



Wellington City Council
Island Bay Shopping Village

**Parking Occupation and Duration
Surveys**

July 2017

Wellington City Council

Island Bay Shopping Village

Parking Occupation and Duration Surveys Quality Assurance Statement

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1. Introduction

Wellington City Council (WCC) approached TDG to collect and analyse parking data around the Island Bay shopping village. WCC are particularly interested in the usage of the parking by commuters who are travelling from outside the shopping village and using public transport to commute Citybound.

A parking survey was conducted during the first week of July collecting the licence plates of all parked vehicles and where they were located. These surveys were done over a 12 hour period on a weekday and weekend to identify travel patterns and an additional survey was conducted during the midnight of these days to identify residents.

The data collected was analysed with a focus on occupancy and duration of stay of vehicles. It was found that the demand for parks in the area is nearing capacity at points during both the weekday and weekend and several of the unrestricted parks were occupied by vehicles that lingered for the majority of the day. Many of these we identified as non-resident owned vehicles.

2. Survey Methodology

Surveys were conducted hourly on Wednesday 5th and Saturday 8th July from 7:00am – 7:00pm to collect the licence plates of all vehicles parked within the Island Bay Shopping area. The survey area was divided into six zones as shown in **Figure 1** which also shows the bus stops along The Parade. Two survey staff monitored this area on an hourly basis recording the licence plates of each vehicle and in which zone they were parked. Additional surveys were done during the middle of the night, of the two survey days, to ascertain which vehicles were owned by residents. A complete inventory of car parks and what streets / zones they were was also made during the Wednesday Survey.

