



**TPSGROUP™**

Traffic & Parking Systems


**Review of Parking Management  
(In Period Sept 2019 to Feb 2020 inc.)**

**Brunswick Heads**

**Prepared by**

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<b>Issue Doc.No.</b>	<b>Prepared By</b>	<b>Issue Date</b>	<b>Signature</b>
TPS328 Brunswick Rep1	Glen R Holdsworth (RPEQ 4152)	22 <sup>nd</sup> April 2020	

## 1. Background

This report provides an assessment of parking supply, parking demands, parking durations, infringements and enforcement for Brunswick Heads Township.

This report follows a similar report prepared by TPS dated 27<sup>th</sup> March 2019 in which the following recommendations were made.

*When the above findings are considered in combination, it is probable that average and long term intrusion into 2, 3 and 4 hour zones is forcing longer stay in the 1 hour zone sector. If so, then there is a need to more strongly enforce the 2, 3 and 4 hour zones, or alternatively expand the 1 hour and 2 hour duration sectors.*

- a. *It is recommended that the frequency and effectiveness of enforcement be increased substantially, particularly in the 2, 3 and 4 hour parking duration sector in order to encourage motorists to comply with duration limits. In our view the current availability of parking across the Centre provides the capacity for parking demands ... to be diverted to other locations in which the demand will be compliant with posted duration limits.*

*There is also some evidence from the survey data and analyses supporting the need to convert some 2 hour parking in the Centre to 1 hour parking. Nominally, a 20% increase in the 1 hour duration sector may be appropriate at the expense of the 2 hour sector, in combination with more intensive enforcement across the Centre.*

- b. *Having regard to the potential for recommendations in this report to affect parking demands and durations to the east of the bridge, and after having regard to the above matter, we recommend that demand and duration surveys should continue to be conducted in order to better establish the nature and extent of demands to the east of the bridge and the nature of competing demands and durations in 1 and 2 hour zones. An appropriate data collection and review plan is described in a "Notes re Review Process" prepared by TPS, dated 27<sup>th</sup> March 2019.*

The purpose of this report is to review the current supply and management of parking in the Brunswick Heads CBD having regard to the above recommendations, including concluding whether parking supply might be better managed via the introduction of parking meters and pricing.

## 2. Surveys

The analysis of parking demands, durations and infringements presented in this report is based on extensive surveys conducted by Council in the months from September 2019 to February 2020. Excepting for some off-street car parks, these surveys were conducted using Council's vehicle mounted Automatic Number Plate Recognition (ANPR) System.

As shown on Table 2.1, the survey data was obtained from 36 separate days and in excess of 125 separate ANPR vehicle "runs" for each 32 designated zones within and at the perimeter of the Brunswick Heads Town Centre.

As is evident in Table 2.1, the time between surveys "runs" (the "survey resolution") was sufficient to identify parking durations up to and exceeding posted duration limits for zones in which the posted limit was 2 hours or more. However, for practical manpower and other reasons, for zones having a parking duration limit of 1 hour, the survey resolution was only adequate to identify parking durations exceeding the posted duration limit. That is, the time between "runs" in those zones was on average approximately 90 minutes. Consequently, whilst the data from 1 hour duration zones can be used to identify parking durations and infringements, estimates such as the average parking duration in the Centre or a particular 1 hour zone will be exaggerated by the inability to identify durations of less than the time between ANPR "runs" (ie. 90 mins on average)

The data analyses presented in this report are based on a month x month data analysis and a summary of data across the entire 6 month period for each of the survey zones and the CBD in general. These analyses are presented in detail in attachments.

**Table 2.1 Parking Survey Extents**

ALL MONTHS				Time (min) between runs			Limit (hr)	Avg/Limit	Max/Limit
Zone	Days	No.Runs	Plates	Min	Max	Avg			
1	36	135	2825	38	141	79	24	0.05	0.10
2	36	133	1044	38	136	79	24	0.05	0.09
3	36	137	2068	37	136	77	24	0.05	0.09
4	36	137	2419	37	137	78	24	0.05	0.10
5	36	138	3619	38	133	77	2	0.65	1.11
6	36	137	716	38	137	78	1	1.31	2.28
7	36	137	2122	40	133	78	24	0.05	0.09
8	36	135	1348	32	130	78	4	0.32	0.54
9	36	138	2123	38	130	78	24	0.05	0.09
10	36	136	2907	38	130	78	2	0.65	1.08
11	36	137	2794	38	137	79	24	0.05	0.10
12	36	127	818	38	160	82	24	0.06	0.11
13	36	131	914	41	137	81	2	0.67	1.14
14	36	136	2485	40	131	79	24	0.06	0.09
15	36	138	2214	37	127	78	24	0.05	0.09
16	36	137	4993	36	127	78	24	0.05	0.09
17	36	138	5627	37	127	78	1	1.30	2.11
18	36	137	4419	37	132	79	2	0.66	1.10
19	36	137	3461	37	129	79	24	0.05	0.09
20	36	138	2639	38	126	79	24	0.05	0.09
21	36	134	2054	38	134	80	3	0.45	0.75
22	36	135	1739	38	138	80	2	0.66	1.15
23	36	136	3206	38	125	79	1	1.31	2.08
24	36	136	656	38	132	80	2	0.66	1.10
25	36	135	2091	38	122	79	1	1.31	2.04
26	36	131	712	38	127	79	2	0.66	1.06
27	36	129	1506	39	136	83	24	0.06	0.09
28	35	126	3286	37	145	80	2	0.67	1.21
29	36	135	1072	33	124	80	24	0.06	0.09
30	36	136	10568	32	134	79	24	0.05	0.09
31	36	134	3746	32	124	79	24	0.05	0.09
32	36	137	3141	26	125	75	24	0.05	0.09
Total Vehs	85332								

