

12<sup>th</sup> August 2008

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Mr. Bryan Sparey,  
Senior Traffic Engineer  
Road & Traffic Division  
Hutt City Council,  
Private Bag 31912,  
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Dear Bryan,

### **Speed Zone Survey – Marine Drive, Seaview to Eastbourne**

As requested I have carried out a speed zone survey on the section of Marine Drive from the 50km/h sign south of the Parkside Road roundabout in Seaview to Marine Parade in Eastbourne, a distance of 7.1 kilometres.

#### **Brief:**

As per email 14/7/08:

*"The Eastbourne Community Board are keen to lower the speed limit to 60km/h, but it doesn't warrant it under the Speed Limit Rule.*

*We consulted on lowering the speed limit & the majority of Eastbourne residents want to retain the 70km/h.*

*LTNZ replied they can't support lowering it as it doesn't meet the Speed Limit Rule but it may meet a 60km/h limit under the Speed Zoning.*

*We reported back to Eastbourne Community Board recommending retaining the 70km/h but they want us to do a speed zone review. Their concern is the safety of pedestrians & cyclists.*

#### **Speed Zoning Criteria:**

Speed zoning, was examined by Land Transport NZ in 2005. A draft criteria for trial was developed which added additional criteria to the standard speed limit criteria.

This rating survey is based on the document "The New Zealand Speed Zoning Policy" Version 0.4.0, February 2005.

#### **Speed Zoning Rating:**

The full survey sheets and results are shown in Appendix 1 and are summarised in Table 1 below.

Table 1: Summary of speed limit and speed zone calculations

Sector	Distance from Parkside Rd	Current Speed Limit	Calculated Speed Limit	Calculated Speed Zone Rating	Calculated Speed Zone Limit
Seaview – Pt Howard	0 – 1.9km	70 km/h	70 km/h	72	50 km/h*
Lowry Bay	1.9 – 3.5km	50 km/h	70 km/h	78	50 km/h
York - Sunshine Bay	3.5 – 5.6km	70 km/h	80 km/h	57	60 km/h
Days Bay - Eastbourne	5.6 – 7 km	50 km/h	50 km/h	79	50 km/h

\* Note: This sector also contains one 80 km/h section

**Discussion:**

The draft speed zoning system produces a calculated speed value of 60km/h for the York to Sunshine bay sector of Marine drive. For the other sectors shown in Table 1 the calculated value is consistent with a 50km/h speed zone except that from Port road to the Point Howard Wharf the calculated value is 80 km/h.

Between Point Howard and Eastbourne the speed profiles show a general consistency with operating speeds in the range 50 to 65km/h for most (62%) of the length. The speed limit changes by 20 km/h (50 to 70 km/h) but actual speeds vary rather less than that between these sectors.

While it may be possible to introduce a 60km/h restriction between York and Sunshine bay you may also wish to consider overall message simplicity for drivers using Marine drive. Does introducing a 60km/h limit to the mix of 50-70-50-70-50 increase or reduce that complexity? Is there a case for rationalising to a single 60km/h limit from Point Howard through to Days bay?

While speed zoning may not currently be an active method for introducing speed limits I hope the results of this study provide you useful information for discussion.

Yours sincerely,



Mike Jackett.  
Jackett Consulting

## Appendix 1 Technical Notes on the Survey

### Locations:

The study investigated 7.1 kms of Marine drive commencing at the 50km/h sign just south of Parkside road Seaview and ending at Marine parade in Eastbourne. Locations along the road are referenced according to their distance from the 50 / 70km/h sign south of Parkside road.

### Speed Zone Rating Survey:

The data for the speed zoning ratings was obtained by a combination of the following inputs;

- A video-recorded drive-over of the route GPS display of speed, distance and time.
- A series of floating car speed profile surveys
- An analysis of Google Earth satellite photos for development
- A manual inspection of roadside development in the industrial area

### Speed Profile:

The speed profile was obtained by driving a vehicle fitted with a GPS in both directions along Marine drive at a speed consistent with surrounding traffic.

Very little overtaking is possible along this route so the speed profile matched the speed of the particular traffic stream the survey vehicle was in at the time. One run was influenced by a rather slow school bus and another by a rather assertive courier van. The speed profile chosen for speed zoning analysis (Southbound No2) was a compromise between these extremes.

The GPS recorded positions at 1 second intervals from which speeds were calculated and smoothed using a two point moving average. See Figures 1 to 3. The typical speed profile shown in Figure 1 was further analysed for inclusion in the speed zone formulas for "speed change rating".

