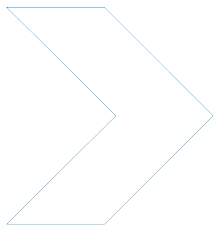


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Vehicle speeds in South Australia 2009

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ABSTRACT

A systematic and ongoing method of measuring vehicle speeds was introduced in South Australia in 2007 in order to assess the effects of speed reduction countermeasures and to monitor the speed behaviour of South Australian motorists over time. This Report summarises the data collected in 2009 and through a new methodology allows direct comparisons with previous surveys and partial surveys dating back to 2002. Low speed roads showed a marked reduction in mean speed following the introduction of the default 50 km/h speed limit in 2003 and for some years after. Mean speeds on these roads generally went up from 2005 to 2007 but down again in 2008. Mean speeds on these roads appear not to have changed between 2008 and 2009. The speeds of vehicles on high speed rural roads have remained relatively unchanged between 2006 and 2009 with the exception of a significant drop in the speeds of vehicles on 100 km/h roads between 2007 and 2008. It is not clear what the reasons for the observed speed changes are although a lower police enforcement tolerance and a large advertising campaign may have played some role in the speed changes between 2007 and 2008.

KEYWORDS

Vehicle speed, Speed limit, Driver behaviour, Urban road, Rural road, Statistics.

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Summary

A systematic and ongoing method of measuring vehicle speeds was introduced in South Australia in 2007 in order to assess the effects of speed reduction countermeasures and to monitor the speed behaviour of South Australian motorists over time.

This Report summarises the data collected in 2009 and through a new methodology allows direct comparisons with previous surveys and partial surveys dating back to 2002. The summary mean speeds by road type and survey year are shown in the following Table.

Summary mean speeds (km/h) by road type and survey year

Road type	2002	2003	2005	2006	2007	2008	2009
Adelaide 50 km/h local*	46.90	44.76*	43.34*		44.24*	43.75*	44.10
Adelaide 50 km/h collector*	53.83	51.52*	50.23*		50.65	49.79	49.67
Adelaide 60 km/h arterial	58.37	57.06*	56.36*		56.76	55.96*	55.82
Adelaide 80 km/h arterial					74.24	74.26	73.91
Rural 50 km/h local*	44.52	44.34	42.90*		43.50	42.65*	41.87
Rural 60 km/h arterial				58.10	58.55	58.15	57.69
Rural hills 80 km/h arterial					78.50	76.59	77.15
Rural 100 km/h arterial				96.92	97.10	95.66*	96.18
Rural 110 km/h arterial				102.26	102.92	102.81	102.87

* statistically significant change from previous survey ($p < 0.05$)

Note: 50 km/h roads were 60 km/h in 2002

Low speed roads showed a marked reduction in mean speed following the introduction of the default 50 km/h speed limit in 2003 and for some years after. Mean speeds on these roads generally went up from 2005 to 2007 but down again in 2008. Mean speeds on these roads appear not to have changed between 2008 and 2009.

The speeds of vehicles on high speed rural roads have remained relatively unchanged between 2006 and 2009 with the exception of a significant drop in the speeds of vehicles on 100 km/h roads between 2007 and 2008.

It is not clear what the reasons for the observed speed changes are although a lower police enforcement tolerance and a large advertising campaign may have played some role in the speed changes between 2007 and 2008.

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1 Introduction

Speed is an important determinant of crash incidence and outcome and numerous initiatives are being implemented in South Australia with the aim of reducing the speeds of vehicles. A systematic and ongoing method of measuring vehicle speeds in South Australia is required to assess the effects of speed reduction countermeasures and to monitor the speed behaviour of motorists over time.

The Department for Transport, Energy and Infrastructure contracted CASR to identify a selection of sites in South Australia at which speed measurements will be taken at on a yearly basis. The sites selected included sites with historical measurements supplemented by new sites to give a broad range of road types. The first full set of measurements was taken in 2007 and are reported in Kloeden and Woolley (2009). A follow up set of measurements were taken in 2008 and are reported in Kloeden and Woolley (2010).

This Report summarises the data collected in 2009 and through a new methodology allows direct comparisons with all previous surveys.

2 Methodology

2.1 Site selection

Table 2.1 shows the number of sites surveyed in each year. Table 2.2 shows the number of site/direction combinations that were successfully surveyed in each year. The individual site locations are listed in Appendix A and the site/direction identifiers and a subset of the individual site results are listed in Appendix B.

Table 2.1
Number of speed survey sites by road type and survey year

Road type (speed limit)	2002 1 day	2003 1 day	2005 1 day	2006 1 week	2007 1 week	2008 1 week	2009 1 week
Adelaide local (50)*	18	18	18	-	18	18	18
Adelaide collector (50)*	11	11	11	-	11	10	11
Adelaide arterial (60)	10	10	10	-	27	27	27
Adelaide arterial (80)	-	-	-	-	6	6	6
Rural local (50)*	12	12	12	-	13	13	13
Rural arterial (60)	-	-	-	5	5	5	5
Rural hills arterial (80)	-	-	-	-	4	6	6
Rural arterial (100)	-	-	-	6	10	10	10
Rural arterial (110)	-	-	-	8	37	36	34
Total	51	51	51	19	131	131	130

* these roads were 60 km/h in 2002

Table 2.2
Number of speed survey measurements by road type and survey year

Road type (speed limit)	2002 1 day	2003 1 day	2005 1 day	2006 1 week	2007 1 week	2008 1 week	2009 1 week
Adelaide local (50)*	35	35	35	-	35	35	34
Adelaide collector (50)*	22	22	22	-	22	20	22
Adelaide arterial (60)	20	20	20	-	54	54	53
Adelaide arterial (80)	-	-	-	-	12	12	12
Rural local (50)*	23	23	23	-	25	25	25
Rural arterial (60)	-	-	-	10	10	10	10
Rural hills arterial (80)	-	-	-	-	8	12	12
Rural arterial (100)	-	-	-	12	20	20	20
Rural arterial (110)	-	-	-	16	74	72	68
Total	100	100	100	38	260	260	256

* these roads were 60 km/h in 2002

The 2002-2005 sites were those used in the evaluation of the introduction of the default 50 km/h speed limit. These sites were surveyed by a contractor for one day each in 2002, 2003 and 2005. These sites were surveyed by a contractor again in 2007, 2008 and 2009 for a full week mostly in November. Some of these sites had to be remeasured after November due to equipment malfunctions.

Additional sites were surveyed in 2007 for a full week mostly in August or November (see Appendix A for site sample months). Some of these sites were also sampled for week in 2006.

Some sites had their sample location moved or had their layout changed and so were given a new site ID and considered to be a new site to reflect the fact that speeds were not comparable before and after the change (details are given in Appendix A).

2.2 Data collected

The data was collected in most cases using a standard traffic counter box and tubes that were set up by either a contactor or DTEI personnel. At some sites, in-ground detectors were used for measurements. The following information was recorded for each vehicle that passed during the survey period:

- date
- time (to nearest second)
- direction of travel
- speed (to nearest 0.1 km/h)
- wheelbase (to nearest 0.1 m)
- headway (to nearest 0.1 second)
- gap (to nearest 0.1 second)
- number of axles
- class of vehicle (based on number of axles and wheel bases)

The aim was to capture data at each site for a continuous one week period either in August or November depending on the site. Due to equipment malfunctions, some of the time periods had to be extended to capture a full week of valid data.

Due to limitations of the equipment, multilane arterial roads with medians only had their median lanes measured and multilane arterial roads without medians only had their kerbside lanes measured.

2.3 Quantifying and testing speed changes

The methodology used in the previous report (Kloeden and Woolley, 2010) only compared sites with measurements in both 2007 and 2008. By extension, this methodology in the current situation would only consider sites with measurements in 2007, 2008 and 2009. This means that sites will drop out and there is no provision for adding new sites to the survey sample over time.

However, by concentrating on the changes between one survey and the next rather than on absolute values, sites can come in and out of the survey set.

In practice, this means that adjacent pairs of surveys are compared for changes in speed measurements. For example to determine the change in mean speed between the 2007 survey and the 2008 survey, the mean speeds would be compared for all sites with successful measurements in both 2007 and 2008. Then to determine the change in mean speed between the 2008 survey and the 2009 survey, the mean speeds would be compared for all sites with successful measurements in both 2008 and 2009. This also allows surveys previous to 2007 to be directly compared even though only a subset of sites were previously sampled.

This method has the advantage of using more of the available data for determining changes, is tolerant of sites dropping out and allows new sites to be added to the analysis over time (thus increasing the power of detecting speed changes). It does make the assumption that changes in the

speed measurements are not dependant on particular site characteristics but given that we are searching for an overall trend in speed change it is probably reasonable to assume this.

Previously the changes in speed measurements were averaged and tested for statistical significance using a matched pair T-test. Upon further reflection on the data collected so far, a more appropriate method of summarising and testing the results was identified.

It is apparent in the data collected that some sites (particularly high volume sites) have a very stable speed distribution while other sites (particularly low volume sites) have a speed distribution that is highly variable from one survey to the next. Also, while sites that exhibit large changes in speed between surveys for an identified reason (such as road works) are eliminated from the analysis, sites with such a large change for no identified reason are left in. This means that the survey to survey variations are not normally distributed across the sites (normality is an assumption of the matched pair T-test).

The Wilcoxon signed rank test is a more appropriate test for this kind of data as it does not assume a normal distribution of differences and it is much more tolerant to spurious outlying data. It also tests the median of the differences rather than the average of the differences so the estimated median change also has more protection against spurious outlying data than the average change.

As a concrete example of this method being applied consider the data for the means speeds of Adelaide 50 km/h collector roads shown in Table 2.3. Site CM05 underwent road works in 2008 that fundamentally changed its speed distribution and so the data for 2008 was dropped and it was given a new site ID in 2009.

Table 2.3
Adelaide 50 km/h collector road results for each site in each direction of travel - mean speed (km/h)

Location ID	2002 1 day	2003 1 day	2005 1 day	2007 1 day	2007 1 week	2008 1 week	2009 1 week
CM01E	50.401	48.838	47.391	49.709	49.250	48.163	47.629
CM01W	50.046	49.765	48.614	50.685	50.457	48.647	48.471
CM02N	44.079	48.718	47.043	46.972	45.118	47.916	46.233
CM02S	43.032	46.746	44.616	45.268	44.066	45.507	48.618
CM03N	61.407	54.746	53.490	53.794	54.404	53.284	51.818
CM03S	58.168	53.374	52.042	51.378	51.545	52.830	50.463
CM04E	58.949	56.384	54.073	50.943	50.849	51.646	52.807
CM04W	59.190	59.244	54.245	52.658	52.460	50.643	54.854
CM05E	52.787	50.485	48.876	51.335	50.895		
CM05W	52.038	49.730	49.300	50.612	50.295		
CM06E	53.411	50.440	49.458	51.028	51.108	50.795	50.745
CM06W	62.298	55.323	50.895	51.333	51.421	51.816	51.761
CM07N	58.557	53.825	54.086	54.242	53.869	53.919	53.521
CM07S	58.579	57.034	56.988	55.049	55.122	53.459	53.706
CM08E	55.681	51.745	49.493	50.228	50.031	49.363	48.185
CM08W	54.655	51.853	49.154	49.412	49.599	48.981	47.486
CM09N	49.746	46.679	45.807	47.361	47.174	46.197	45.743
CM09S	47.963	47.761	46.680	47.087	47.395	46.640	46.020
CM10N	51.953	50.818	49.260	49.510	49.260	47.784	47.951
CM10S	51.404	51.132	50.121	50.065	49.945	47.842	49.013
CM11E	56.261	52.128	51.675	53.964	53.785	51.797	53.019
CM11W	51.644	52.297	52.055	53.663	53.393	52.086	52.323
CM12E							44.382
CM12W							44.962
Column median					50.653		

The differences for each site/direction combination from one survey to the next survey are calculated and are shown in Table 2.4. For the 2005-2007 comparison, the one day of data in 2005 is compared with a single comparable day of data in 2007.