Limit(hr)	Avg/Limit	Max/Limit
1	1.31	2.13
2	0.66	1.12
3	0.45	0.75
4	0.32	0.54
	0.38	0.64

### 3. Parking Space Inventory

Fig 3.1 and Tables 3.1 and 3.2 show the zone number and location and the number of spaces in parking zones and off-street car parks which were the subject of surveys.

The inventory was prepared by Council officers.

There are 935 spaces within the designated parking area for the CBD of which 277 spaces (30%) have allowable parking durations of 4 or less hours. 88% of all parking is located on the west side of the Creek.

Of that parking which is to the west of the creek and subject of parking duration restriction, approximately 30% is posted with a 1 hour duration limit.

**Table 3.1 Summary of Parking Supply**

**Summary of Supply - Parking Control Area**

Posted Limit (Hr)	All Spaces	% Total	West of Ck	% Total	Dur Ltd	% Total
1	81	8.7%	81	9.8%	81	29.2%
2	150	16.0%	150	18.2%	150	54.2%
3	31	3.3%	31	3.8%	31	11.2%
4	15	1.6%	15	1.8%	15	5.4%
24	658	70.4%	548	66.4%	0	0.0%
<b>Total</b>	<b>935</b>	<b>100.0%</b>	<b>825</b>	<b>100.0%</b>	<b>277</b>	<b>100.0%</b>

**Total Space-Vehs** (Spaces x 8hrs / Duration Limit (hrs))


Posted Limit (Hr)	All Spaces	% Total	West of Ck	% Total	Dur Ltd	% Total
1	648	41.0%	648	42.0%	648	47.6%
2	600	38.0%	600	38.9%	600	44.1%
3	83	5.2%	83	5.4%	83	6.1%
4	30	1.9%	30	1.9%	30	2.2%
24	219	13.9%	183	11.8%	0	0.0%
<b>Total</b>	<b>1580</b>	<b>100.0%</b>	<b>1543</b>	<b>100.0%</b>	<b>1361</b>	<b>100.0%</b>



Indicates zones which are subject to parking duration limits.

**Table 3.2 Inventory of Parking Supply and Management**

Zone	Limit (hrs)	Spaces	Zone	Time Limits
1	24	30	01 - Tweed Street (Booyun St - Fawcett St)	ALL DAY PARKING MON-SUN
2	24	8	02 - Fawcett St (Tweed St - Mona Ln)	ALL DAY PARKING MON-SUN
3	24	15	03 - Mona Ln (Fawcett St - Tweed St)	ALL DAY PARKING MON-SUN
4	24	30	04 - Fawcett St (Mona Ln - Park St)	ALL DAY PARKING MON-SUN
5	2	28	05 - Park St (Fawcett St - Balun Ln)	2P MON-SUN 9:00AM 5:00PM
6	1	4	06 - Park St (Balun Ln - Fingal St)	1P MON-SUN 9:00AM 5:00PM
7	24	17	07 - Park St (Fingal St - Booyun St)	ALL DAY PARKING MON-SUN
8	4	15	08 - Booyun St C/P(Park St - Dead End)	4P MON-SUN 9:00AM 5:00PM
9	24	17	09 - Park St (Booyun St - Fingal St)	ALL DAY PARKING MON-SUN
10	2	27	10 - Park St (Fingal St - Fawcett St)	2P MON-SUN 9:00AM 5:00PM
11	24	36	11 - Fawcett St (Park St - Tweed St)	ALL DAY PARKING MON-SUN
12	24	16	12 - Tweed Street (Fawcett St - Fingal St)	ALL DAY PARKING MON-SUN
13	2	11	13 - Tweed Street (Fingal St - Booyun St)	2P MON-SUN 9:00AM 5:00PM
14	24	34	14 - Booyun St - (Tweed St - Park St)	ALL DAY PARKING MON-SUN
15	24	31	15 - Booyun St - (Park St - Tweed St)	ALL DAY PARKING MON-SUN
16	24	45	16 - Fingal St (Tweed St - Park St)	ALL DAY PARKING MON-SUN
17	1	42	17 - Fingal St (Park St - The Terrace)	1P MON-SUN 9:00AM 5:00PM
18	2	36	18 - Fingal St (The Terrace - Tweed St)	2P MON-SUN 9:00AM 5:00PM
19	24	44	19 - Fingal St (Park St - Tweed St)	ALL DAY PARKING MON-SUN
20	24	19	20 - Mullumbimbi St (Tweed St - Park St)	ALL DAY PARKING MON-SUN
21	3	31	21 - Mullumbimbi St (Tweed St - Park St)	3P MON-SUN 9:00AM 5:00PM
22	2	14	22 - Mullumbimbi St (Park St - The Terrace)	2P MON-SUN 9:00AM 5:00PM
23	1	19	23 - The Terrace (Mullumbimbi St - Fingal St)	1P MON-SUN 9:00AM 5:00PM
24	2	4	24 - The Terrace (Fingal St - Mullumbimbi St)	2P MON-SUN 9:00AM 5:00PM
25	1	16	25 - Mullumbimbi St (The Terrace - Park St)	1P MON-SUN 9:00AM 5:00PM
26	2	7	26 - Mullumbimbi St (Park St - Tweed St)	2P MON-SUN 9:00AM 5:00PM
27	24	19	27 - Mullumbimbi St (Park St - Tweed St)	ALL DAY PARKING MON-SUN
28	2	23	28 - Mullumbimbi St (Car Park)	2P MON-SUN 9:00AM 5:00PM
29	24	4	29 - South Beach Rd (The Terrace - Torakina)	ALL DAY PARKING MON-SUN
30	24	98	30 - South Beach Rd (Torakina - Dead End)	ALL DAY PARKING MON-SUN
31	24	27	31 - South Beach Rd (Dead End - South Beach Ln)	ALL DAY PARKING MON-SUN
32	24	34	32 - South Beach Ln (South Beach Rd - Dead End)	ALL DAY PARKING MON-SUN
Fingal	24	12		
Library	24	12		
Surf Club	24	54		
Tennis Crt	24	27		
Torokina	24	29		