### Rating Sheets:

The speed limit and speed zone rating sheets are attached as Table 2 and 3 and are also available as spreadsheets.

Table 2: Speed Limit Rating Sheet

SPEED SURVEY FORM (RATING DIAGRAM)

RCA: Hutt City Council At: Seaview to Eastbourne  
 Road Marine Drive From: Parkside Roundabout Seaview To: Marine Parade Eastbourne  
 Surveyed by: Mike Jackett Date 11th August 2008

Road	Dist.	Development Rating			Roadway Rating							Total	Limit	Notes	
		Frontage	SideR	STot	Ped	Cyc	Prk	Geo	Tctr	Use	STot				
50 / 70 Parkside Rbt	0.0			0								0	0	50	sign 0.0km
11xB, C, A 5xB, 4xC, A	0.5	49		49	1	0	2	0	0	0	3	52	70		
Barnes St 8 x B	1.0	22	3	25	1	0	1	0	0	0	2	27	70		
2 x C Gracefield Rd 2 x B	1.5	14	3	17	1	0	1	0	0	0	2	19	70		
70 / 50 Port Rd City Terminal	2.0	0	3	3	1	1	1	0	0	0	3	6	70	sign 1.9km	
	2.5	9	5	14	1	1	1	2	3	1	9	23	50	Ped Xing	
	3.0	18		18	1	1	0	2	0	1	5	23	50		
50 / 70 Marina	3.5	19	5	24	1	1	1	1	0	1	5	29	50	sign 3.5km	
	4.0	6	3	9	1	1	1	1	0	1	5	14	70		
	4.5	8	3	11	1	1	1	1	0	1	5	16	70		
	5.0	6	3	9	1	1	1	1	0	1	5	14	70		
	5.5	12		12	1	1	1	1	0	1	5	17	70	sign 5.6km	
70 / 50 Days Bay Wharf	6.0	29	3	32	1	1	1	0	0	1	4	36	50		
	6.5	23	9	32	1	1	3	1	3	1	10	42	50	Ped Xing	
Marine Parade	7.0	15		15	1	1	1	1	0	1	5	20	50		
				0							0	0	50		
				0							0	0	50		
<b>Shaded area</b>	<b>Total</b>	<b>7.0 kms</b>		<b>270</b>							<b>68</b>	<b>338</b>			
<b>From 0.5 to 7</b>	<b>Average per 1/10 km</b>			<b>3.9</b>							<b>4.9</b>	<b>7.7</b>			

**AVERAGE SPEED LIMIT RATING = 7.7 (70 km/h)**

Extra development units needed for a 70km/h limit (ie. rating >= 6) is	0
Extra development units needed for a 50km/h limit (ie. rating >= 11) is	157