Table 2.4
Adelaide 50 km/h collector road results for each site in each direction of travel - mean speed changes (km/h)

Location ID	2002-2003	2003-2005	2005-2007*	2007-2008	2008-2009
CM01E	-1.562	-1.447	2.318	-1.087	-0.534
CM01W	-0.281	-1.152	2.071	-1.810	-0.176
CM02N	4.639	-1.674	-0.071	2.798	-1.683
CM02S	3.714	-2.130	0.652	1.441	3.111
CM03N	-6.660	-1.256	0.304	-1.121	-1.465
CM03S	-4.794	-1.332	-0.664	1.285	-2.367
CM04E	-2.566	-2.311	-3.130	0.797	1.161
CM04W	0.054	-4.999	-1.587	-1.817	4.210
CM05E	-2.301	-1.609	2.459		
CM05W	-2.308	-0.431	1.313		
CM06E	-2.971	-0.983	1.571	-0.313	-0.050
CM06W	-6.974	-4.429	0.438	0.395	-0.054
CM07N	-4.732	0.261	0.155	0.050	-0.398
CM07S	-1.545	-0.046	-1.939	-1.663	0.247
CM08E	-3.937	-2.252	0.735	-0.669	-1.178
CM08W	-2.802	-2.699	0.258	-0.618	-1.495
CM09N	-3.067	-0.872	1.554	-0.978	-0.454
CM09S	-0.203	-1.081	0.407	-0.755	-0.620
CM10N	-1.135	-1.559	0.250	-1.477	0.168
CM10S	-0.272	-1.012	-0.056	-2.103	1.171
CM11E	-4.133	-0.453	2.289	-1.987	1.221
CM11W	0.653	-0.242	1.608	-1.307	0.237
CM12E					
CM12W					
Column median	-2.305	-1.294	0.422	-0.866	-0.115
Significance**	0.003	0.000	0.054	0.064	0.596

* change from 2005 (1 day) to 2007 (1 day)

** tested using Wilcoxon test

The difference columns in Table 2.4 are then tested using the Wilcoxon signed rank test with the significance row giving the statical significance value (two tailed exact calculation) which indicates the probability of the observed or larger change in either direction occurring by chance if there really is no difference. For the present purposes any significance level below 0.05 is considered as being statistically significant. The “column median” row gives the median of the known changes and is taken as the estimate of the change from one survey to the next.

This gives a complete picture of the changes between surveys but it is also desirable to express the results in terms of absolute speed values. This is done by taking the median value of all the 2007 known results (bottom row of Table 2.3) and using this as a reference against which the calculated changes are applied giving the results shown in Table 2.5. The median is used rather than the mean to avoid extreme sites (either high or low speed sites) having a large effect on the reference speed.

Table 2.5
Adelaide 50 km/h collector road results for each site in each direction of travel - mean speed (km/h)

Location ID	2002	2003	2005	2007	2008	2009
Starting point				50.653		
Change from previous survey		-2.305*	-1.294*	0.422	-0.866	-0.115
Calculated summary	53.829	51.524	50.230	50.653	49.787	49.671

* statistically significant ($p < 0.05$)

This method was applied to all the speed measurements for all the site types. Summaries of the results are given in Section 3 and a sample of the detailed results are given in Appendix B.

3 Speeds of all vehicles

This Section compares the speeds of all vehicles collected in the various surveys on the different road types. The speed changes and summary speed values are calculated as per Section 2.3.

3.1 Adelaide 50 km/h local roads

The summary speed measurements for all vehicles passing the measured sites for all the surveys are presented in Table 3.1 and the changes from one survey to the next in Table 3.2.

Table 3.1
Adelaide 50 km/h local road speed results by survey

Speed measurement	2002	2003	2005	2007	2008	2009
Mean speed	46.90	44.76	43.34	44.24	43.75	44.10
Median speed	48.55	45.94	44.34	45.40	44.70	45.10
85th percentile speed	57.15	54.29	53.05	53.50	52.80	52.80
% above 50 km/h	34.22	26.22	23.74	24.65	22.47	23.23
% above 55 km/h	20.30	12.62	11.36	11.95	11.28	11.39
% above 60 km/h	9.69	5.72	5.01	5.01	4.77	4.75
% above 65 km/h	3.18	1.93	1.78	1.78	1.72	1.62

Note: these roads were 60 km/h in 2002

Table 3.2
Adelaide 50 km/h local road speed changes between surveys

Speed measurement	2002-2003	2003-2005	2005-2007	2007-2008	2008-2009
Mean speed	-2.14*	-1.42*	0.91*	-0.50*	0.35
Median speed	-2.61*	-1.60*	1.06*	-0.70	0.40
85th percentile speed	-2.86*	-1.24*	0.45	-0.70	0.00
% above 50 km/h	-7.99*	-2.48	0.91	-2.18*	0.76
% above 55 km/h	-7.68*	-1.26	0.60	-0.68*	0.11
% above 60 km/h	-3.97*	-0.71	0.00	-0.24	-0.02
% above 65 km/h	-1.25*	-0.15	0.00	-0.06	-0.11*

* statistically significant change ($p < 0.05$)

3.2 Adelaide 50 km/h collector roads

The summary speed measurements for all vehicles passing the measured sites for all the surveys are presented in Table 3.3 and the changes from one survey to the next in Table 3.4.

Table 3.3
Adelaide 50 km/h collector road speed results by survey

Speed measurement	2002	2003	2005	2007	2008	2009
Mean speed	53.83	51.52	50.23	50.65	49.79	49.67
Median speed	54.24	51.51	50.35	50.80	49.95	50.05
85th percentile speed	61.06	59.09	57.26	57.90	57.00	56.55
% above 50 km/h	68.16	58.78	52.48	55.02	49.97	49.99
% above 55 km/h	43.85	30.00	24.12	25.84	23.04	22.88
% above 60 km/h	21.60	12.45	8.38	9.21	7.89	7.49
% above 65 km/h	6.48	4.20	2.86	2.94	2.34	2.32

Note: these roads were 60 km/h in 2002

Table 3.4
Adelaide 50 km/h collector road speed changes between surveys

Speed measurement	2002-2003	2003-2005	2005-2007	2007-2008	2008-2009
Mean speed	-2.30*	-1.29*	0.42	-0.87	-0.12
Median speed	-2.72*	-1.16*	0.45	-0.85	0.10
85th percentile speed	-1.97*	-1.83*	0.64	-0.90	-0.45
% above 50 km/h	-9.39*	-6.30*	2.54	-5.05*	0.02
% above 55 km/h	-13.85*	-5.87*	1.72	-2.80*	-0.17
% above 60 km/h	-9.15*	-4.07*	0.83	-1.32*	-0.40
% above 65 km/h	-2.28*	-1.34*	0.07	-0.59*	-0.02

* statistically significant change ($p < 0.05$)

3.3 Adelaide 60 km/h arterial roads

The summary speed measurements for all vehicles passing the measured sites for all the surveys are presented in Table 3.5 and the changes from one survey to the next in Table 3.6.

Table 3.5
Adelaide 60 km/h arterial road speed results by survey

Speed measurement	2002	2003	2005	2007	2008	2009
Mean speed	58.37	57.06	56.36	56.76	55.96	55.82
Median speed	58.74	57.87	57.08	57.45	56.65	56.45
85th percentile speed	63.54	62.80	61.81	62.15	61.30	61.00
% above 60 km/h	37.08	31.24	25.39	27.29	21.82	19.83
% above 65 km/h	9.55	6.91	4.97	5.64	3.95	3.53
% above 70 km/h	2.49	1.97	1.29	1.27	0.93	0.83
% above 75 km/h	1.04	0.84	0.46	0.43	0.34	0.31

Table 3.6
Adelaide 60 km/h arterial road speed changes between surveys

Speed measurement	2002-2003	2003-2005	2005-2007	2007-2008	2008-2009
Mean speed	-1.31*	-0.70*	0.40	-0.80*	-0.14
Median speed	-0.88*	-0.79*	0.38	-0.80*	-0.20
85th percentile speed	-0.74*	-0.99*	0.34	-0.85*	-0.30
% above 60 km/h	-5.85*	-5.85*	1.90	-5.47*	-1.99
% above 65 km/h	-2.64*	-1.93*	0.66	-1.69*	-0.42*
% above 70 km/h	-0.51*	-0.68*	-0.02	-0.34*	-0.10*
% above 75 km/h	-0.20*	-0.38*	-0.03	-0.09*	-0.03*

* statistically significant change ($p < 0.05$)

3.4 Adelaide 80 km/h arterial roads

The summary speed measurements for all vehicles passing the measured sites for all the surveys are presented in Table 3.7 and the changes from one survey to the next in Table 3.8.

Table 3.7
Adelaide 80 km/h arterial road speed results by survey

Speed measurement	2007	2008	2009
Mean speed	74.24	74.26	73.91
Median speed	74.65	74.85	74.10
85th percentile speed	81.50	81.60	80.70
% above 80 km/h	20.74	21.45	17.40
% above 85 km/h	5.89	6.21	4.81
% above 90 km/h	1.72	1.83	1.46
% above 95 km/h	0.65	0.69	0.57

Table 3.8
Adelaide 80 km/h arterial road speed changes between surveys

Speed measurement	2007-2008	2008-2009
Mean speed	0.03	-0.35
Median speed	0.20	-0.75
85th percentile speed	0.10	-0.90
% above 80 km/h	0.71	-4.05
% above 85 km/h	0.32	-1.40
% above 90 km/h	0.12	-0.37*
% above 95 km/h	0.03	-0.11*

* statistically significant change ($p < 0.05$)

3.5 Rural 50 km/h local roads

The summary speed measurements for all vehicles passing the measured sites for all the surveys are presented in Table 3.9 and the changes from one survey to the next in Table 3.10.

Table 3.9
Rural 50 km/h local road speed results by survey

Speed measurement	2002	2003	2005	2007	2008	2009
Mean speed	44.52	44.34	42.90	43.50	42.65	41.87
Median speed	46.42	45.65	44.40	44.70	43.70	43.20
85th percentile speed	56.67	55.47	53.63	54.10	53.10	53.00
% above 50 km/h	37.07	35.68	30.81	31.38	28.66	28.59
% above 55 km/h	16.08	14.12	12.17	12.17	10.12	10.12
% above 60 km/h	6.44	5.62	4.47	4.47	3.32	3.32
% above 65 km/h	2.22	1.79	1.47	1.44	0.92	0.92

Note: these roads were 60 km/h in 2002

Table 3.10
Rural 50 km/h local road speed changes between surveys

Speed measurement	2002-2003	2003-2005	2005-2007	2007-2008	2008-2009
Mean speed	-0.17	-1.44*	0.60	-0.85*	-0.78
Median speed	-0.77	-1.25*	0.30	-1.00*	-0.50
85th percentile speed	-1.20	-1.84*	0.47	-1.00*	-0.10
% above 50 km/h	-1.38	-4.87*	0.57	-2.72*	-0.07
% above 55 km/h	-1.96*	-1.95*	0.00	-2.04*	0.00
% above 60 km/h	-0.81*	-1.15*	0.00	-1.15*	0.00
% above 65 km/h	-0.43*	-0.33*	-0.02	-0.52*	0.00

* statistically significant change ($p < 0.05$)

3.6 Rural 60 km/h arterial roads

The summary speed measurements for all vehicles passing the measured sites for all the surveys are presented in Table 3.11 and the changes from one survey to the next in Table 3.12.