 Indicates zones which are subject to parking duration limits.





#### 4 Surveyed Parking Demands and Occupancies

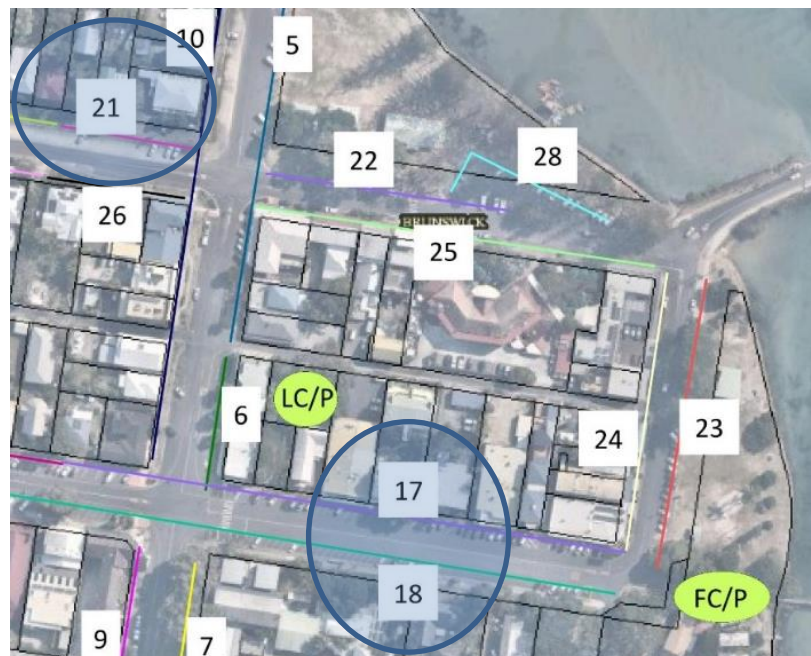
Tables 4.1 and 4.2 show summaries of surveyed parking demand across all off-street car parks and on-street zones for the entire 6 month survey period.

In general, parking occupancies in duration limited zones on all days of the week and weekend are at or approaching capacity with the highest occupancies occurring on Sundays. A similar but slightly less intense occupancy characteristic was found for the Findal St., Library and Tokarina car parks.

Parking space occupancies for on-street zones which are not subject to parking duration limits were generally found to be substantially less than capacity on most days of the week. This was also the case for the Tennis Club and Surf Club car parks. However, unrestricted on-street zones were found to experience high occupancies at or approaching capacity on many Sundays, reflecting occupancies surveyed for the duration limited zones.

The only zones where there are regularly parking opportunities available to any significant degree is in Zone 21 (3P) and to a lesser degree in zones 17 (1P) & 18 (2P).

It is worthy of noting that parking demands in September and October of 2019 were generally higher than those which were surveyed in the following months. It is probable that this was due to the effects of bushfires which were occurring across Eastern Australia and the consequential disruption which was occurring with respect to local and regional road access.