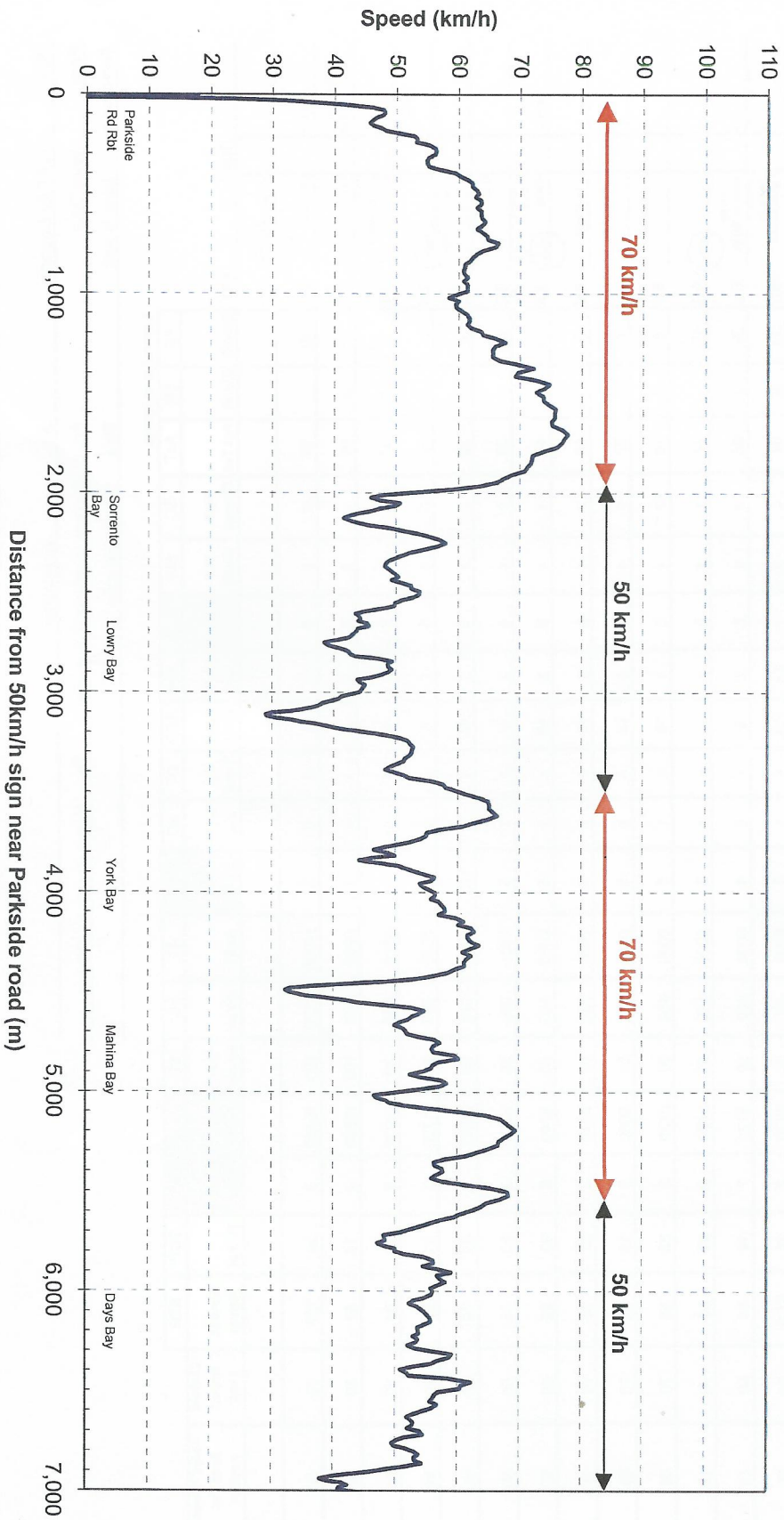
Table 3 Speed Zone Rating Sheet  
DRAFT SPEED ZONING FORM

RCA: Hutt City Council At: Eastbourne  
Road Marine Drive From: Parkside Roundabout Seaview To: Marine Parade Eastbourne  
Surveyed by: Mike Jackett Date 11th August 2008

Comments on ratings

Road	Dist.	FrontID	SR	Act Tot	SC	SW	RDT	RH	RCP	OT	SD	TST	AT	HV	VU	AA	VR	TCP	SZR	Current Speed Limit	Rated Speed Zone for section	
		SideR		RoadD Tot	Road Haz	Road CPot	Op Treat	Sight Dist	TS Tot	AADT	H Veh	Vuln Users	Adj AADT	Vol Rate	TC Pot	SpeedZ Rating						
11th C.A	0.0																					
Barnes St	0.5	49	98	3	2	5	1	5	3	0	3	14000	1120	100	19480	3	24	127		70	50	
2 x C	1.0	22	3	50	0	2	1	2	3	0	3	9000	720	100	12880	3	15	67		70	50	
Peet Rd	1.5	14	3	34	0	3	2	6	4	0	4	8500	680	80	12020	3	21	61		70	50	
Oranmua	2.0	0	3	6	0	3	2	6	4	0	4	8500	680	50	11720	3	21	33		70	80	
	2.5	9	5	28	2	3	5	3	15	4	2	8000	640	50	11060	3	33	76		50	50	
	3.0	18		36	0	4	4	2	8	4	2	7500	600	50	10400	3	30	74		50	50	
	3.5	19	5	48	1	4	5	3	15	4	1	7000	560	50	9740	2	20	83		50	50	
	4.0	6	3	18	2	4	6	3	18	4	1	7000	560	50	9740	2	22	58		70	60	
	4.5	8	3	22	0	4	4	3	12	4	1	6500	520	50	9080	2	18	52		70	60	
	5.0	6	3	18	2	4	6	3	18	4	1	6000	480	50	8420	2	22	58		70	60	
	5.5	12		24	1	4	5	3	15	4	1	6000	480	50	8420	2	20	59		70	60	
	6.0	29	3	64	0	3	3	2	6	4	0	6000	480	50	8420	2	14	84		50	50	
	6.5	23	9	64	0	3	3	2.5	7.5	4	1	6000	480	50	8420	2	16	87.5		50	50	
	7.0	15		30	1	4	5	3	15	4	1	5800	464	50	8156	2	20	65		50	50	
	7.5																					