Table 3.11
Rural 60 km/h arterial road speed results by survey

Speed measurement	2006	2007	2008	2009
Mean speed	58.10	58.55	58.15	57.69
Median speed	58.50	58.75	58.30	57.95
85th percentile speed	63.95	64.20	63.55	63.10
% above 60 km/h	38.42	39.37	36.12	33.78
% above 65 km/h	11.54	12.03	10.78	9.95
% above 70 km/h	3.12	3.25	2.89	2.61
% above 75 km/h	1.01	1.00	0.91	0.76

Table 3.12
Rural 60 km/h arterial road speed changes between surveys

Speed measurement	2006-2007	2007-2008	2008-2009
Mean speed	0.45	-0.40	-0.46
Median speed	0.25	-0.45	-0.35
85th percentile speed	0.25	-0.65	-0.45
% above 60 km/h	0.96	-3.25	-2.34
% above 65 km/h	0.48	-1.25	-0.83
% above 70 km/h	0.14	-0.36	-0.28
% above 75 km/h	-0.01	-0.09	-0.15

No changes were statistically significant change ($p < 0.05$)

3.7 Rural hills 80 km/h arterial roads

The summary speed measurements for all vehicles passing the measured sites for all the surveys are presented in Table 3.13 and the changes from one survey to the next in Table 3.14.

Table 3.13
Rural hills 80 km/h arterial road speed results by survey

Speed measurement	2007	2008	2009
Mean speed	78.50	76.59	77.15
Median speed	78.30	76.60	77.20
85th percentile speed	87.05	84.75	85.30
% above 80 km/h	40.80	34.41	36.99
% above 85 km/h	20.59	18.71	19.49
% above 90 km/h	9.70	8.98	9.80
% above 95 km/h	4.74	4.15	4.75

Table 3.14
Rural hills 80 km/h arterial road speed changes between surveys

Speed measurement	2007-2008	2008-2009
Mean speed	-1.91	0.56
Median speed	-1.70	0.60
85th percentile speed	-2.30	0.55
% above 80 km/h	-6.39	2.59
% above 85 km/h	-1.89	0.78
% above 90 km/h	-0.72	0.82
% above 95 km/h	-0.60	0.60

No changes were statistically significant change ($p < 0.05$)

3.8 Rural 100 km/h arterial roads

The summary speed measurements for all vehicles passing the measured sites for all the surveys are presented in Table 3.15 and the changes from one survey to the next in Table 3.16.

Table 3.15
Rural 100 km/h arterial road speed results by survey

Speed measurement	2006	2007	2008	2009
Mean speed	96.92	97.10	95.66	96.18
Median speed	98.15	98.70	97.50	97.80
85th percentile speed	108.10	108.00	106.15	105.95
% above 100 km/h	41.53	43.09	38.50	38.45
% above 105 km/h	22.66	23.05	19.59	19.51
% above 110 km/h	10.73	10.88	9.35	9.39
% above 115 km/h	4.44	4.28	3.74	3.79

Table 3.16
Rural 100 km/h arterial road speed changes between surveys

Speed measurement	2006-2007	2007-2008	2008-2009
Mean speed	0.18	-1.44*	0.52
Median speed	0.55	-1.20*	0.30
85th percentile speed	-0.10	-1.85*	-0.20
% above 100 km/h	1.55	-4.58*	-0.05
% above 105 km/h	0.39	-3.46*	-0.07
% above 110 km/h	0.14	-1.53*	0.05
% above 115 km/h	-0.17	-0.53*	0.05

* statistically significant change ($p < 0.05$)

3.9 Rural 110 km/h arterial roads

The summary speed measurements for all vehicles passing the measured sites for all the surveys are presented in Table 3.17 and the changes from one survey to the next in Table 3.18.

Table 3.17
Rural 110 km/h arterial road speed results by survey

Speed measurement	2006	2007	2008	2009
Mean speed	102.26	102.92	102.81	102.87
Median speed	103.60	104.25	104.25	104.35
85th percentile speed	113.00	113.60	113.40	113.30
% above 110 km/h	25.83	27.55	27.18	27.38
% above 115 km/h	10.69	11.65	11.09	11.10
% above 120 km/h	4.46	4.34	3.96	3.78
% above 125 km/h	1.75	1.73	1.57	1.47

Table 3.18
Rural 110 km/h arterial road speed changes between surveys

Speed measurement	2006-2007	2007-2008	2008-2009
Mean speed	0.65	-0.11	0.06
Median speed	0.65	0.00	0.10
85th percentile speed	0.60	-0.20*	-0.10
% above 110 km/h	1.72	-0.37*	0.20
% above 115 km/h	0.96	-0.56*	0.01
% above 120 km/h	-0.12	-0.38*	-0.19
% above 125 km/h	-0.02	-0.16*	-0.10

* statistically significant change ($p < 0.05$)

3.10 Summary of changes in mean speed

The changes in mean speed on the various road types are shown graphically in Figures 3.1-3.4 with solid lines representing a statistically significant change in mean speed and dashed lines indicating a change that was not statistically significant.