ALL MTHS	Zone	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
All Days	Spaces	30	8	15	30	28	4	17	15	17	27	36	16	11	34	31	45
	Occup %	56.9%	108.2%	100.9%	59.9%	96.1%	257.4%	96.9%	95.6%	109.5%	88.6%	62.8%	67.6%	98.3%	50.0%	57.4%	74.7%
	% Permits	15.1%	11.5%	11.2%	15.1%	16.0%	6.5%	12.8%	8.1%	9.9%	11.5%	11.0%	8.4%	11.3%	12.8%	8.9%	16.6%
Saturday	Spaces	30	8	15	30	28	4	17	15	17	27	36	16	11	34	31	45
	Occup %	56.2%	112.1%	81.7%	55.3%	82.7%	247.7%	88.0%	86.7%	90.6%	83.4%	72.5%	89.4%	117.1%	47.5%	59.7%	59.4%
	% Permits	15.9%	11.4%	10.2%	11.0%	16.9%	6.6%	15.0%	10.0%	12.0%	11.7%	12.6%	5.7%	10.6%	14.6%	9.6%	15.7%
Sunday	Spaces	30	8	15	30	28	4	17	15	17	27	36	16	11	34	31	45
	Occup %	58.4%	98.1%	97.0%	67.3%	100.4%	349.9%	120.8%	135.1%	140.9%	97.9%	60.2%	60.6%	92.9%	52.6%	62.5%	72.2%
	% Permits	14.6%	10.6%	14.5%	14.9%	13.9%	4.8%	6.5%	2.7%	6.7%	10.4%	8.5%	8.5%	8.1%	11.0%	4.3%	9.2%

ALL MTHS	Zone	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	Tot
All Days	Spaces	42	36	44	19	31	14	19	4	16	7	19	23	4	98	27	34	801
	Occup %	86.9%	82.8%	57.8%	100.6%	52.4%	98.8%	102.8%	208.3%	100.8%	161.8%	79.8%	105.3%	440.4%	63.5%	106.7%	83.5%	
	% Permits	16.7%	15.6%	12.6%	9.0%	12.0%	12.2%	15.1%	5.7%	10.4%	8.3%	5.3%	11.4%	10.6%	16.6%	15.3%	13.2%	12.8%
Saturday	Spaces	42	36	44	19	31	14	19	4	16	7	19	23	4	98	27	34	801
	Occup %	72.8%	66.3%	56.3%	98.1%	55.8%	115.1%	103.7%	227.6%	86.9%	121.1%	64.1%	95.2%	221.6%	58.7%	80.2%	69.8%	
	% Permits	16.8%	16.4%	12.1%	8.2%	11.7%	7.3%	13.9%	5.7%	11.7%	11.7%	6.3%	11.7%	8.1%	15.8%	16.1%	16.0%	12.8%
Sunday	Spaces	42	36	44	19	31	14	19	4	16	7	19	23	4	98	27	34	801
	Occup %	81.9%	87.8%	57.0%	95.7%	56.3%	99.1%	103.7%	207.3%	130.0%	223.5%	95.7%	125.2%	666.3%	68.6%	114.9%	101.1%	89.4%
	% Permits	14.0%	13.5%	8.5%	5.6%	10.3%	13.5%	12.3%	4.5%	5.9%	5.8%	2.5%	8.9%	10.8%	14.2%	13.5%	12.5%	10.2%

ALL MTHS	Duration Limited Zones		Unlimited Zones		All Zones				
	No.	%	No.	%	No.	%			
All Days	Spaces	277		Spaces	524		Spaces	801	
	Demand	262	94.7%	Demand	393	74.9%	Demand	655	81.7%
	Permits	33	12.7%	Permits	51	12.9%	Permits	84	12.8%
Saturday	Spaces	277		Spaces	524		Spaces	801	
	Demand	242	87.5%	Demand	354	67.6%	Demand	597	74.5%
	Permits	31	12.6%	Permits	46	12.9%	Permits	76	12.8%
Sunday	Spaces	277		Spaces	524		Spaces	801	
	Demand	290	104.5%	Demand	426	81.4%	Demand	716	89.4%
	Permits	29	10.0%	Permits	44	10.4%	Permits	73	10.2%

 Indicates zones which are subject to parking duration limits.

**Table 4.1** Surveyed Parking Occupancies x Zone (Sept – Feb inc.)

<b>Fingal St CP</b>		<b>Average Demands</b>				<b>Occupancy %</b>			
Month / Day	Weekday	Saturday	Sunday	All Days	Weekday	Saturday	Sunday	All Days	
September	10	11	10	<b>10</b>	79%	89%	87%	85%	
October	8	10	11	<b>10</b>	65%	84%	89%	79%	
November	9	10	10	<b>10</b>	75%	86%	87%	82%	
December	10	11	11	<b>10</b>	79%	93%	88%	87%	
January	10	9	11	<b>10</b>	86%	72%	89%	82%	
February	11	11	11	<b>11</b>	88%	95%	88%	91%	
All Days	9	10	11	<b>10</b>	<b>79%</b>	<b>86%</b>	<b>88%</b>	<b>84%</b>	

**Capacity = 12**

<b>Library CP</b>		<b>Average Demands</b>				<b>Occupancy %</b>			
Month / Day	Weekday	Saturday	Sunday	All Days	Weekday	Saturday	Sunday	All Days	
September	11	10	11	<b>11</b>	93%	85%	92%	90%	
October	11	10	10	<b>11</b>	95%	83%	86%	88%	
November	10	11	11	<b>11</b>	87%	89%	90%	88%	
December	10	11	10	<b>10</b>	82%	90%	83%	85%	
January	12	11	12	<b>12</b>	103%	89%	96%	96%	
February	10	11	10	<b>10</b>	83%	89%	83%	85%	
All Days	11	10	11	<b>11</b>	<b>90%</b>	<b>87%</b>	<b>88%</b>	<b>89%</b>	