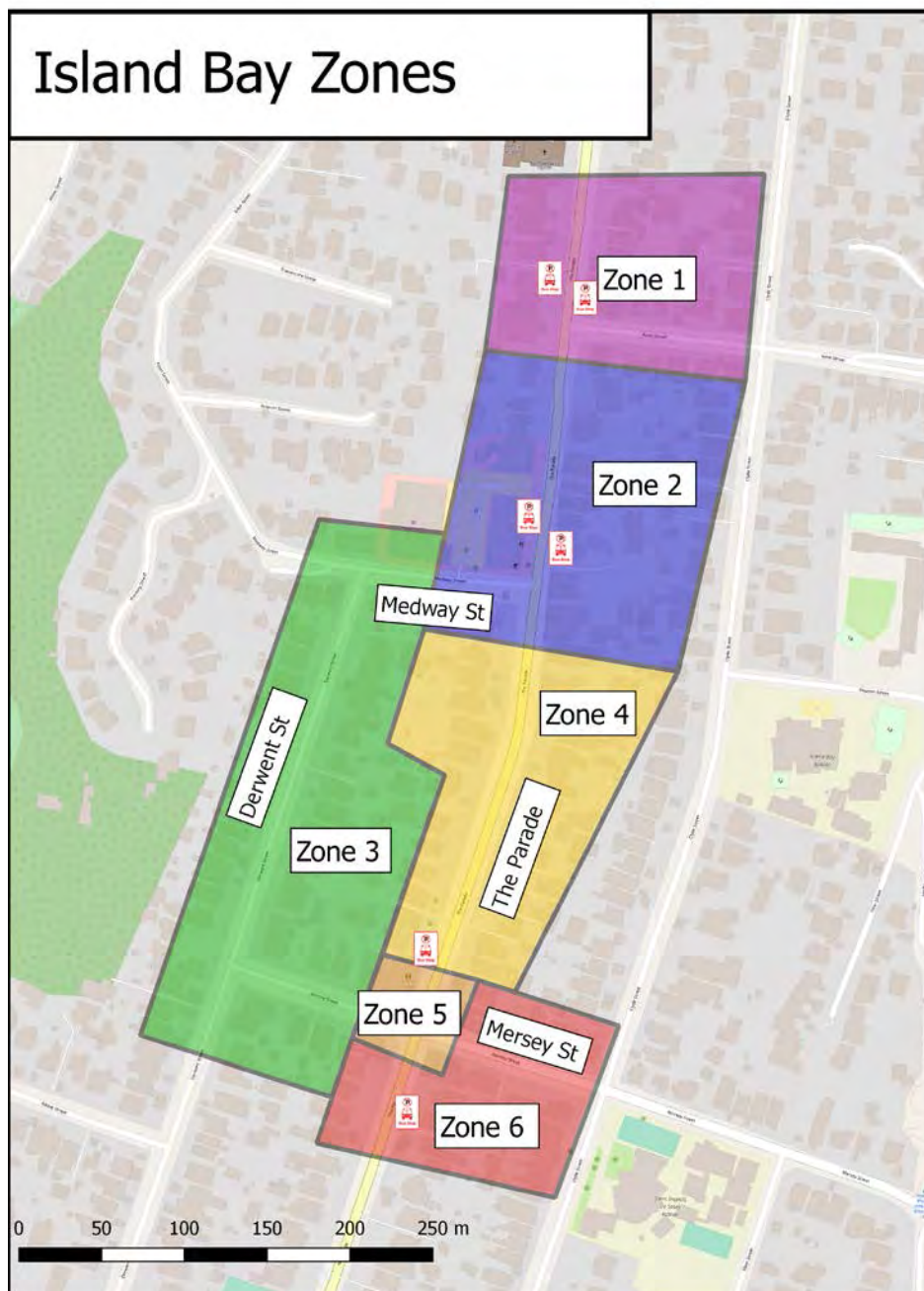


Figure 1: Island Bay Survey Area

3. Parking Inventory

The full inventory of car parks by either street or zone is shown below in **Table 1** and **Table 2**. Over 70% of the parks in the survey area are not restricted by time especially along Derwent St. The Parade consists of 36% of the parks in the region, approximately half of which are not restricted by duration of stay. Many of the unrestricted parks are currently unmarked; estimates of parking numbers were therefore made based on bay length and average vehicle requirements. These numbers may vary from what are realistically usable spaces.

Street	P60	P10	Unrestricted	Disabled	Taxi	Total
The Parade	44	2	46	3	0	95
Avon Street	0	0	26	0	0	26
Medway Street	13	0	13	0	2	28
Derwent Street	0	0	58	0	0	58
Mersey Street	7	5	47	1	0	60
TOTAL	64	7	190	4	2	267

Table 1: Parking Inventory – Street

Zone	P60	P10	Unrestricted	Disabled	Taxi	Total
Zone 1	5	0	32	0	0	37
Zone 2	50	0	3	3	2	58
Zone 3	2	0	92	0	0	94
Zone 4	0	0	25	0	0	25
Zone 5	7	7	12	1	0	27
Zone 6	0	0	26	0	0	26
TOTAL	64	7	190	4	2	267

Table 2: Parking Inventory - Zone

Inside the surveyed area there are two sets of shops with a small stretch of The Parade between them. The majority of the shops are in zone 2 with 50 of the 64 P60 parks; the remaining shops are in zone 5 with 7 P60 and all of the P10 parks. The occupancy and duration of stay behaviour of these zones differ to that of the other, residential zones (zones 1, 3, 4 and 6).

4. Parking Occupancy

During the weekday survey the peak occupancy was observed at 1:00pm reaching 200 vehicles (75% of capacity). **Figure 2** and **Figure 3** show the occupancy of the residential zones compared against the Shops.

The peak occupancy of the residential parks was observed at 1:00pm on the weekday survey when there were only 15% of the parks vacant; the parks around the shops at this time were 22% vacant.

The occupancy of the of the shop parks peaked at 12:00pm on the Saturday survey when 11% of the spaces left unoccupied, the residential zones at this same time were 40% vacant.