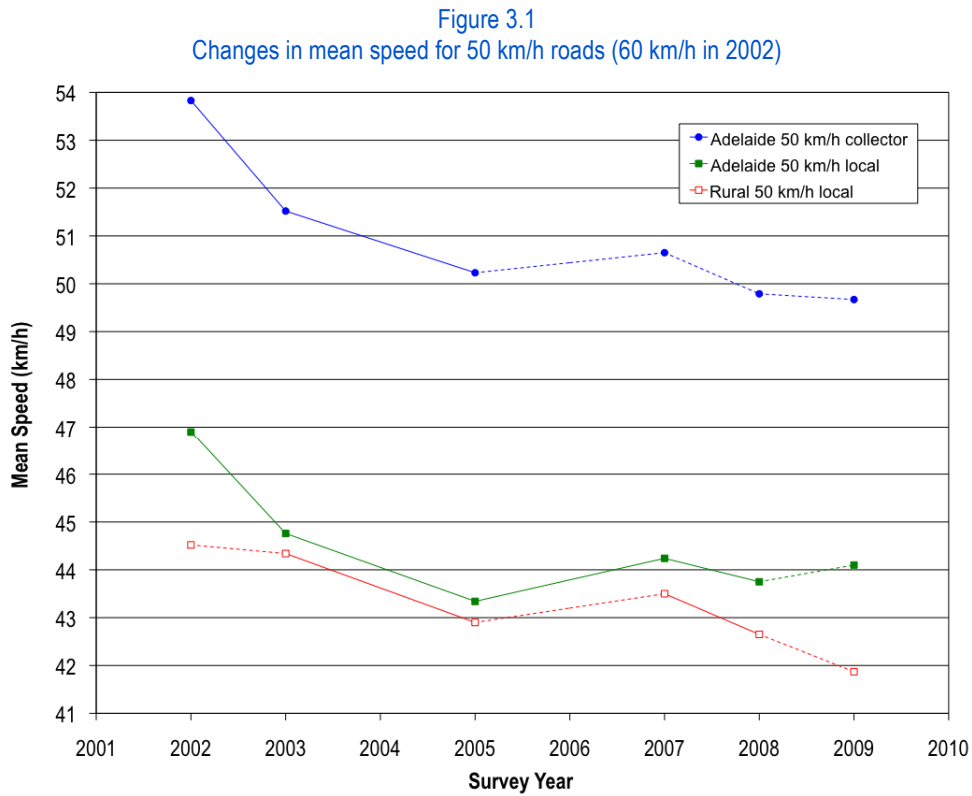


Figure 3.2
Changes in mean speed for low speed roads

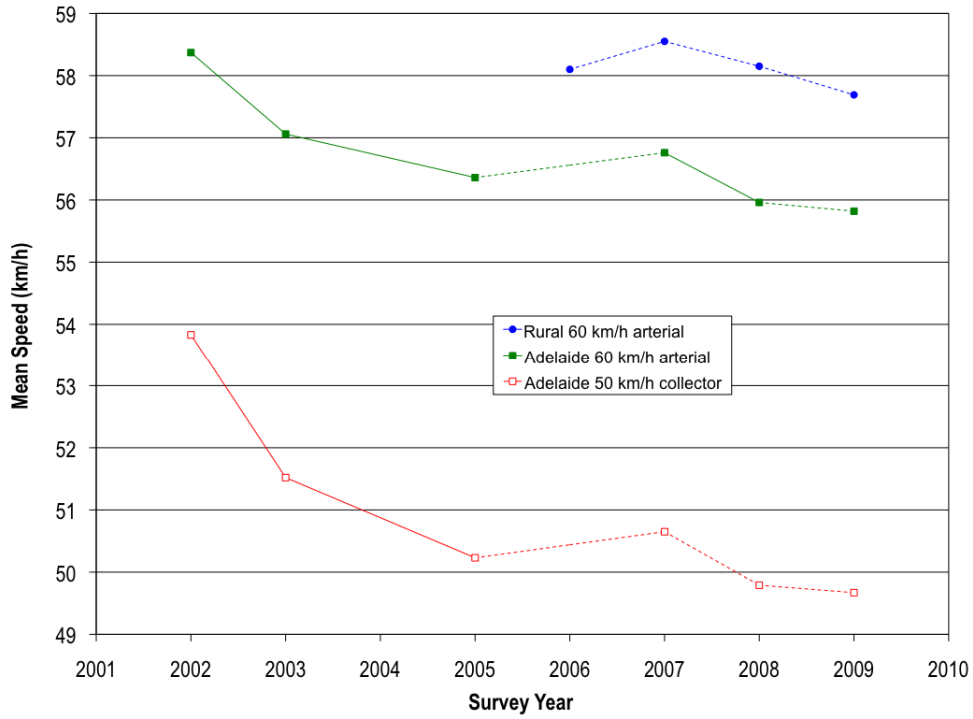


Figure 3.3
Changes in mean speed for 80 km/h roads

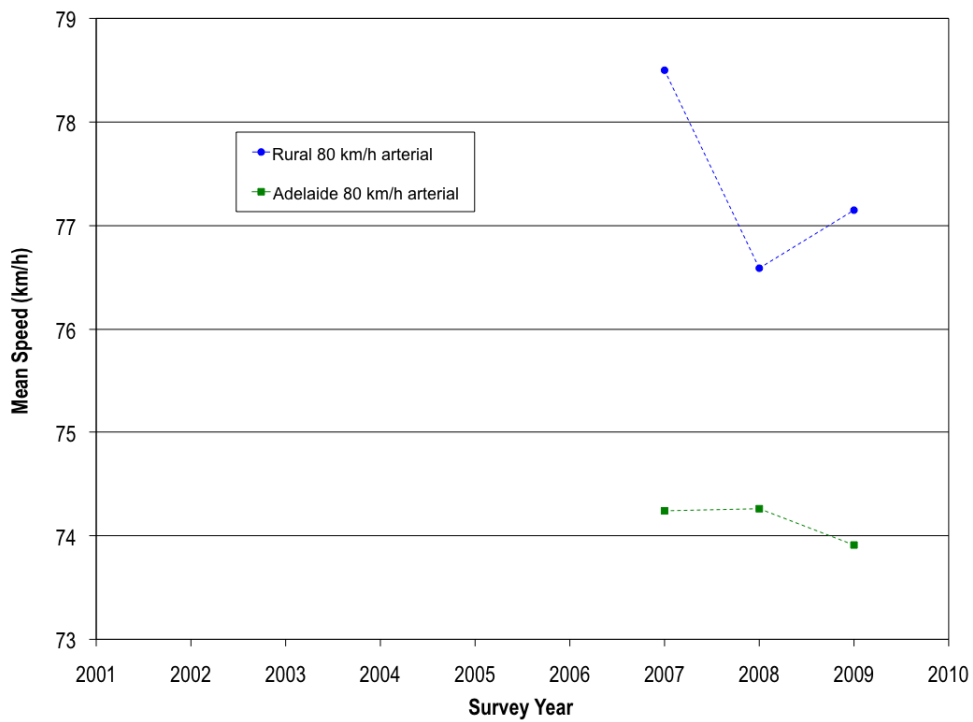
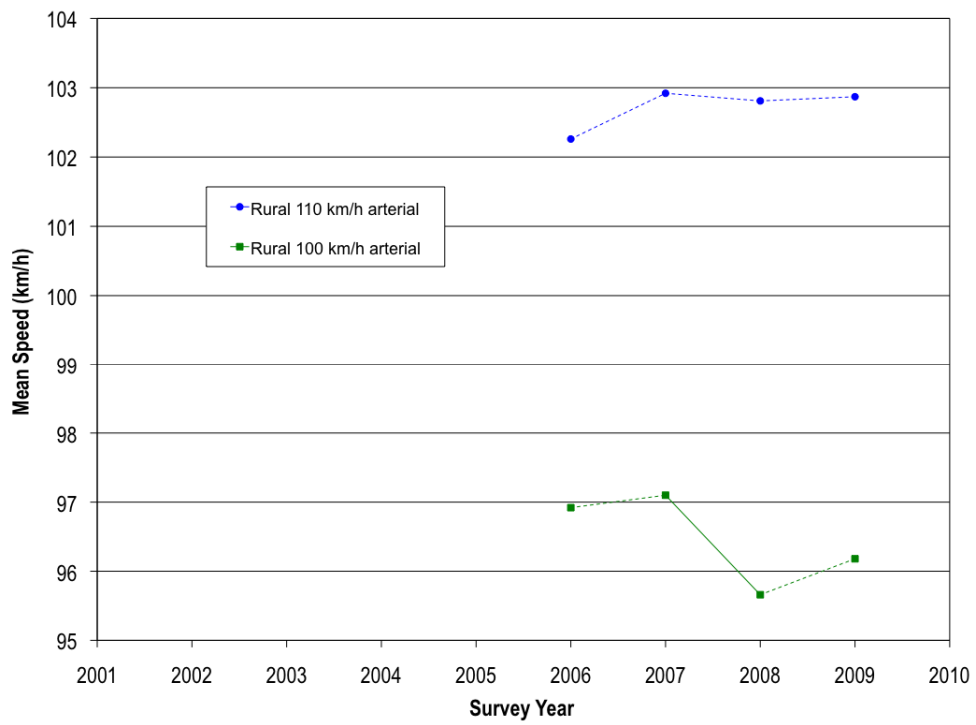


Figure 3.4
Changes in mean speed for high speed roads



4 Speeds of free speed vehicles

This Section compares the speeds of all free speed vehicles collected in the various surveys on the different road types.

Free speed vehicles were defined as those that had at least a four second headway gap to the vehicle in front of them (ie the time between the front wheels of the two vehicles passing the measurement site was at least four seconds). The drivers of free speed vehicles presumably all make a choice of what speed to travel at unlike the drivers of vehicles in a platoon that are limited to the speed of the front vehicle. By examining just free speed vehicles, freely chosen speeds can be analysed.

The free speed changes and summary free speed values are calculated as per Section 2.3.

4.1 Adelaide 50 km/h local roads

The summary speed measurements for all free speed vehicles passing the measured sites for all the surveys are presented in Table 4.1 and the changes from one survey to the next in Table 4.2.

Table 4.1
Adelaide 50 km/h local road free speed results by survey

Speed measurement	2002	2003	2005	2007	2008	2009
Mean speed	47.40	45.09	43.75	44.65	44.23	44.54
Median speed	48.58	45.97	44.37	45.50	44.90	45.15
85th percentile speed	58.10	55.00	53.76	54.20	53.80	53.80
% above 50 km/h	35.11	27.07	25.11	26.00	23.69	24.28
% above 55 km/h	21.17	13.97	12.78	13.27	12.69	12.75
% above 60 km/h	10.37	5.90	5.35	5.36	5.12	5.08
% above 65 km/h	3.05	1.87	1.82	1.82	1.76	1.63

Note: these roads were 60 km/h in 2002

Table 4.2
Adelaide 50 km/h local road free speed changes between surveys

Speed measurement	2002-2003	2003-2005	2005-2007	2007-2008	2008-2009
Mean speed	-2.31*	-1.33*	0.90*	-0.43*	0.32
Median speed	-2.61*	-1.60*	1.13*	-0.60*	0.25
85th percentile speed	-3.10*	-1.24*	0.44	-0.40	0.00
% above 50 km/h	-8.04*	-1.97	0.90	-2.32*	0.59
% above 55 km/h	-7.20*	-1.19	0.48	-0.57*	0.05
% above 60 km/h	-4.47*	-0.54	0.01	-0.24	-0.04
% above 65 km/h	-1.17*	-0.06	0.00	-0.06	-0.13*

* statistically significant change ($p < 0.05$)

4.2 Adelaide 50 km/h collector roads

The summary speed measurements for all free speed vehicles passing the measured sites for all the surveys are presented in Table 4.3 and the changes from one survey to the next in Table 4.4.

Table 4.3
Adelaide 50 km/h collector road free speed results by survey

Speed measurement	2002	2003	2005	2007	2008	2009
Mean speed	54.11	51.83	50.49	50.82	49.94	49.84
Median speed	54.31	51.70	50.60	50.90	50.10	50.10
85th percentile speed	60.96	58.83	57.19	57.95	57.15	56.70
% above 50 km/h	69.10	59.89	53.54	55.48	50.48	50.67
% above 55 km/h	43.60	30.66	24.29	26.21	23.19	22.94
% above 60 km/h	22.29	12.89	8.49	9.37	8.01	7.59
% above 65 km/h	6.75	4.47	3.05	3.05	2.43	2.43

Note: these roads were 60 km/h in 2002

Table 4.4
Adelaide 50 km/h collector road free speed changes between surveys

Speed measurement	2002-2003	2003-2005	2005-2007	2007-2008	2008-2009
Mean speed	-2.28*	-1.34*	0.32	-0.88	-0.10
Median speed	-2.62*	-1.09*	0.30	-0.80	0.00
85th percentile speed	-2.14*	-1.64*	0.77	-0.80	-0.45
% above 50 km/h	-9.21*	-6.35*	1.94	-5.00*	0.19
% above 55 km/h	-12.94*	-6.37*	1.92	-3.02*	-0.25
% above 60 km/h	-9.39*	-4.40*	0.88	-1.36*	-0.42
% above 65 km/h	-2.27*	-1.43*	0.01	-0.63*	0.00

* statistically significant change ($p < 0.05$)

4.3 Adelaide 60 km/h arterial roads

The summary speed measurements for all free speed vehicles passing the measured sites for all the surveys are presented in Table 4.5 and the changes from one survey to the next in Table 4.6.

Table 4.5
Adelaide 60 km/h arterial road free speed results by survey

Speed measurement	2002	2003	2005	2007	2008	2009
Mean speed	58.55	57.59	56.92	57.35	56.61	56.40
Median speed	58.96	58.12	57.52	57.90	57.15	56.95
85th percentile speed	64.45	63.55	62.53	63.00	62.20	61.90
% above 60 km/h	41.02	35.01	30.83	33.20	28.77	26.47
% above 65 km/h	13.48	10.17	7.28	8.26	6.29	5.46
% above 70 km/h	4.05	3.10	2.01	2.06	1.56	1.40
% above 75 km/h	1.79	1.42	0.68	0.75	0.60	0.53

Table 4.6
Adelaide 60 km/h arterial road free speed changes between surveys

Speed measurement	2002-2003	2003-2005	2005-2007	2007-2008	2008-2009
Mean speed	-0.96*	-0.66*	0.42	-0.74*	-0.21
Median speed	-0.84*	-0.61*	0.38	-0.75*	-0.20
85th percentile speed	-0.90*	-1.02*	0.46	-0.80*	-0.30
% above 60 km/h	-6.01*	-4.18*	2.37	-4.44*	-2.30
% above 65 km/h	-3.31*	-2.89*	0.98	-1.97*	-0.83*
% above 70 km/h	-0.94*	-1.09*	0.05	-0.51*	-0.16*
% above 75 km/h	-0.37*	-0.74*	0.07	-0.15*	-0.07*

* statistically significant change ($p < 0.05$)

4.4 Adelaide 80 km/h arterial roads

The summary speed measurements for all free speed vehicles passing the measured sites for all the surveys are presented in Table 4.7 and the changes from one survey to the next in Table 4.8.

Table 4.7
Adelaide 80 km/h arterial road free speed results by survey

Speed measurement	2007	2008	2009
Mean speed	76.04	76.13	75.67
Median speed	76.35	76.45	75.65
85th percentile speed	83.05	83.35	82.40
% above 80 km/h	28.37	29.46	24.39
% above 85 km/h	9.33	10.21	8.42
% above 90 km/h	3.14	3.53	3.01
% above 95 km/h	1.28	1.39	1.20

Table 4.8
Adelaide 80 km/h arterial road free speed changes between surveys

Speed measurement	2007-2008	2008-2009
Mean speed	0.09	-0.46
Median speed	0.10	-0.80
85th percentile speed	0.30	-0.95
% above 80 km/h	1.08	-5.07
% above 85 km/h	0.88	-1.79
% above 90 km/h	0.39	-0.53*
% above 95 km/h	0.11	-0.19*

* statistically significant change ($p < 0.05$)

4.5 Rural 50 km/h local roads

The summary speed measurements for all free speed vehicles passing the measured sites for all the surveys are presented in Table 4.9 and the changes from one survey to the next in Table 4.10.