**Capacity = 12**

<b>Surf Club CP</b>		<b>Average Demands</b>				<b>Occupancy %</b>			
Month / Day	Weekday	Saturday	Sunday	All Days	Weekday	Saturday	Sunday	All Days	
September	6	7	11	<b>8</b>	11%	13%	21%	15%	
October	5	5	11	<b>7</b>	10%	9%	20%	13%	
November	5	8	13	<b>8</b>	9%	14%	24%	16%	
December	9	10	14	<b>11</b>	17%	18%	25%	20%	
January	9	8	13	<b>10</b>	17%	15%	24%	19%	
February	8	7	8	<b>8</b>	16%	14%	16%	15%	
All Days	7	7	12	<b>9</b>	<b>13%</b>	<b>14%</b>	<b>22%</b>	<b>16%</b>	

**Capacity = 54**

<b>Tennis Court CP</b>		<b>Average Demands</b>				<b>Occupancy %</b>			
Month / Day	Weekday	Saturday	Sunday	All Days	Weekday	Saturday	Sunday	All Days	
September	5	7	15	<b>9</b>	17%	27%	54%	33%	
October	1	1	12	<b>5</b>	5%	3%	44%	18%	
November	2	2	22	<b>9</b>	7%	9%	83%	33%	
December	4	4	15	<b>7</b>	14%	13%	56%	27%	
January	8	9	15	<b>11</b>	31%	32%	54%	39%	
February	6	6	6	<b>6</b>	23%	23%	23%	23%	
All Days	4	5	14	<b>8</b>	<b>16%</b>	<b>18%</b>	<b>52%</b>	<b>29%</b>	

**Capacity = 27**

<b>Torakina C/P</b>		<b>Average Demands</b>				<b>Occupancy %</b>			
Month / Day	Weekday	Saturday	Sunday	All Days	Weekday	Saturday	Sunday	All Days	
September	30	29	31	<b>30</b>	103%	98%	106%	102%	
October	25	24	28	<b>25</b>	85%	83%	95%	88%	
November	27	30	30	<b>29</b>	92%	103%	103%	99%	
December	30	32	31	<b>31</b>	103%	111%	106%	107%	
January	29	22	27	<b>26</b>	101%	76%	92%	90%	
February	27	27	27	<b>27</b>	92%	94%	92%	92%	
All Days	28	27	29	<b>28</b>	<b>96%</b>	<b>94%</b>	<b>99%</b>	<b>96%</b>	

**Capacity = 29**

**Table 4.2 Surveyed Parking Demands & Occupancies x Off-Street Car Park (Sept – Feb inc.)**

## 5. Surveyed Parking Demands Associated with “Permits”

The proportion of surveyed parking demands associated with vehicles holding permits is shown for parking zones in Table 4.2 and reproduced in part below in Table 5.1. These permits relieve them of the need to pay at meters in Byron Bay.

**Table 5.1 Surveyed “Permit” Holders (Sept – Feb inc.)**

ALL MTHS	Duration Limited Zones			Unlimited Zones			All Zones		
		No.	%		No.	%		No.	%
All Days	Spaces	277		Spaces	524		Spaces	801	
	Demand	262	94.7%	Demand	393	74.9%	Demand	655	81.7%
	Permits	33	12.7%	Permits	51	12.9%	Permits	84	12.8%
Saturday	Spaces	277		Spaces	524		Spaces	801	
	Demand	242	87.5%	Demand	354	67.6%	Demand	597	74.5%
	Permits	31	12.6%	Permits	46	12.9%	Permits	76	12.8%
Sunday	Spaces	277		Spaces	524		Spaces	801	
	Demand	290	104.5%	Demand	426	81.4%	Demand	716	89.4%
	Permits	29	10.0%	Permits	44	10.4%	Permits	73	10.2%



Indicates zones which are subject to parking duration limits.

The percentage of parked vehicles associated with a permit lay in the range of 10% to 15% with the lower percentages occurring on Sundays. This compares with the higher rate of 20%-25% found to occur in the 2018 period Aug-Oct (inc). These findings are presumably due to higher rates of visitation to the Township in the period immediately leading to and beyond Christmas, and more generally on Sundays.


## 6. Surveyed Parking Durations

Table 6.1 shows a summary of the surveyed parking requirements for the entire 6 month survey period.

