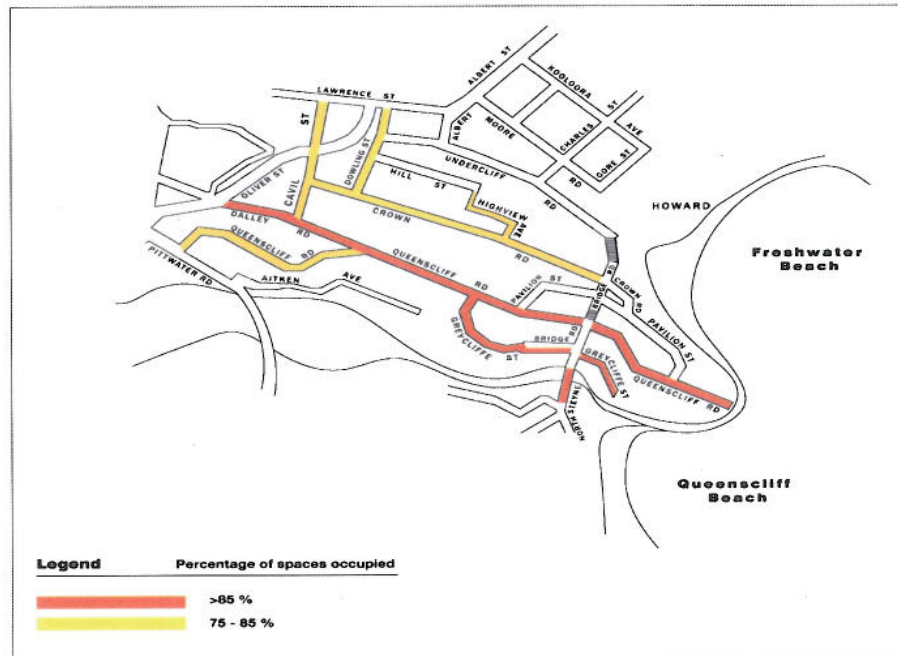


Figure 3.6 Parking Occupancy on a Typical Weekend – Day Time

Table 3.2 On Street Parking Occupancy within Queenscliff
(during December 2009 and January and February 2010)

Date	7am	8am	9am	10am	11am	12pm	1pm	2pm	3pm	4pm	5pm	6pm
Mon – Dec	76%	72%	67%	67%	64%	64%	62%	64%	66%	65%	70%	73%
Tues – Dec	74%	69%	73%	67%	70%	75%	77%	76%	72%	73%	74%	77%
Wed – Dec	72%	72%	66%	60%	57%	64%	64%	64%	62%	62%	63%	65%
Thurs - Dec	71%	70%	65%	65%	61%	61%	62%	63%	61%	61%	69%	69%
Fri – Dec	67%	66%	65%	61%	61%	62%	66%	65%	65%	68%	69%	69%
Sat – Dec	85%	88%	88%	87%	86%	86%	89%	88%	90%	82%	86%	84%
Sun – Dec	89%	90%	90%	90%	88%	86%	82%	82%	84%	82%	81%	79%
Wed Jan	83%	74%	68%	64%	64%	66%	62%	64%	71%	73%	71%	83%
Sat Jan	94%	93%	89%	87%	87%	85%	79%	91%	79%	76%	86%	80%
Sun Jan	94%	89%	87%	88%	87%	85%	86%	89%	86%	86%	85%	91%
Wed Feb	84%	76%	66%	62%	58%	58%	60%	63%	58%	65%	68%	80%
Sat Feb	94%	85%	79%	75%	75%	75%	80%	78%	79%	83%	88%	95%
Sun Feb	87%	88%	89%	90%	89%	87%	92%	89%	86%	83%	80%	76%

The parkers can be divided into the following indicative categories for study purposes and to estimate the extent of resident, worker, commuter and visitor parking demand within the study area during a weekday:

- **Resident Parkers:** Those vehicles leaving the study area between 7 AM and 9 AM and returning between after 5 PM or those vehicles parked all day without moving or making in/out trips.
- **Short Stay Visitors:** Those vehicles, which park for less than 2-3 hours.
- **Long Stay Visitors/ Workers:** Those vehicles, which park for 6 to 8 hours.