Averages = 38.6 10.6 21.1 70.3



**Figure 1: Typical Speed Profile Marine Drive**

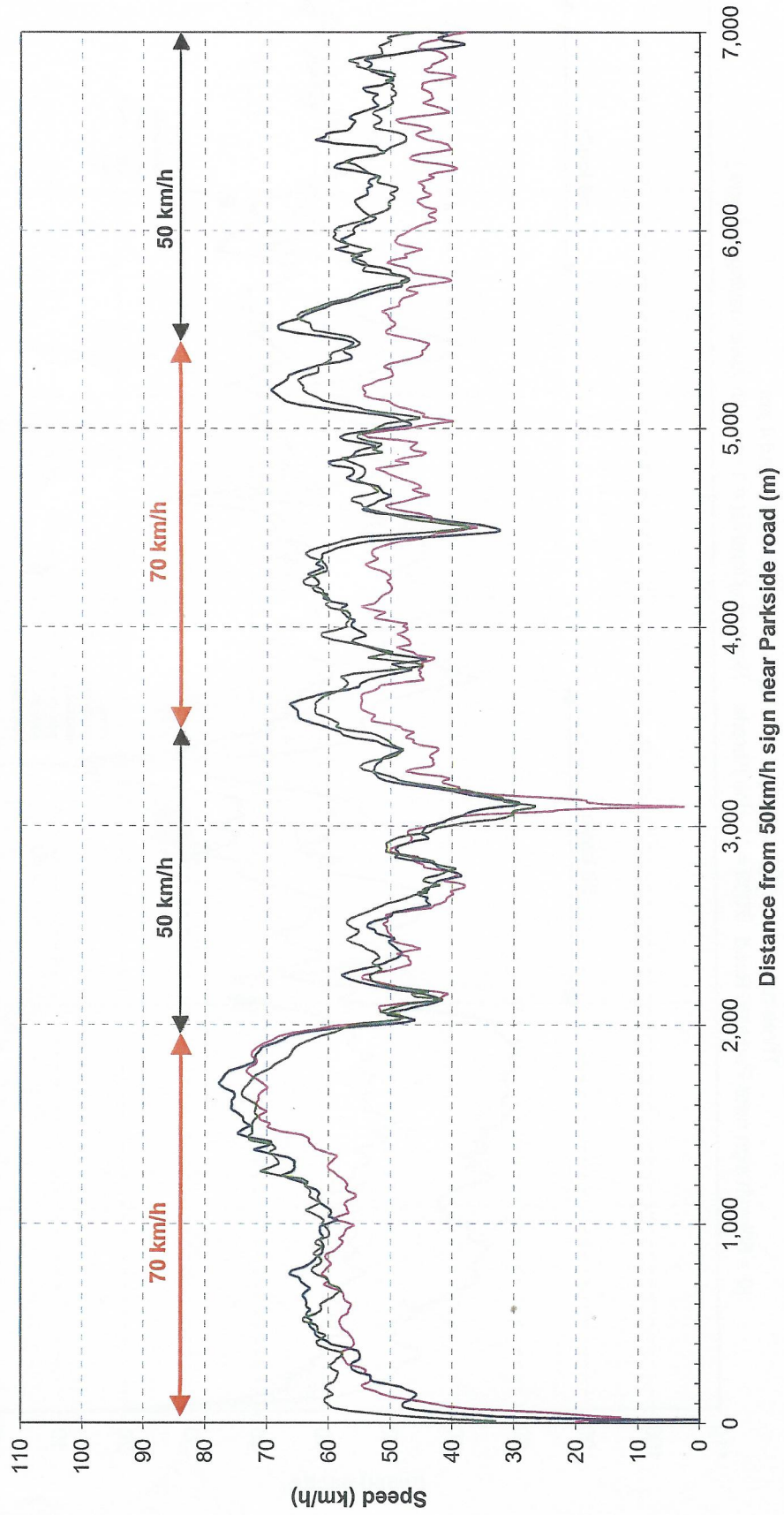
Southbound run at 3.18pm typical of the floating car runs made Monday 11th August 2008.