Table 4.9
Rural 50 km/h local road free speed results by survey

Speed measurement	2002	2003	2005	2007	2008	2009
Mean speed	44.07	44.41	42.97	43.51	42.67	42.02
Median speed	46.16	45.61	44.50	44.80	43.90	43.40
85th percentile speed	56.75	55.67	53.81	54.30	53.30	53.20
% above 50 km/h	37.38	36.17	31.36	31.41	28.69	28.69
% above 55 km/h	16.69	14.66	12.49	12.49	10.57	10.57
% above 60 km/h	6.54	5.70	4.62	4.62	3.26	3.26
% above 65 km/h	2.31	1.86	1.54	1.53	0.89	0.89

Note: these roads were 60 km/h in 2002

Table 4.10
Rural 50 km/h local road free speed changes between surveys

Speed measurement	2002-2003	2003-2005	2005-2007	2007-2008	2008-2009
Mean speed	0.34	-1.44*	0.54	-0.84*	-0.65
Median speed	-0.55	-1.11*	0.30	-0.90*	-0.50
85th percentile speed	-1.08	-1.86*	0.49	-1.00*	-0.10
% above 50 km/h	-1.22	-4.81*	0.05	-2.72*	0.00
% above 55 km/h	-2.04*	-2.17*	0.00	-1.92*	0.00
% above 60 km/h	-0.85*	-1.07*	0.00	-1.37*	0.00
% above 65 km/h	-0.45*	-0.32*	-0.01	-0.64*	0.00

* statistically significant change ($p < 0.05$)

4.6 Rural 60 km/h arterial roads

The summary speed measurements for all free speed vehicles passing the measured sites for all the surveys are presented in Table 4.11 and the changes from one survey to the next in Table 4.12.

Table 4.11
Rural 60 km/h arterial road free speed results by survey

Speed measurement	2006	2007	2008	2009
Mean speed	58.31	58.77	58.37	57.88
Median speed	58.70	58.95	58.40	58.05
85th percentile speed	64.20	64.50	63.85	63.40
% above 60 km/h	39.94	41.07	37.89	35.51
% above 65 km/h	12.93	13.41	12.25	11.38
% above 70 km/h	3.61	3.74	3.35	3.01
% above 75 km/h	1.23	1.21	1.13	0.95

Table 4.12
Rural 60 km/h arterial road free speed changes between surveys

Speed measurement	2006-2007	2007-2008	2008-2009
Mean speed	0.46	-0.40	-0.49
Median speed	0.25	-0.55	-0.35
85th percentile speed	0.30	-0.65	-0.45
% above 60 km/h	1.14	-3.18	-2.38
% above 65 km/h	0.48	-1.16	-0.87
% above 70 km/h	0.13	-0.39	-0.34
% above 75 km/h	-0.01	-0.09	-0.17

No changes were statistically significant change ($p < 0.05$)

4.7 Rural hills 80 km/h arterial roads

The summary speed measurements for all free speed vehicles passing the measured sites for all the surveys are presented in Table 4.13 and the changes from one survey to the next in Table 4.14.

Table 4.13
Rural hills 80 km/h arterial road free speed results by survey

Speed measurement	2007	2008	2009
Mean speed	79.53	77.69	78.40
Median speed	79.15	77.40	78.00
85th percentile speed	88.10	85.85	86.35
% above 80 km/h	45.06	38.24	40.83
% above 85 km/h	23.69	21.38	22.25
% above 90 km/h	11.46	10.55	11.67
% above 95 km/h	5.73	5.02	5.85

Table 4.14
Rural hills 80 km/h arterial road free speed changes between surveys

Speed measurement	2007-2008	2008-2009
Mean speed	-1.84	0.71
Median speed	-1.75	0.60
85th percentile speed	-2.25	0.50
% above 80 km/h	-6.82	2.59
% above 85 km/h	-2.32	0.87
% above 90 km/h	-0.91	1.12
% above 95 km/h	-0.71	0.83

No changes were statistically significant change ($p < 0.05$)

4.8 Rural 100 km/h arterial roads

The summary speed measurements for all free speed vehicles passing the measured sites for all the surveys are presented in Table 4.15 and the changes from one survey to the next in Table 4.16.

Table 4.15
Rural 100 km/h arterial road free speed results by survey

Speed measurement	2006	2007	2008	2009
Mean speed	97.34	97.51	96.14	96.70
Median speed	98.35	98.90	97.70	98.00
85th percentile speed	108.30	108.25	106.55	106.35
% above 100 km/h	42.38	44.16	39.38	39.27
% above 105 km/h	23.36	23.78	19.89	19.82
% above 110 km/h	11.09	11.33	9.71	9.79
% above 115 km/h	4.76	4.53	3.83	3.88

Table 4.16
Rural 100 km/h arterial road free speed changes between surveys

Speed measurement	2006-2007	2007-2008	2008-2009
Mean speed	0.17	-1.37*	0.56
Median speed	0.55	-1.20*	0.30
85th percentile speed	-0.05	-1.70*	-0.20
% above 100 km/h	1.78	-4.79*	-0.10
% above 105 km/h	0.42	-3.90*	-0.06
% above 110 km/h	0.24	-1.62*	0.07
% above 115 km/h	-0.23	-0.70*	0.05

* statistically significant change ($p < 0.05$)

4.9 Rural 110 km/h arterial roads

The summary speed measurements for all free speed vehicles passing the measured sites for all the surveys are presented in Table 4.17 and the changes from one survey to the next in Table 4.18.

Table 4.17
Rural 110 km/h arterial road free speed results by survey

Speed measurement	2006	2007	2008	2009
Mean speed	102.65	103.37	103.14	103.03
Median speed	103.90	104.60	104.45	104.45
85th percentile speed	113.25	113.95	113.75	113.60
% above 110 km/h	26.57	28.49	27.77	27.57
% above 115 km/h	11.15	12.37	11.71	11.57
% above 120 km/h	4.82	4.58	4.18	3.98
% above 125 km/h	1.76	1.77	1.61	1.49

Table 4.18
Rural 110 km/h arterial road free speed changes between surveys

Speed measurement	2006-2007	2007-2008	2008-2009
Mean speed	0.72	-0.24	-0.11
Median speed	0.70	-0.15	0.00
85th percentile speed	0.70	-0.20*	-0.15
% above 110 km/h	1.91	-0.72*	-0.20
% above 115 km/h	1.22	-0.66*	-0.14
% above 120 km/h	-0.24	-0.40*	-0.21
% above 125 km/h	0.01	-0.16*	-0.12

* statistically significant change ($p < 0.05$)

5 Discussion

5.1 Changes in speed on low speed roads

All low speed (50 or 60 km/h) road types examined had speeds consistent with the same general pattern of changes in mean speed from 2002 to 2008:

- a marked reduction in speed after the default 50 speed limit was introduced in 2003 with the reduction continuing to 2005
- a general increase in speed from 2005 to 2007
- a reduction in speed from 2007 to 2008
- inconsistent and no statistically significant changes between 2008 and 2009 (although Adelaide roads did show some indications of high speeds being less common in 2009 compared to 2008)

5.2 Changes in speed on 80 km/h roads

While mean speed changes were observed on 80 km/h urban and rural roads, the changes were erratic and not statistically significant (apart from a drop in high speed vehicles between 2008-2009 for Adelaide 80 km/h roads). This is likely due to the small number of sites surveyed in each of these speed zones. Consideration needs to be given to increasing the number of sites in each of these categories to at least 10 if they are to provide a meaningful measure of changes in speed over time.

5.3 Changes in speed on high speed rural roads

Rural 100 km/h roads exhibited a statistically significant reduction in mean speeds between 2007 and 2008 mirroring that seen for low speed roads. However, no statistically significant changes were observed between 2006-2007 or 2008-2009.

Rural 110 km/h roads showed no statistically significant change in mean speeds over the 2006 to 2009 surveys.

5.4 Free speed results

Restricting the analyses to just free speed vehicles (those with a headway of at least four seconds) produced very similar results to those for all vehicles. While the free speed measurements were slightly higher than the all speed measurements (as would be expected) the changes were very similar and the set of changes that were statistical significance was almost the same.

5.5 New methodology

The new methodology given in Section 2.3 allows direct comparisons across all surveys conducted and the addition of new sites. Since the number of sites determines the power to detect speed changes, consideration should be given to increasing the number of sites for those road types with few sites especially rural 60 km/h roads (5 sites), Adelaide 80 km/h roads (6 sites) and rural 80 km/h roads (6 sites).

The use of median speed changes and the Wilcoxon signed rank test for determining statistical significance of changes is considered more robust than previous methods being less likely to give

weight to spurious changes. However, this does mean some slight differences from previous reports both in terms of estimated changes and the significance of marginal results.

5.6 Possible reasons for speed changes

The introduction of the default 50 km/h speed limit clearly had the effect of lowering speeds on the affected roads as would be expected. However, a similar, but not as dramatic, change was also observed on roads that remained at 60 km/h. Speeds also continued to decline for a number of years after the default 50 km/h speed limit was introduced on 50 and 60 km/h roads. This suggests that the default 50 km/h speed limit had a general and compounding effect over a three year period from 2003 to 2005 on vehicle speeds. It appears that speeds rose again between 2005 and 2007 perhaps as media attention around speed diminished and speed stopped being an issue for drivers.

The drop in speeds from 2007 to 2008 may be related to an apparent lowering of the police enforcement tolerance around October 2007 whereby drivers passing through a road safety camera would be booked at a lower speed. This raised the number of offences being given out by a substantial amount and may have affected drivers choice of speed in the 2008 survey as drivers became aware of the change. The “creeper” advertising (which encouraged drivers not to creep over the speed limit and was widespread) started in October 2008 and may have had some effects on driver speeds in 2008.

Although mean speeds did not significantly change between 2008 and 2009 for any of the road types examined there were statistically significant reductions in the proportion of vehicles travelling above 65 km/h on both Adelaide 50 km/h local roads and Adelaide 60 km/h arterial roads. This may be the tail end of the police tolerance and advertising campaign effects observed in 2008.

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Appendix A - Site locations

The locations of all the sample sites are shown in Tables A.1-A.9 along with the target month of the sample and notes about unusual sites. Some sites had their sample location moved or had their layout changed and so were given a new site ID to reflect the fact that speeds were not comparable before and after the change.

Table A.1
Adelaide 50 km/h local road locations

Site ID	Location	Sample month	Notes
LM01	Bowyer Street, Rosewater	November	
LM02	Charles Road, Beverley	November	Made one way in 2009
LM03	Adelaide Street, Maylands	November	
LM04	Hambledon Road, Campbelltown	November	
LM05	Gilbertson Road, Seacliff Park	November	
LM06	Northcote Street, Kilburn	November	
LM07	Vincent Road, Smithfield Plains	November	
LM08	Andrew Avenue, Salisbury East	November	
LM09	North Esplanade, Glenelg North	November	
LM10	Olive Avenue, Broadview	November	
LM11	Commercial Street, Marleston	November	
LM12	Bermudez Crescent, Paralowie	November	
LM13	London Drive, Salisbury East	November	
LM14	Farrell Street, Glenelg South	November	
LM15	Main Street, Beverley	November	
LM16	George Street, Adelaide	November	One way street
LM17	Archer Street, North Adelaide	November	
LM18	Coorara Avenue, Payneham South	November	

Note: these roads were 60 km/h in 2002

Table A.2
Adelaide 50 km/h collector road locations

Site ID	Location	Sample month	Notes
CM01	Claremont Avenue, Netherby	November	
CM02	Seaview Road, West Beach	November	
CM03	Barcelona Road, Noarlunga Downs	November	
CM04	Milan Terrace, Stirling	November	
CM05	Jetty Road, Largs Bay	November	Road changed in 2008 - changed to CM12 from 2009 onwards
CM06	Perry Barr Road, Hallett Cove	November	
CM07	Scenic Way, Hackham	November	
CM08	Valetta Road, Kidman Park	November	
CM09	Sydenham Road, Norwood	November	
CM10	Sixth Avenue, St Peters	November	
CM11	Bonython Avenue, Novar Gardens	November	
CM12	Jetty Road, Largs Bay	November	Same site as CM05 from 2009 onwards