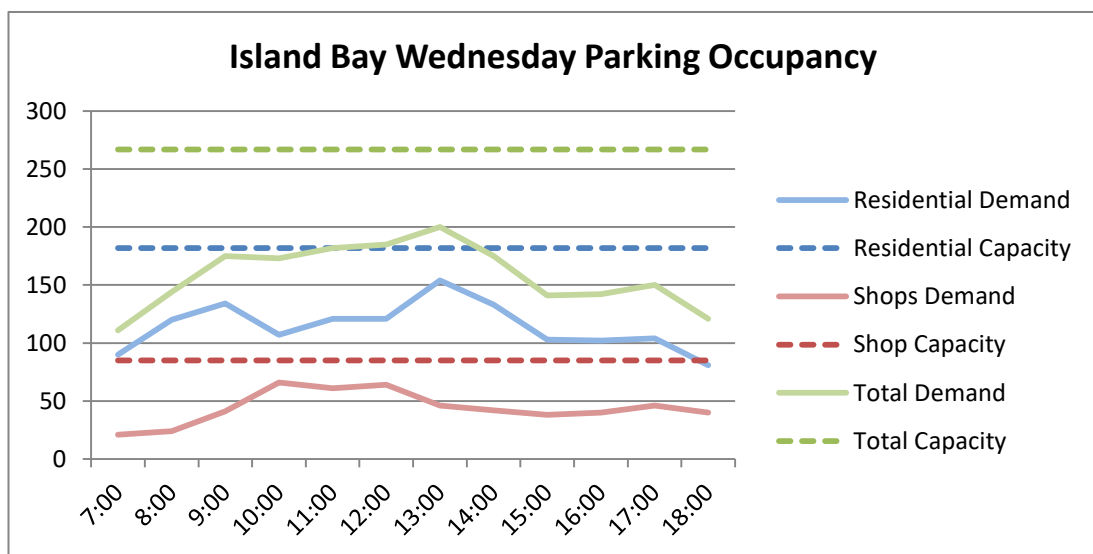


Figure 2: Island Bay Weekday Occupancy

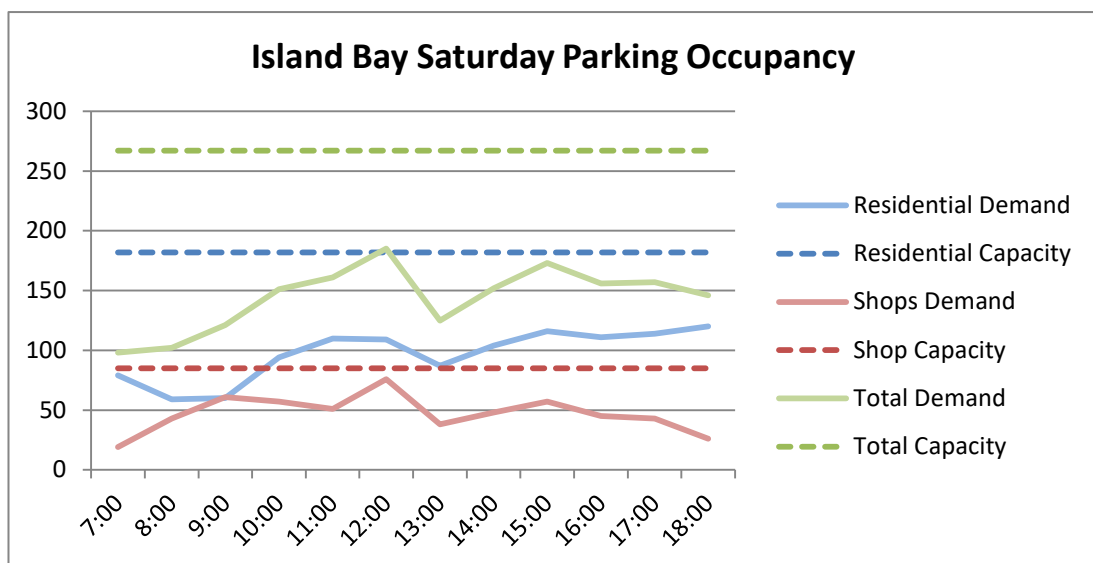


Figure 3: Island Bay Weekend Occupancy

5. Duration of Stay

By observing how many hours a vehicle is parked in the survey area we can determine how long vehicles tend to stay. **Figure 4** shows how long vehicles tend to stay parked in the area for both the weekday and weekend surveys. Both surveyed days have very similar profiles which indicate that the usage of the parks in the area is very similar every day. Overall approximately 675 vehicles were observed each day.