**Table 6.1 Surveyed Parking Durations (Sept – Feb inc.)**

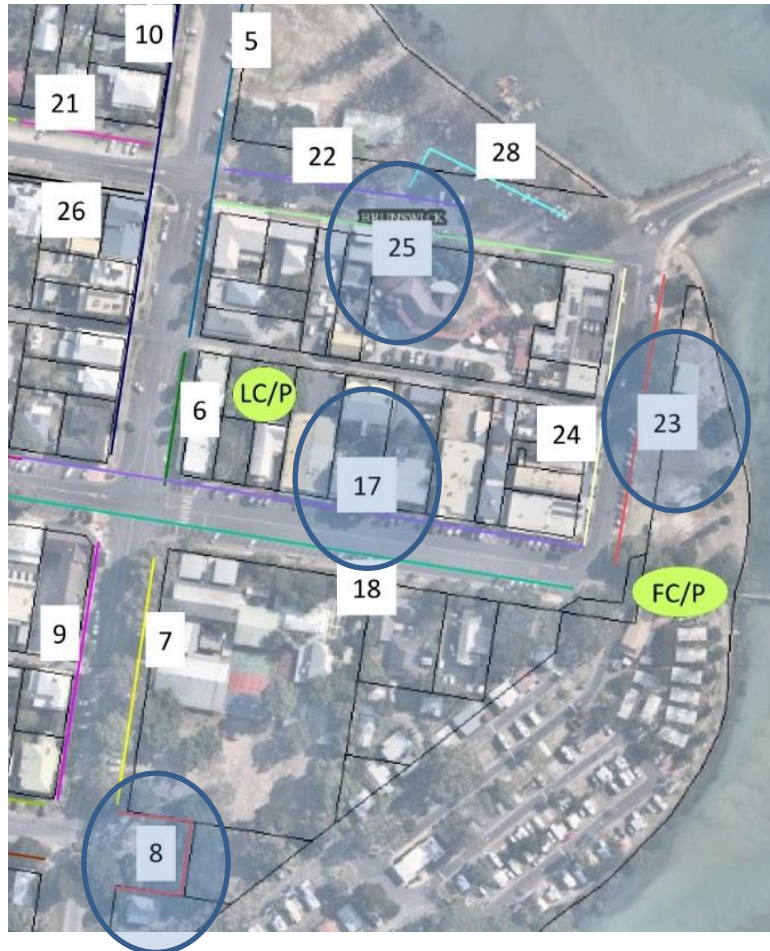
ALL MTHS		Surveyed Parking Durations				
Zone	Limit (hr)	AVG (min)	<=60	<=120	% Exceeding Limit	% Exceeding Posted Limit
1	24	78	72%	79%	0%	
2	24	96	64%	73%	0%	
3	24	84	67%	77%	0%	
4	24	70	71%	84%	0%	
5	2	46	80%	96%	4%	4%
6	1	34	96%	99%	4%	4%
7	24	95	59%	74%	0%	
8	4	66	74%	85%	7%	7%
9	24	109	56%	67%	0%	
10	2	42	85%	97%	3%	3%
11	24	95	60%	73%	0%	
12	24	52	86%	91%	0%	
13	2	35	95%	98%	2%	2%
14	24	125	49%	61%	0%	
15	24	99	61%	72%	0%	
16	24	82	66%	78%	0%	
17	1	37	92%	98%	8%	8%
18	2	44	85%	96%	4%	4%
19	24	85	65%	77%	0%	
20	24	116	53%	63%	0%	
21	3	56	75%	91%	5%	5%
22	2	41	86%	97%	3%	3%
23	1	39	89%	98%	11%	11%
24	2	42	85%	97%	3%	3%
25	1	39	90%	97%	10%	10%
26	2	45	84%	95%	5%	5%
27	24	110	57%	67%	0%	
28	2	46	82%	95%	5%	5%
29	24	52	82%	92%	0%	
30	24	54	77%	92%	0%	
31	24	64	77%	88%	0%	
32	24	69	71%	84%	0%	
<b>TOTAL</b>		<b>62</b>	<b>77%</b>	<b>88%</b>	<b>3%</b>	<b>6%</b>

Note : Average parking durations are estimated from demands and associated durations observed via ANPR in each zone.

 Indicates zones which are subject to parking duration limits.

The average length of stay across all surveyed zones was approximately 60 minutes. This is consistent with surveys of other centres across Australia. However, it is important to appreciate that the estimate includes all unrestricted long term parking. When only short term parking is considered (ie. 2P and less) the normal finding is an average length of stay of approximately 30 minutes or less. In this instance 77% of all vehicles were surveyed as staying less than 60 minutes, providing evidence that the average short term stay is in the order of 30 minutes or less.

The overall level of parking duration infringement was surveyed at 6% on average across all zones. However, for some zones the rate of infringement was significantly higher. For example, for zones 23 (1P) and 25 (1P). Also, zones 17 (1P) and 8 (4P) also presented as zones in which vehicles infringed at a rate slightly above the average rate.



This is a “no less than” infringement estimate which certainly underestimates the actual level of infringement, particularly in the 1 hour limit zones, due to the ANPR survey technique. The underestimation arises from the extent to which the time between ANPR runs exceed the posted parking limit duration. For example, as shown in Table 6.2, the average time between ANPR “runs” in 1P zones was 1.3 times the allowable parking duration. That is, 30% in excess of the longest allowable parking duration. The longest time between “runs” was in excess 2 times the maximum allowable duration or 60 minutes greater than the 1 hour limit. Consequently, in general, any vehicle parked for 20 minutes in excess of the maximum allowable duration, and in some instances for 60 minutes in excess of the allowable duration in a 1P zone would not be detected as an infringement in the survey data. These periods varied between survey days.