Note: these roads were 60 km/h in 2002

Table A.3
Adelaide 60 km/h arterial road locations

Site ID	Location	Sample month	Notes
AA01	Kenihans Road, Happy Valley	November	
AA02	Springbank Road, Clapham	November	
AA03	Fullarton Road, Kent Town	November	
AA04	Trimmer Parade, Findon	November	
AA05	Addison Road, Pennington	November	
AA06	Findon Road, Flinders Park	November	
AB01	Prospect Road, Blair Athol	November	
AB02	Gorge Road, Newton	November	
AB03	Stephen Terrace, St Peters	November	
AB04	Magill Road, Tranmere	November	
AB05	Richmond Road, Keswick	November	
AB06	Bower Road, Ethelton	November	Road works heading West in 2009
AC01	Goodwood Road, Cumberland Park	November	
AC02	Greenhill Road, Burnside	November	
AC03	Morphett Road, Warradale	November	
AC04	Glen Osmond Road, Fullarton	November	
AC05	Payneham Road, Evandale	November	
AC06	Torrens Road, Ridleyton	November	
AD01	Tapleys Hill Road, Fullham Gardens	November	
AD02	Montacute Road, Newton	November	
AD03	North East Road, Manningham	November	
AD04	Sir Donald Bradman Drive, Brooklyn Park	November	
AD05	Salisbury Highway, Salisbury Downs	November	
AD06	Glynburn Road, Hectorville	November	
AD07	Cross Road, Clarence Gardens	November	
AD08	Diagonal Road, Warradale	November	
AD09	Bridge Road, Para Hills	November	

Table A.4
Adelaide 80 km/h arterial road locations

Site ID	Location	Sample month	Notes
AM01	Main North Road, Salisbury Park	November	
AM02	Tapleys Hill Road, West Beach	November	
AM03	Panalatinga Road, Morphett Vale	November	
AM04	Grand Junction Road, Gilles Plains	November	
AM05	McIntyre Road, Modbury North	November	
AM06	Main South Road, O'Halloran Hill	November	

Table A.5
Rural 50 km/h local road locations

Site ID	Location	Sample month	Notes
LR01	Conroe Drive, Mount Gambier	November	
LR02	Reginald Street, Mount Gambier	November	
LR03	Stratford Street, Millicent	November	
LR04	Cedar Avenue, Naracoorte	November	
LR05	Hobbs Street, Berri	November	
LR06	Fiedler Street, Berri	November	
LR07	Meander Avenue, Renmark	November	
LR08	Bruce Road, Barmera	November	
LR09	Parham Crescent, Port Augusta	November	
LR10	Woodforde Street, Port Augusta	November	
LR11	Bowman Street, Crystal Brook	November	
LR12	Thomas Street, Wallaroo	November	One way street
LR13	Templers Daveyston Road, Freeling	August	
LR14			Actually 60 km/h - reclassified as CR05 for this report

Note: these roads were 60 km/h in 2002

Table A.6
Rural 60 km/h arterial road locations

Site ID	Location	Sample month	Notes
CR01	Main North Road, Clare	August	
CR02	New West Road, Port Lincoln	August	
CR03	Jenkins Terrace, Naracoorte	August	
CR04	Waikerie Eastern Access, Waikerie	August	
CR05	Greenock Nuriootpa Road, Nuriootpa	August	Incorrectly classified as LR14 in earlier reports

Table A.7
Rural hills 80 km/h arterial road locations

Site ID	Location	Sample month	Notes
AH01	Teatree Gully Mannum Road	November	
AH02	Greenhill Road	November	
AH03	Mt Barker Flaxley Road	November	
AH04	Wellington Road	November	
AH05	Fox Creek Road	November	New addition in 2008
AH06	Basket Range Road	November	New addition in 2008

Table A.8
Rural 100 km/h arterial road locations

Site ID	Location	Sample month	Notes
AR01	Redhill Blyth Road, Hart	August	
AR02	Blackwood Goolwa Road, Currency Creek	August	
AR03	Belvidere Milang Road, Belvidere	August	
AR04	Lyndoch Chain of Ponds Road, Lyndoch	August	
AR05	Morgan Blanchetown Road, Morgan	August	
AR06	Corny Point Yorketown Road, Yorketown	August	
AR07	Victor Harbor Road, Victor Harbor	August	
AR08	Dukes Highway, Bordertown	August	Collection site moved in 2009 - AR11 from 2009 onwards
AR09	Yorketown Road, Urania	August	
AR10	Yorke Valley Highway, Port Clinton	August	
AR11	Dukes Highway, Bordertown	August	Collection site moved in 2009 - was AR08

Table A.9
Rural 110 km/h arterial road locations

Site ID	Location	Sample month	Notes
HR01	Berri Loxton Road, Berri	August	
HR02	Wilmington Ucolta Road, Orroroo	August	
HR03	Kimba Cleve Road, Kimba	August	
HR04	Riddoch Highway, Mosquito Creek	August	
HR05	Eyre Highway, Kimba	August	
HR06	Princes Highway, Reedy Creek	August	
HR07	Main North Road, Gladstone	August	
HR08	Copper Coast Highway, Kulpara	August	
HR09	Stuart Highway, Port Augusta	August	
HR10	Lincoln Highway, Lincoln Gap	August	
HR11	Jubilee Highway East, Mount Gambier	August	
HR12	Princes Highway, Stirling North	August	
HR13	Barrier Highway, Saddleworth	August	
HR14	Karoonda Road, Murray Bridge	August	Equipment malfunction in 2009
HR15	Riddoch Highway, Naracoorte	August	
HR16	Port Wakefield Road, Two Wells	August	
HR17	Lincoln Highway, Whyalla	August	
HR18	Princes Highway, Meningie	August	
HR19	Lincoln Highway, Poonindie	August	
HR20	Highway One, Port Wakefield	August	
HR21	Stuart Highway, Pimba	August	
HR22	Port McDonnell Road, Allendale East	August	Not sampled in 2009
HR23	Mallee Highway, Pinnaroo	August	
HR24	Sturt Highway, Blanchetown	August	
HR25	Mallee Highway, Taillem Bend	August	
HR26	Yorke Valley Highway, Pine Point	August	
HR27	Sturt Highway, Gawler	August	Not sampled in 2008 or 2009
HR28	Riddoch Highway, Penola	August	
HR29	Princes Highway, Kingston SE	August	
HR30	Balaklava Blyth Road, Blyth	August	
HR31	RM Williams Way, Jamestown	August	Collection site moved in 2009 - HR38 from 2009 onwards
HR32	Kingston Loxton Road, Loxton	August	
HR33	Lucindale Kingston Road, Avenue Range	August	
HR34	Arno Bay Road, Arno Bay	August	
HR35	Kalangadoo Millicent Road, Kalangadoo	August	
HR36	Olympic Dam Pimba Road, Woomera	August	Known as BR01 in previous reports
HR37	Quorn Hawker Road, Quorn	August	Known as BR03 in previous reports
HR38	RM Williams Way, Jamestown	August	Collection site moved in 2009 - was HR31

Appendix B - Detailed site results

Data from each site was separated into the two directions of traffic flow (where applicable) and the vehicle counts and mean speeds were calculated for each site/direction combination for each survey and are presented in Tables B.1-B.18. The last character of the Site ID indicates the direction of traffic flow (N=North, S=South, E=East, W=West).

The surveys marked as “1 day” had one day of data collected (a week day). The surveys marked as “1 week” had one week of data collected. The column marked as “2007 - 1 day” is a one day sub-sample of the 2007 data (a week day) for comparison with previous one day samples.

The “Summary” row in the mean speed Tables is a summary mean speed for all the roads of a given type calculated as per Section 2.3. The “Change” row indicates the change in speed from the previous survey. The “Significance” row indicates the probability of the observed or larger change occurring by chance. For the present purposes any significance level below 0.05 is considered as being statistically significant.

Similar Tables were constructed for the other speed measurements but are not presented in detail due to space considerations but are available on request.

Table B.1
Adelaide 50 km/h local road results for each site in each direction of travel - vehicle count

Site ID	2002 1 day	2003 1 day	2005 1 day	2007 1 day	2007 1 week	2008 1 week	2009 1 week
LM01E	171	152	174	198	1236	1171	988
LM01W	340	306	289	334	2131	2204	2209
LM02N	379	372	434	329	1779	2703	3748
LM02S	147	143	141	139	773	2759	
LM03N	173	183	235	187	1173	1374	1321
LM03S	264	286	242	223	1449	1499	1585
LM04E	1352	1130	1207	1151	7718	7788	7508
LM04W	799	833	814	802	5561	5612	5365
LM05N	224	243	289	247	1579	1576	1557
LM05S	261	247	262	231	1667	1651	1810
LM06E	575	547	562	614	4033	4467	4418
LM06W	427	414	434	477	3306	3521	3326
LM07E	153	128	146	137	843	821	726
LM07W	134	131	154	116	783	720	647
LM08N	113	92	85	72	539	768	697
LM08S	91	91	99	84	566	773	741
LM09N	931	1186	1295	947	9066	7387	8583
LM09S	362	505	754	522	4667	4216	4195
LM10N	158	156	189	175	1228	1278	1242
LM10S	208	170	200	188	1267	1326	1344
LM11E	341	347	357	430	2375	2169	2216
LM11W	553	548	538	557	2894	3180	3219
LM12E	677	1272	525	542	3471	3549	8283
LM12W	815	1373	704	685	4587	4793	9447
LM13N	889	980	1125	904	5229	5448	5988
LM13S	148	176	338	295	1903	2021	1887
LM14E	144	163	170	166	1464	1068	1433
LM14W	163	188	157	133	907	1163	1097
LM15N	434	421	377	389	2412	3382	4173
LM15S	437	439	408	389	2348	2950	2964
LM16S	996	1034	1005	957	6118	6372	5642
LM17E	994	1184	1105	1198	7995	8287	8313
LM17W	971	1074	1047	1083	7261	7238	7678
LM18E	1351	1227	1296	1343	9081	9212	9784
LM18W	1488	1466	1356	1423	9500	9017	9465

Note: these roads were 60 km/h in 2002

Table B.2
Adelaide 50 km/h local road results for each site in each direction of travel - mean speed (km/h)