Over 60% of all vehicles observed stay for less than an hour with only around 20% of all vehicles staying for longer than four hours, which would identify them as residents or commuters. If all these vehicles were parked during the same time the unrestricted parks would be over 75% capacity

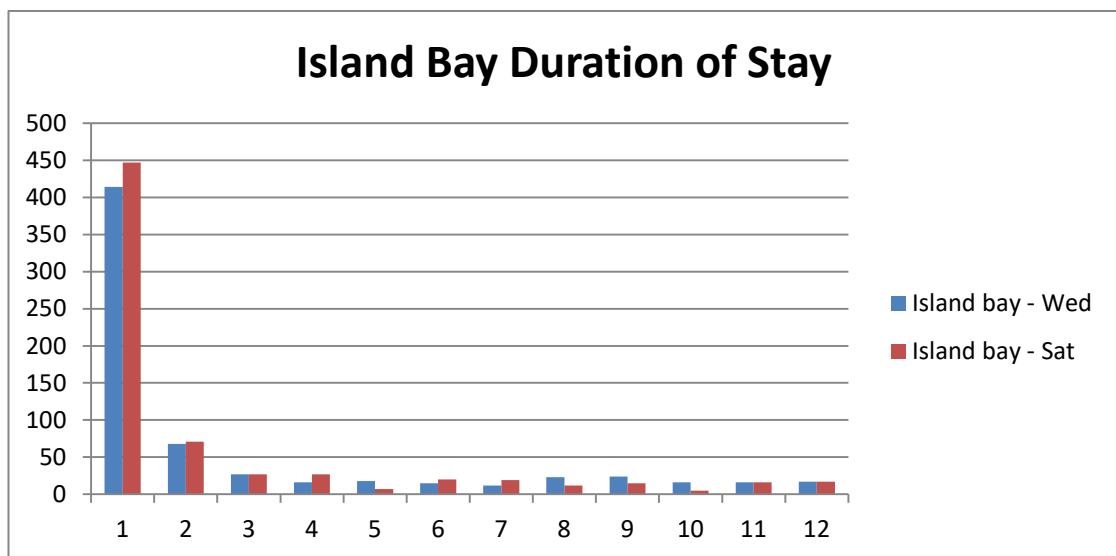


Figure 4: Duration of Stay

Table 3 shows by zone how many vehicles parked during the weekday survey period and how long they stayed. Using the number of parks available a vehicle turnover rate has been calculated for each zone. For zones 2 and 5 which make up the shopping area the turnover rate averages at 3.5 vehicles / space / day, while the rest of the zones average out to 2.0 vehicles / space / day.

Zone 1, 3, 5, 6 provide unrestricted parking and are in close proximity to bus stops, as depicted in Figure 1. These unrestricted car parks and access to public transport provide favourable conditions for park and ride, however, the turnover rate for these zones vary from 0.9 to 2.7 vehicles / space / day during the weekday.

Table 4 shows the duration of stay and turnover rates for vehicles parked in each zone over the weekend. The weekend turnover rates are very similar to those observed on the weekday and range from 0.8 to 2.8 vehicles / space / day. The shopping area yielded an average turnover of 3.6 vehicle / space / day, while the residential zones average is 2.1 vehicles / space / day.

WEDNESDAY DURATION OF STAY PER ZONE							
Hours	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Total
1	46	210	86	33	25	14	414
2	15	22	28	2	3	0	68
3	4	13	5	2	1	2	27
4	1	1	7	3	3	1	16
5	2	0	6	4	3	3	18
6	4	1	4	2	2	2	15
7	0	0	8	1	1	1	12
8	3	4	9	3	3	1	23
9	4	1	14	1	4	0	24
10	6	0	6	3	1	0	16
11	5	1	8	2	0	0	16
12	8	2	7	0	0	0	17
Average Duration	1:15 Hr	0:36 Hr	1:17 Hr	0:51 Hr	0:55 Hr	0:54 Hr	0:48 Hr
Vehicles Observed	98	255	188	55	45	24	666
Turnover Rate	2.7	4.4	2.0	2.2	1.7	0.9	2.5