A summary of findings from parking number plate surveys are shown in Tables 3.3 and 3.4 and Figure 3.7. The analysis of the results as shown in Tables 3.3 indicate that on a typical weekday most streets experience an average length of stay of less than 3 hours by on street parkers. This figure for a typical Saturday however varies from 1.5 hours to over 10 hours along various streets within the study area.

The above indicates that some residents along streets such as Highview Avenue, Cavil, Dowling and Hill Streets use on street parking during the weekend. It should be noted that use of certain streets such as Pavilion Street and Queenscliff Road by short stay parkers (i.e. about or less than 3 hours) also remains strong during weekends.

Table 3.3 Average Length of Stay (on street parking) – Typical Weekday

<i>Street</i>	Northern Side	Southern Side	Eastern Side	Western Side	Capacity
Greyscliffe	3.2	3.3			38
Queenscliff*	1.8	1.9			146
Queenscliff^	4.1	3.0			87
Aitken	2.9	3.7			44
Dalley	1.8	1.8			28
Cavill			3.1	4.0	23
Crown - west	2.4	2.9			143
Crown - east	2.2	2.0			13
Dowling			1.9	4.3	39
Pavillon	2.3	3.5			88
Highview	4.1	7.0			11
Hill	4.5	3.5			33
Bridge Closed			2.1	2.2	19
Bridge South			1.8	4.2	28
North Steyne				1.1	19
*major ^minor					

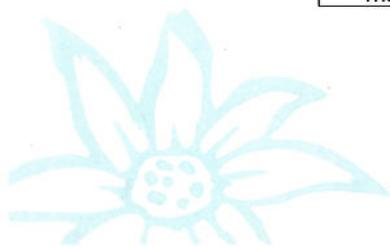


Table3.4 Average Length of Stay (on street parking) – Typical Saturday

<i>Street</i>	Northern Side	Southern Side	Eastern Side	Western Side	Capacity
Greyscliffe	3.1	4.6			38
Queenscliff*	1.7	2.1			146
Queenscliff^	3.2	3.0			87
Aitken	4.3	4.9			44
Dalley	3.8	3.5			28
Cavill			6.1	5.7	23
Crown - west	5.3	4.5			143
Crown - east	3.0	1.4			13
Dowling			5.6	10.4	39
Pavillon	1.6	1.6			88
Highview	9.5	11.5			11
Hill	7.1	8.0			33
Bridge Closed			9.5	2.8	19
Bridge South			3.9	2.9	28
North Steyne				1.6	19
*major ^minor					

The following main points are revealed by analysis of on street parking surveys:

- On a weekday, majority of parkers stay for three (3) hours or less. All streets indicate that over 65% of their users are in this category. In most cases this figure exceeds to over 80% of all parkers along the street (e.g. Queenscliff Road).
- On weekends, short stay parkers account for 60% or more (up to 88%) of all parkers along most streets within the study area with exception of Cavil, Dalley, Dowling and Hill Streets where this figure falls below 50%. This is mainly due to the fact that many residents along these streets continue to use on street parking during the day.
- Highview Avenue, Cavil, Dowling and Hill Streets show the highest length of stay among parkers i.e. 6 hours or longer on a weekend. It should be noted that these streets only account for 14% of the on street capacity within the study area.
- Some 1842 vehicles (different number plates) park on-street within the study area on a weekday while on a Saturday some 2342 vehicles use on-street parking in Queenscliff area.
- The results of parking occupancy survey of vehicles during a week have shown a similar pattern of parking during a weekday with Tuesday having a slightly higher level of activity during business hours.
- The parking surveys also indicate that there is a high level of on street parking activities during weekends. This high demand for on street parking during weekend is very similar during the months of December, January and February with all showing parking occupancy rate of over 85% along streets in Queenscliff area.