Location ID	2002 1 day	2003 1 day	2005 1 day	2007 1 day	2007 1 week	2008 1 week	2009 1 week
LM01E	41.402	37.623	37.137	38.113	37.436	37.165	37.399
LM01W	39.395	37.149	37.399	38.584	37.409	37.580	38.013
LM02N	46.971	44.106	45.599	46.970	46.680	42.393	45.602
LM02S	44.137	44.263	44.214	45.880	45.363	41.311	
LM03N	40.842	33.895	41.377	41.031	40.941	42.674	40.973
LM03S	42.068	37.666	40.461	40.814	41.049	41.561	40.568
LM04E	52.078	47.636	49.176	49.660	50.381	49.083	49.404
LM04W	54.232	49.278	51.746	51.830	52.574	50.755	51.063
LM05N	55.044	52.904	53.066	51.762	51.711	51.194	51.460
LM05S	56.019	52.640	51.882	50.805	51.225	52.528	51.066
LM06E	50.369	48.506	44.918	46.669	46.394	45.113	45.927
LM06W	50.334	48.493	44.076	45.807	45.741	45.120	45.279
LM07E	49.658	48.969	45.962	46.869	46.675	45.044	45.059
LM07W	49.887	50.263	47.925	46.753	47.814	47.316	46.263
LM08N	36.518	35.365	32.416	35.807	36.040	36.965	36.776
LM08S	37.901	36.662	34.404	35.431	35.275	36.828	37.258
LM09N	43.854	41.455	38.708	42.192	40.294	40.689	39.810
LM09S	45.166	43.566	37.695	43.865	42.667	40.847	41.350
LM10N	40.556	42.512	36.841	42.926	41.011	39.512	41.040
LM10S	39.618	39.913	38.038	38.800	39.454	39.488	41.343
LM11E	39.143	35.533	33.264	34.015	34.782	35.490	36.957
LM11W	45.796	43.744	40.478	39.080	39.932	40.751	41.800
LM12E	47.117	46.855	47.025	48.492	48.048	48.678	46.104
LM12W	49.445	45.762	49.287	51.791	51.385	50.620	46.480
LM13N	41.778	38.717	36.956	35.993	38.226	36.167	36.824
LM13S	46.226	42.701	39.835	42.359	44.243	41.644	42.637
LM14E	37.488	37.622	36.198	32.770	33.442	32.189	34.007
LM14W	35.293	35.595	35.179	34.714	34.366	34.697	35.163
LM15N	54.856	52.551	49.852	49.868	49.875	49.408	49.874
LM15S	50.754	49.011	45.832	46.578	46.344	46.539	46.004
LM16S	33.342	29.527	30.398	34.046	34.871	28.426	30.599
LM17E	46.567	46.210	43.999	44.840	44.612	44.388	44.467
LM17W	44.148	43.052	41.961	43.145	42.510	41.760	42.809
LM18E	57.681	50.928	51.625	52.668	52.154	49.731	50.113
LM18W	57.897	52.664	51.583	51.908	51.836	52.641	49.261
Summary	46.899	44.760	43.336		44.243	43.746	44.097
Change	-	-2.139	-1.424		0.908	-0.498	0.351
Significance	-	0.000	0.011		0.002	0.033	0.249

Note: these roads were 60 km/h in 2002

Table B.3
Adelaide 50 km/h collector road results for each site in each direction of travel - vehicle count

Site ID	2002 1 day	2003 1 day	2005 1 day	2007 1 day	2007 1 week	2008 1 week	2009 1 week
CM01E	617	693	746	743	4332	4552	4750
CM01W	788	814	993	1079	5946	6194	6903
CM02N	1721	2215	2425	1978	18722	15609	17718
CM02S	1806	2370	2492	2307	21305	18994	18612
CM03N	1621	1703	1682	1864	13157	13269	14247
CM03S	1537	1654	1617	1741	12330	12875	13774
CM04E	1078	1125	1134	1162	7348	7568	7756
CM04W	981	972	993	1029	6488	6470	6606
CM05E	804	869	862	903	6852		
CM05W	952	948	1050	1067	7984		
CM06E	1041	951	1047	966	6833	7048	7162
CM06W	803	787	993	963	6739	6948	7037
CM07N	595	588	504	615	4022	4287	4334
CM07S	486	453	401	485	3221	3378	3375
CM08E	4859	4651	4455	4824	32597	31923	32923
CM08W	4806	4402	4311	4605	31093	30115	30615
CM09N	2117	2237	2035	2019	11707	11059	12414
CM09S	2464	2228	2403	2486	15656	14688	12901
CM10N	657	562	564	508	3305	3269	3117
CM10S	759	676	683	584	3838	3905	3841
CM11E	1315	1146	1360	1994	12574	8694	8606
CM11W	1198	1418	1404	2159	13296	9547	9672
CM12E							7627
CM12W							8779

Note: these roads were 60 km/h in 2002

Table B.4
Adelaide 50 km/h collector road results for each site in each direction of travel - mean speed (km/h)

Location ID	2002 1 day	2003 1 day	2005 1 day	2007 1 day	2007 1 week	2008 1 week	2009 1 week
CM01E	50.401	48.838	47.391	49.709	49.250	48.163	47.629
CM01W	50.046	49.765	48.614	50.685	50.457	48.647	48.471
CM02N	44.079	48.718	47.043	46.972	45.118	47.916	46.233
CM02S	43.032	46.746	44.616	45.268	44.066	45.507	48.618
CM03N	61.407	54.746	53.490	53.794	54.404	53.284	51.818
CM03S	58.168	53.374	52.042	51.378	51.545	52.830	50.463
CM04E	58.949	56.384	54.073	50.943	50.849	51.646	52.807
CM04W	59.190	59.244	54.245	52.658	52.460	50.643	54.854
CM05E	52.787	50.485	48.876	51.335	50.895		
CM05W	52.038	49.730	49.300	50.612	50.295		
CM06E	53.411	50.440	49.458	51.028	51.108	50.795	50.745
CM06W	62.298	55.323	50.895	51.333	51.421	51.816	51.761
CM07N	58.557	53.825	54.086	54.242	53.869	53.919	53.521
CM07S	58.579	57.034	56.988	55.049	55.122	53.459	53.706
CM08E	55.681	51.745	49.493	50.228	50.031	49.363	48.185
CM08W	54.655	51.853	49.154	49.412	49.599	48.981	47.486
CM09N	49.746	46.679	45.807	47.361	47.174	46.197	45.743
CM09S	47.963	47.761	46.680	47.087	47.395	46.640	46.020
CM10N	51.953	50.818	49.260	49.510	49.260	47.784	47.951
CM10S	51.404	51.132	50.121	50.065	49.945	47.842	49.013
CM11E	56.261	52.128	51.675	53.964	53.785	51.797	53.019
CM11W	51.644	52.297	52.055	53.663	53.393	52.086	52.323
CM12E							44.382
CM12W							44.962
Summary	53.829	51.524	50.230		50.653	49.787	49.671
Change	-	-2.305	-1.294		0.422	-0.866	-0.115
Significance	-	0.003	0.000		0.054	0.064	0.596

Note: these roads were 60 km/h in 2002

Table B.5
Adelaide 60 km/h arterial road results for each site in each direction of travel - vehicle count

Site ID	2002 1 day	2003 1 day	2005 1 day	2007 1 day	2007 1 week	2008 1 week	2009 1 week
AA01E	4662	6181	5027	5129	34260	34941	36402
AA01W	4865	6975	5304	5203	35663	36497	38204
AA02E	10536	10959	10771	11718	75334	76163	78134
AA02W	11360	11658	12717	13416	85120	86295	88724
AA03N	11202	11209	12328	12713	80909	76446	82971
AA03S	10239	10649	10404	10004	69181	66185	70947
AA04E					45081	44219	45995
AA04W					43931	43290	45666
AA05N					56899	54324	56246
AA05S					55564	53546	53092
AA06N					62556	63009	65375
AA06S					63480	63991	66703
AB01N	7753	7777	7399	6939	46791	44364	43945
AB01S	8201	8739	7919	7465	49064	46172	45294
AB02E					55728	54081	51795
AB02W					58657	56492	55475
AB03N					65326	64783	59320
AB03S					68552	68590	70723
AB04E					60635	58210	59590
AB04W					57887	56310	57777
AB05E					76941	75830	80274
AB05W					81768	80916	84608
AB06E					45604	39144	47233
AB06W					46233	40221	
AC01N	10008	10182	9009	10274	68729	70876	73407
AC01S	9568	10235	9096	9675	64969	64576	67421
AC02E	4501	3924	4829	4807	30611	28176	31208
AC02W	2526	1666	2772	3106	18730	17287	21511
AC03N					21742	22002	26253
AC03S					35372	35498	45301
AC04N					31794	29224	35725
AC04S					38300	38194	34406
AC05N					66497	65414	67971
AC05S					69101	66501	69723
AC06N					38888	36584	46752
AC06S					38734	39602	45724
AD01N	9449	9687	10868	11527	76222	78305	77819
AD01S	7409	7251	8357	8447	56650	56603	60681
AD02E	2985	2978	3001	3312	22001	22310	22061
AD02W	2738	2233	2267	2791	17969	18014	17836
AD03N	9915	8966	9213	9379	60937	59447	57210
AD03S	9347	9507	9703	9818	64460	63267	58724
AD04E	6175	6534	6504	7485	51448	50792	52408
AD04W	5696	6007	6180	6613	46758	44265	47587
AD05N					50895	54364	53234
AD05S					49838	52818	51261
AD06N					35832	33131	37513
AD06S					37201	37344	34509
AD07E					45132	43294	46824
AD07W					46445	43978	47297
AD08N					44245	49381	47957
AD08S					31567	36844	35115
AD09N					44112	46113	44020
AD09S					40575	41872	40759

Table B.6
Adelaide 60 km/h arterial road results for each site in each direction of travel - mean speed (km/h)

Location ID	2002 1 day	2003 1 day	2005 1 day	2007 1 day	2007 1 week	2008 1 week	2009 1 week
AA01E	57.528	55.428	56.105	57.553	57.818	54.656	55.906
AA01W	55.436	53.952	54.736	56.517	56.454	54.961	55.143
AA02E	60.741	60.361	59.043	59.270	59.488	58.218	58.174
AA02W	59.427	57.707	56.655	56.246	57.058	55.479	54.863
AA03N	51.741	52.111	52.051	48.863	50.620	48.943	48.548
AA03S	52.146	50.097	51.012	48.995	50.190	50.680	51.040
AA04E					56.717	55.163	54.858
AA04W					56.820	55.915	55.612
AA05N					57.471	55.996	56.517
AA05S					56.908	55.222	55.086
AA06N					58.242	55.885	56.425
AA06S					56.981	57.297	54.401
AB01N	58.617	55.939	55.157	55.725	56.101	52.553	53.734
AB01S	58.899	56.376	53.729	55.576	55.469	54.814	54.170
AB02E					56.350	56.950	58.503
AB02W					57.142	55.392	57.064
AB03N					52.442	53.200	53.510
AB03S					56.061	55.767	55.548
AB04E					56.037	54.949	55.361
AB04W					56.344	55.920	55.464
AB05E					50.066	47.056	48.929
AB05W					53.864	51.529	51.461
AB06E					55.074	55.294	54.633
AB06W					55.221	56.159	
AC01N	52.376	52.242	50.705	52.098	52.385	52.431	49.623
AC01S	51.284	52.954	50.668	52.766	53.229	52.096	52.172
AC02E	54.280	50.649	50.525	52.875	53.063	52.661	52.802
AC02W	56.955	54.424	55.152	54.235	54.082	54.971	55.396
AC03N					57.913	58.172	57.893
AC03S					56.651	57.210	56.229
AC04N					53.421	52.924	52.620
AC04S					54.773	56.248	55.380
AC05N					56.169	54.495	55.709
AC05S					55.093	55.239	54.561
AC06N					57.001	56.489	56.656
AC06S					56.789	57.872	56.052
AD01N	62.421	61.278	60.583	60.024	60.101	58.680	60.820
AD01S	61.682	59.587	59.224	53.919	56.726	57.683	57.298
AD02E	59.025	58.554	58.758	60.294	60.345	59.490	60.289
AD02W	58.726	59.946	59.235	58.493	58.381	57.588	57.771
AD03N	59.544	60.521	60.464	59.951	59.775	58.511	58.373
AD03S	61.617	61.708	59.593	59.274	58.852	58.115	59.476
AD04E	57.798	59.192	51.941	56.381	56.984	56.156	55.925
AD04W	68.425	66.955	56.320	60.224	60.691	57.540	59.255
AD05N					62.278	61.611	59.214
AD05S					64.067	62.749	62.567
AD06N					58.029	59.428	57.382
AD06S					59.530	58.719	58.066
AD07E					50.698	48.287	50.077
AD07W					56.186	56.170	55.371
AD08N					59.189	60.891	59.828
AD08S					59.662	59.198	58.133
AD09N					63.853	60.904	60.281
AD09S					62.732	61.810	61.806
Summary	58.370	57.064	56.361		56.758	55.956	55.817
Change	-	-1.307	-0.703		0.397	-0.802	-0.139
Significance	-	0.012	0.017		0.368	0.000	0.533