Table 3: Duration of Stay and Turnover Rates - Wednesday

SATURDAY DURATION OF STAY PER ZONE							
Hours	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Total
1	53	227	113	24	18	12	447
2	15	15	21	13	6	3	71
3	6	5	9	3	1	3	27
4	6	4	9	4	4	1	27
5	3	1	3	0	0	0	7
6	4	3	10	1	0	1	20
7	3	5	8	3	0	0	19
8	3	3	6	0	0	0	12
9	3	3	8	0	1	0	15
10	0	0	3	0	2	0	5
11	4	2	7	2	1	0	16
12	6	4	8	0	0	0	17
Average Duration	0:59 Hr	0:36 Hr	0:54 Hr	1:5 Hr	0:56 Hr	0:53 Hr	0:45 Hr
Vehicles Observed	105	273	203	49	33	20	683
Turnover Rate	2.8	4.7	2.2	2.0	1.2	0.8	2.6

Table 4: Duration of Stay and Turnover Rates – Saturday

Figure 5 and **Figure 6** show the number of parked vehicles each hour grouped by their duration of stay. There is an apparent peak of vehicles which are parked for an hour or less between the hours of 12:00pm and 1:00pm which can be attributed to lunchtime trips for food. Comparatively on both Wednesday and Saturday there were 17 vehicles that stayed parked for 12 hours, hence both Figure 5 and Figure 6 have a value of 17 for the 12 hour vehicles across each hour. We suggest that these vehicles did not move during the hours of our surveys.