Whilst TPS has no concise basis for estimating the degree to which the underestimate is occurring, it is reasonable to expect that the surveyed rates of infringement represent up to 50% of the actual rate, particularly for the 1P zones. That is, the actual rate at which motorists infringe parking duration limits is likely to be equivalent to at least 10% (and possibly more) of all vehicles being parked in duration limited parking spaces.

**Table 6.2 Estimated Time Between ANPR Survey “Runs”  
(Sept – Feb inc.)**

Limit(hr)	Avg/Limit	Max/Limit
1	1.31	2.13
2	0.66	1.12
3	0.45	0.75
4	0.32	0.54
	0.38	0.64

The duration surveys also provide an opportunity to estimate how spaces should be allocated across parking duration limits. These estimates can be based on space-hrs of demand (ie. demand x duration for each duration sector). Such an estimate is shown in Table 6.3 for existing parking supply and based on an objective to achieve no worse than an 80% occupancy rate within duration limited zones.

**Table 6.3 Estimated Space Requirements in Duration Limited Zones**

Summary of Space Requirments x Sector (Based on Space-Hrs Demand)								
Duration	Supply	%	Technically Required @ Current Occ.	% Space-Hrs Demand	Desirable @ Current Occ.	% Space-Hrs Demand	Desirable @ 80% Occ.	%
1P	81	29%	180	65%	122	44%	145	44%
2P	150	54%	64	23%	122	44%	145	44%
3P	31	11%	19	7%	33	12%	39	12%
4P	15	5%	14	5%	0	0%	0	0%
<b>Total</b>	<b>277</b>	<b>100%</b>	<b>277</b>	<b>100%</b>	<b>277</b>	<b>100%</b>	<b>329</b>	<b>100%</b>

The Table 6.3 estimates indicate that there is a need for an additional 50 spaces (approx.) in the CBD within the 1P and 2P duration limited zones. This additional parking could potentially be drawn from the Fingal Street car park, from unrestricted parking zones, or converted from the 3P and 4P duration sector in view of these duration sectors being inconsistent with practical CBD parking management in facilitating long term parking through the movement of cars during lunch periods etc. As part of this desirable restructure of spaces amongst parking durations, there is also a desirable need to supply 1P and 2P parking in similar numbers.

## 7. Infringement Notices

The rate at which duration infringement notices were issued during the survey period is summarised in Table 7.1. Fig 7.2 shows the rate at which infringement notices were issued relative to an approximate estimate of the number of vehicles parking in all duration limited zones over all the survey periods.

**Table 7.1 Issued Infringement Notices (Sept – Feb inc.)  
(For parking exceeding the posted duration limit)**

### All Months (Sept to Feb inc)

Infringements Issued x Zone

Date / Zone	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Total	0	0	0	0	130	18	0	40	0	91	0	0	16	0	0	0
Weekdays	0	0	0	0	27	5	0	21	0	14	0	0	4	0	0	0
Weekend Days	0	0	0	0	103	13	0	19	0	77	0	0	12	0	0	0
Capacity	30	8	15	30	28	4	17	15	17	27	36	16	11	34	31	45

Date / Zone	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	All
Total	316	123	0	0	74	30	231	14	140	20	0	97	0	0	0	0	1340
Weekdays	97	55	0	0	16	4	69	2	28	5	0	23	0	0	0	0	370
Weekend Days	219	68	0	0	58	26	162	12	112	15	0	74	0	0	0	0	970
Capacity	42	36	44	19	31	14	19	4	16	7	19	23	4	98	27	34	801

**Table 7.2 Rate at which Infringement Notices were Issued in Duration Limited Zones**

Infringements Issued as % of Vehicles Parked			
Date / Zone	Infringements	Veh Capacity	% of Veh Capacity
Total	1340	38108	3.52%
Weekdays	370	10888	3.40%
Weekend Days	970	27220	3.56%

Note : Space-Vehs = Sum of Spaces x 8 / Duration Limit  
 Note : Space-Vehs = Sum of Spaces x 8 / Duration Limit  
 Equals max number of vehicles which could park during the survey periods if all vehicles stayed for duration limit.

The above data and estimates indicate that 1340 infringement notices were issued over the 6 month survey period, representing approximately 223 notices / month and approximately 40 for each survey day. This compares with the rate of approximately 15 / day of attendance over 10 days in the period between May 2018 and Feb 2019 which was the subject of the March 2019 TPS report. This highlights the degree to which detection rates and associated revenues can be increased with more substantial enforcement activity than is currently occurring.

No less than 38,000 vehicles would have parked in the subject zones during the time of parking restrictions on the days when surveys were conducted. Consequently, the rate of detection in the Sept to Feb survey period represents an average rate of 3.52 notices / 100 vehicles or 3.52% of all vehicles using the duration limited zones. This rate was similar on weekdays and weekend days.

This above rate of infringement detection compares with the surveyed infringement rate of approximately 6% and more probably 10% identified in the parking duration surveys. Consequently, it can be concluded that the rate of detection during the survey period was between 35% and 50% of the actual level of infringement.

As a benchmark, it is a typical that the rate of detection of parking infringements in duration limited systems can be as low as 5% of all vehicles parking if the enforcement system is adequately staffed and deployed. That is, if enforcement staff were to be deployed across all days and hours in the Brunswick Heads CBD

parking system, it could be expected that as much as twice as many infringement notices could be issued compared with that which occurred during the survey period.