[0 = 50km/h sign 50m S Parkside Road 7000 = Marine Parade, Recording Interval = 1 sec with 2sec moving average ]

## Figure 2: Southbound Speed Profile Marine Drive

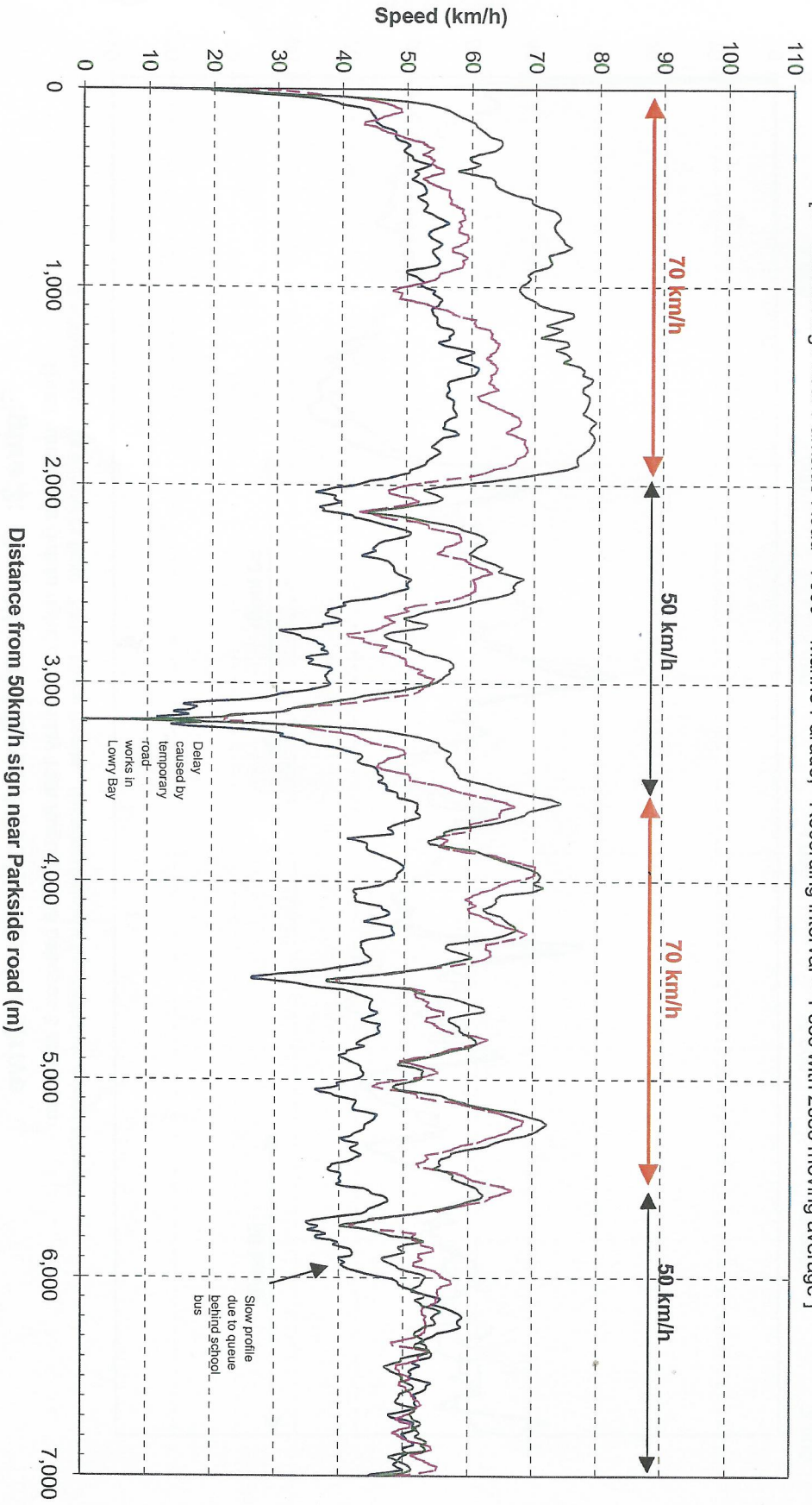
Three runs made (left to right) on Monday 11th August 2008 between 3 and 4 pm

[0 = 50km/h sign 50m S Parkside Road 7000 = Marine Parade, Recording interval = 1 sec with 2sec moving average]



**Figure 3: Northbound Speed Profile, Marine Drive**

Three runs made (right to left) on 11 August 2008 between 3 and 4 pm  
[0 = 50km/h sign near Parkside Road 7000 = Marine Parade, Recording interval = 1 sec with 2sec moving average ]





Appendix 2 - Revised speed zoning calculation to include week long speed survey data taken at 3 locations on Marine Drive. Includes operating speed charts and tables

Average of 6 runs Marine Drive (red line) adjusted by HTS data (blue line) to give 85%ile speed