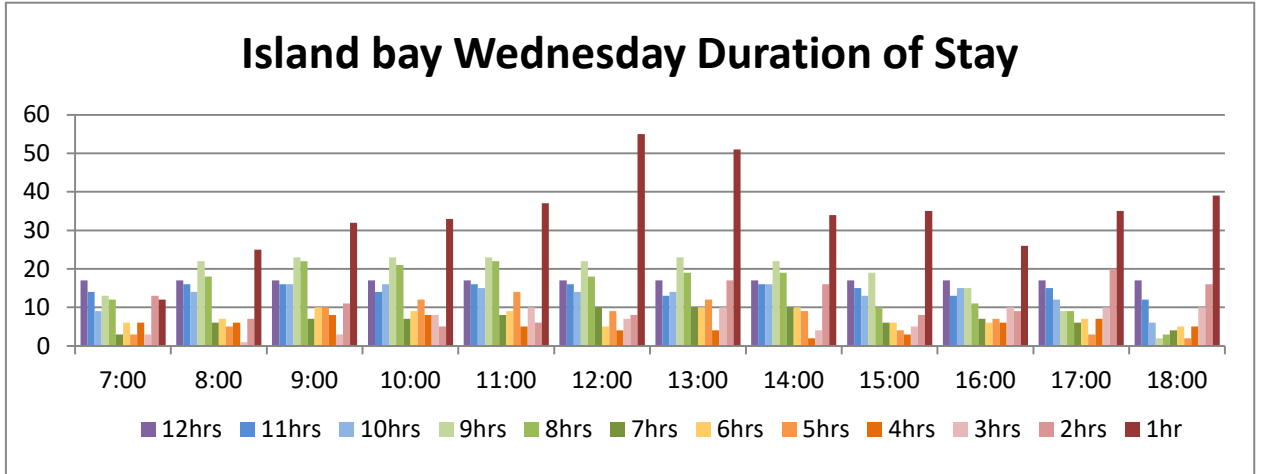


Figure 5: Weekday Duration of Stay - Predictive

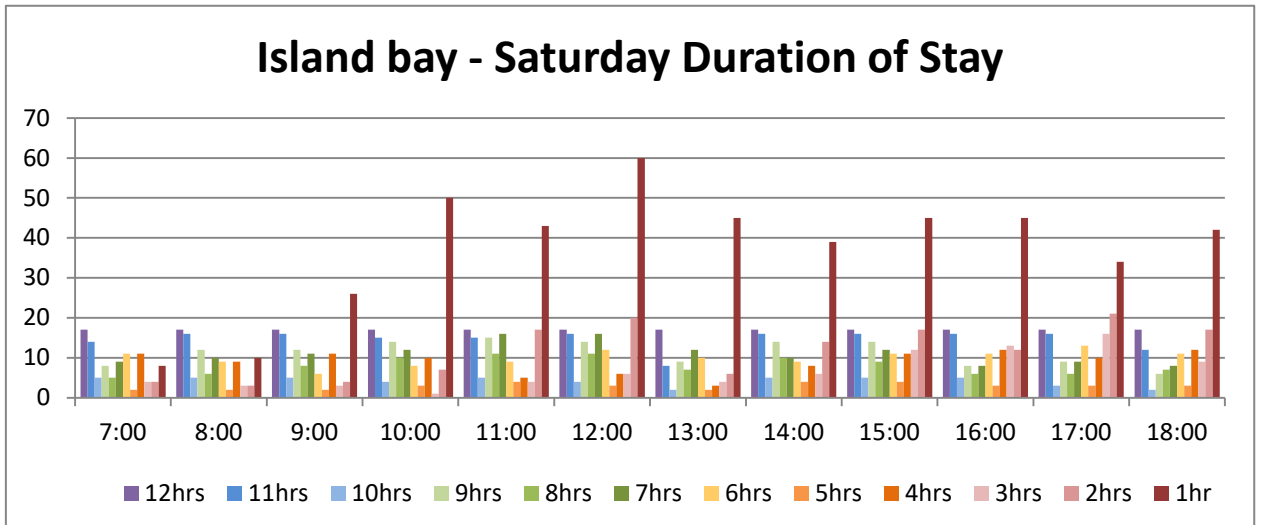


Figure 6: Saturday Duration of Stay – Predictive

6. Residential Parking

Using the licence plates collected on the midnight runs the number of On-Street residential parkers has been estimated. By making the assumption that vehicles present at midnight belong to residents we observe 110 resident vehicles parked on the Wednesday and 88 parked on the Saturday as shown in **Table 5**. It is important to note that this number varied from the weekday and weekend survey by around 20% which could be attributed to late night events running on the Saturday.

It is assumed that any vehicle that lingers for more than four hours in a single park belongs to either a resident or commuter. By comparing the number of residents who were also parked in the survey area for a long period of time we can see very similar weekday and weekend residential parkers. Between 54 and 58 resident vehicles stay for extended periods during either surveyed days.

7. Commuter Parking

Using the assumptions in **Section 6** we can determine that during the weekday there are 103 commuters who use the parks provided in this area who are not residents and 80 during the weekend.

Overall around 65% of long stay vehicles during the week are commuters while compared to the 58% in the weekend, this data is summarised in Table 5 below. If all these commuters are parked at the same time, around half of the unrestricted parks provided will be occupied by non-residents, for both the weekday and weekend.

	Weekday Vehicles	Weekend Vehicles
Number of Residents Parked	110	88
Number of Long Stay Residents (>4hrs)	54	58
Number of Long Stay Commuters (>4hrs)	103	80

Table 5: Residential / Commuter Parking

8. Summary

Of the 267 parks that are available for usage 190 of them are able to be used for an unrestricted time period during the day, the majority of which are located in Zone 3. Zones 2 and 5 require a higher turnover of vehicles as they contain shops, these two zones contain the Majority of the P60 and P10 parks in the area. The other Zones are identified as largely residential areas with unrestricted parks intended for residents.

The peak utilisation of the parks was observed at 1:00pm on the weekday when the spaces provided were 75% occupied, however a heavier usage of the time restricted parks was seen during the middle of the weekday with 89% of the P60 and P10 parks occupied.

The majority of vehicles observed were parked for an hour or less which indicates that the time restricted parking around the shops is being well utilised. A fifth of all vehicles were found to be parking for long enough to be considered either a resident or commuters. This volume of vehicles, if all parked at once would see the unrestricted parks over 75% occupied.

By using the midnight surveys to identify residents we can estimate that 103 of the long term stay vehicles observed using the unrestricted parks on the weekday belonged to commuters (80 on the weekend). If all these commuters are parked at the same time, around half of all unrestricted parks will be being used by non-residents during both the weekday and weekend.

TDG