## 8. Discussion & Recommendations

The survey data analyses indicate the following.

### (a) Number of Duration Limited Parking Spaces

Spaces operating in the duration limited parking system are currently at or nearing capacity on all days of the week. Consequently, for the sake of better parking management, there is a need to increase the number of spaces operating in the restricted parking sector within the CBD. Desirably the increase should be by approximately 50 spaces and should occur in the 1P sector.

It is recommended that the duration limited parking system be modified to achieve space distributions across parking duration sectors indicated in the final column of the following table.

Summary of Space Requirements x Sector (Based on Space-Hrs Demand)								
Duration	Supply	%	Technically Required @ Current Occ.	% Space-Hrs Demand	Desirable @ Current Occ.	% Space-Hrs Demand	Desirable @ 80% Occ.	%
1P	81	29%	180	65%	122	44%	145	44%
2P	150	54%	64	23%	122	44%	145	44%
3P	31	11%	19	7%	33	12%	39	12%
4P	15	5%	14	5%	0	0%	0	0%
<b>Total</b>	<b>277</b>	<b>100%</b>	<b>277</b>	<b>100%</b>	<b>277</b>	<b>100%</b>	<b>329</b>	<b>100%</b>

### (b) Duration Limits

Evidence in the survey data strongly supports that the current distribution of parking space to the 2P sector across the entire CBD is proportionally inappropriate and should be reduced in proportion to equal that proportion applying to 1P parking. That is approximately 120 spaces in each of the 1P and 2P sectors based on current supply or 145 spaces in each sector if the overall number of duration limited spaces is to be increased by 50 as recommended above.

However, there is some evidence based on the rate of duration infringement data to support that some parking (say 10 spaces) in Zones 23 and 25 (both 1P zones) may be more appropriately be designated as 2P zones.

Notwithstanding the outcome from the above recommendation (a), we recommend that the proportion and numbers of spaces allocated to 1P and 2P parking be as shown in the table above.

We also recommend that up to 10 spaces in Zones 23 and 25 be converted to allow parking durations of up to 2 hours.

**(c) Enforcement**

Ultimately the efficiency and effectiveness of a parking system in which duration limits apply can only be as efficient and effective as an enforcement system. Changes to the existing parking system are not likely to be effective in the absence of parking enforcement to the degree that has occurred during this project.

The survey data obtained in this project solidly indicates the extent to which historic levels of enforcement have been grossly inadequate and the extent to which more intense enforcement frequencies can increase infringement detection. That is, the level of detection in this project due to relatively intense enforcement activity was 2.5 times that which occurred during a period of 'normal' enforcement in mid 2018 and early 2019. If enforcement officers were to be deployed into the Brunswick Heads parking system over all days and hours in which the system operates, the detection rate would be even higher than achieved in this project.

It is recommended that Council undertake a cost/benefit evaluation to establish the practicality of increasing enforcement resources to such extent as to at least ensure that parking enforcement in the Brunswick Heads parking system is to the standard which occurred during this project in the months from Sept 2019 to Feb 2020 inc..

**(d) "Permit" Parking Demands**

"Permit" parking demands are currently occurring at a rate of between 10% and 15% of all parking demands depending on day of week. However, if priced (metered) parking was to be introduced this can be expected to increase to approximately 30%, consistent with what occurs in Byron Bay.

It is recommended that the rate of 30% be assumed as the proportion of "permit" parker in all financial modelling regarding management of the Brunswick Heads parking system.

**(e) Management of Parking to East of the Creek**

The survey data indicates that parking demands in off-street locations and in zones 29, 30, 31 and 32 to the east of the Creek which are practically accessible from the CBD, are currently operating near capacity on most days. Consequently, there is little potential apparent in the survey data to divert medium and long term demands to east of the creek. Further, the parking in zones 29, 30, 31 and 32 is so remote as to not make the locations practical as 2P zones.

The above finding highlights the need to improve the effectiveness and management of restricted parking immediately in and around the CBD rather than rely on the introduction of new areas and zones into the duration limited system.

It is recommended that no action be taken at this stage to introduce parking to the east of the creek into the duration limited CBD parking system.

**(f) Potential Effectiveness of Metered Parking**

The survey data demonstrates conclusively that the Brunswick Heads parking management system is currently operating at or near capacity on most days of the week and particularly on Sundays. Also, there is limited potential to increase the amount of 1P and 2P parking around the CBD in such a way as to make the parking accessible to CBD customers. Further, there is strong evidence in the data to support that there is widespread abuse occurring with respect to compliance with currently posted duration limits.

There is little doubt that the introduction of paid (metered) parking into Brunswick Heads CBD would address each of the above matters effectively. This would occur through increasing the rate of parking demand turnover and so reduce occupancies, whilst increasing compliance with parking duration limits due to the greater exposure which motorists perceive in a metered system.

We recommend that Council should undertake a cost/benefit analysis with the objective to introducing metered parking into Brunswick Heads in order to address the capacity and compliance issues identified in this project.