Table B.7
Adelaide 80 km/h arterial road results for each site in each direction of travel - vehicle count

Site ID	2007 1 week	2008 1 week	2009 1 week
AM01N	72280	78792	75561
AM01S	63474	69952	67948
AM02N	90919	97797	96153
AM02S	78057	79370	79949
AM03N	42130	42735	43686
AM03S	42972	41623	43526
AM04E	40324	40311	40484
AM04W	37002	35734	36206
AM05N	49264	49740	49593
AM05S	42701	43477	43113
AM06N	44409	43414	49278
AM06S	54221	54582	59011

Table B.8
Adelaide 80 km/h arterial road results for each site in each direction of travel - mean speed (km/h)

Location ID	2007 1 week	2008 1 week	2009 1 week
AM01N	80.624	80.777	79.480
AM01S	78.055	78.412	78.313
AM02N	68.498	65.306	68.106
AM02S	74.148	69.081	70.923
AM03N	71.079	75.099	73.860
AM03S	72.480	75.576	74.466
AM04E	69.261	71.423	70.103
AM04W	74.324	74.225	72.626
AM05N	74.626	74.044	75.516
AM05S	73.870	74.285	74.306
AM06N	79.983	79.035	78.541
AM06S	80.164	79.841	79.637
Summary	74.236	74.263	73.915
Change	-	0.027	-0.349
Significance	-	1.000	0.677

Table B.9
Rural 50 km/h local road results for each site in each direction of travel - vehicle count

Site ID	2002 1 day	2003 1 day	2005 1 day	2007 1 day	2007 1 week	2008 1 week	2009 1 week
LR01N	1303	1624	1487	1435	10360	9941	9758
LR01S	1266	1781	1637	1667	12106	9697	9777
LR02N	144	127	140	146	1030	918	948
LR02S	135	130	135	139	972	979	1006
LR03N	56	51	40	35	289	293	259
LR03S	61	48	34	41	301	279	225
LR04N	925	972	988	1059	6366	6113	6249
LR04S	774	929	913	1011	6236	5949	5896
LR05E	99	87	99	84	594	821	962
LR05W	86	89	98	106	650	553	546
LR06N	757	722	1095	777	5055	5252	4807
LR06S	631	581	564	677	4370	4164	3301
LR07E	136	157	123	102	777	722	817
LR07W	122	156	126	120	794	685	787
LR08N	507	416	508	514	3333	3228	3397
LR08S	525	509	519	520	3333	3266	3435
LR09E	119	114	103	112	854	913	935
LR09W	97	102	85	94	752	712	792
LR10N	178	216	250	287	1358	1717	1657
LR10S	233	210	281	277	1397	1621	1592
LR11E	244	262	241	265	1760	1429	1419
LR11W	244	263	232	269	1835	1533	1611
LR12S	43	46	32	27	189	241	206
LR13E					4440	4693	4599
LR13W					4286	4607	4278

Note: these roads were 60 km/h in 2002

Table B.10
Rural 50 km/h local road results for each site in each direction of travel - mean speed (km/h)

Location ID	2002 1 day	2003 1 day	2005 1 day	2007 1 day	2007 1 week	2008 1 week	2009 1 week
LR01N	50.755	50.914	49.681	53.206	52.445	47.516	46.428
LR01S	50.145	49.151	45.836	47.842	47.628	46.646	45.691
LR02N	42.984	42.810	41.951	42.734	43.273	41.318	40.892
LR02S	46.143	44.797	43.132	44.332	44.836	42.584	41.692
LR03N	26.895	31.427	23.044	28.189	29.287	28.510	31.817
LR03S	31.036	35.815	25.457	30.459	32.313	30.734	29.056
LR04N	55.452	52.127	50.509	51.451	51.426	49.929	50.450
LR04S	57.568	53.252	51.026	52.017	51.298	50.948	51.816
LR05E	32.074	32.668	30.188	32.568	32.402	28.807	28.768
LR05W	30.028	30.506	33.406	30.356	31.587	32.046	32.946
LR06N	46.905	46.430	46.058	45.672	45.570	44.718	46.191
LR06S	50.873	49.242	48.803	47.529	47.512	47.211	45.384
LR07E	35.057	40.318	38.471	40.606	39.686	36.725	38.400
LR07W	37.267	41.031	39.522	40.528	40.337	38.936	38.698
LR08N	63.642	57.544	57.073	56.045	55.867	55.731	54.922
LR08S	62.264	57.640	55.220	55.819	55.943	55.490	54.645
LR09E	45.629	46.009	44.428	42.900	44.011	43.899	41.422
LR09W	45.984	46.761	46.340	44.163	43.504	44.132	40.828
LR10N	32.025	33.240	32.549	32.159	33.412	33.234	32.454
LR10S	32.760	31.450	31.179	30.002	32.438	34.280	31.849
LR11E	42.156	41.493	40.511	40.015	40.109	37.953	39.264
LR11W	40.659	40.987	39.551	38.761	38.643	39.157	37.258
LR12S	30.626	29.862	33.183	30.430	29.256	31.266	28.852
LR13E					53.174	48.253	53.095
LR13W					53.056	47.998	50.461
Summary	44.515	44.341	42.905		43.504	42.652	41.872
Change	-	-0.174	-1.437		0.599	-0.852	-0.780
Significance	-	0.643	0.002		0.520	0.004	0.458

Note: these roads were 60 km/h in 2002

Table B.11

Rural 60 km/h arterial road results for each site in each direction of travel - vehicle count

Site ID	2006 1 week	2007 1 week	2008 1 week	2009 1 week
CR01N	15201	15976	15487	16162
CR01S	15084	15763	15295	15929
CR02E	4867	5200	4856	5128
CR02W	4766	5313	4686	4995
CR03N	8106	7871	7776	8050
CR03S	6121	6443	6142	6382
CR04N	8017	8017	7194	7611
CR04S	7690	7671	6872	7365
CR05E	18536	18852	16838	17056
CR05W	18566	18609	16982	16626

Table B.12

Rural 60 km/h arterial road results for each site in each direction of travel - mean speed (km/h)

Location ID	2006 1 week	2007 1 week	2008 1 week	2009 1 week
CR01N	59.219	58.994	58.673	58.140
CR01S	60.501	58.851	60.020	59.843
CR02E	60.277	61.062	59.943	57.489
CR02W	61.526	62.121	60.531	60.136
CR03N	52.404	52.096	51.620	49.809
CR03S	53.048	53.670	52.399	50.690
CR04N	52.865	56.030	55.358	56.666
CR04S	54.406	57.201	57.335	57.614
CR05E	58.273	58.472	59.153	58.374
CR05W	58.330	58.633	59.282	58.956
Summary	58.103	58.552	58.154	57.689
Change	-	0.449	-0.398	-0.465
Significance	-	0.193	0.432	0.064

Table B.13

Rural hills 80 km/h arterial road results for each site in each direction of travel - vehicle count

Site ID	2007 1 week	2008 1 week	2009 1 week
AH01E	10116	10422	10753
AH01W	10307	10292	10625
AH02E	4894	5100	5695
AH02W	5273	5291	6055
AH03N	11253	11268	11945
AH03S	11897	11717	12269
AH04N	19649	21378	22187
AH04S	19227	20509	21143
AH05N		1632	1759
AH05S		1647	1714
AH06N		1710	1838
AH06S		1600	1836

Table B.14

Rural hills 80 km/h arterial road results for each site in each direction of travel - mean speed (km/h)

Location ID	2007 1 week	2008 1 week	2009 1 week
AH01E	80.184	80.972	84.065
AH01W	78.161	80.619	83.694
AH02E	81.561	80.988	81.944
AH02W	84.082	81.576	80.777
AH03N	77.379	75.751	78.228
AH03S	78.839	75.172	75.326
AH04N	71.734	68.972	77.002
AH04S	73.720	71.528	78.646
AH05N		87.210	81.546
AH05S		86.529	86.015
AH06N		80.575	77.178
AH06S		72.827	72.802
Summary	78.500	76.590	77.145
Change	-	-1.910	0.555
Significance	-	0.148	0.380

Table B.15
Rural 100 km/h arterial road results for each site in each direction of travel - vehicle count

Site ID	2006 1 week	2007 1 week	2008 1 week	2009 1 week
AR01N	937	929	959	1068
AR01S	995	975	990	1148
AR02N	12466	13006	12508	14276
AR02S	12090	12352	12295	13899
AR03N	2701	2985	3090	2799
AR03S	2725	3039	2949	2784
AR04N	6711	7403	6342	6851
AR04S	6797	7325	6284	6787
AR05N	606	674	551	561
AR05S	596	664	536	555
AR06E	1659	1631	1639	1749
AR06W	1639	1611	1649	1746
AR07N		18218	17147	18762
AR07S		17648	16699	17888
AR08E		7432	6906	
AR08W		7433	7344	
AR09N		1429	1480	1508
AR09S		1445	1458	1503
AR10N		6531	5790	6315
AR10S		6396	5761	6280
AR11E				7298
AR11W				7491

Table B.16
Rural 100 km/h arterial road results for each site in each direction of travel - mean speed (km/h)

Location ID	2006 1 week	2007 1 week	2008 1 week	2009 1 week
AR01N	104.894	104.762	100.951	104.688
AR01S	105.151	105.644	101.382	105.472
AR02N	85.225	84.260	84.579	83.406
AR02S	86.340	85.537	84.447	85.219
AR03N	94.728	99.105	91.370	92.904
AR03S	97.001	92.084	95.669	93.241
AR04N	97.742	98.602	95.664	97.144
AR04S	95.733	96.683	93.861	93.404
AR05N	100.038	99.619	97.910	96.060
AR05S	102.818	100.295	96.556	98.820
AR06E	97.199	99.128	98.313	97.288
AR06W	95.635	96.435	94.918	93.996
AR07N		91.553	88.247	88.517
AR07S		92.371	91.007	92.504
AR08E		88.292	86.736	
AR08W		83.248	82.625	
AR09N		97.509	99.000	101.310
AR09S		96.454	99.441	97.083
AR10N		100.833	100.769	102.277
AR10S		100.900	101.702	101.516
AR11E				103.089
AR11W				102.711
Summary	96.915	97.096	95.655	96.176
Change	-	0.180	-1.441	0.521
Significance	-	0.970	0.021	0.393

Table B.17
Rural 110 km/h arterial road results for each site in each direction of travel - vehicle count

Site ID	2006 1 week	2007 1 week	2008 1 week	2009 1 week
HR01N	11917	12018	11417	12693
HR01S	12044	12057	11445	12532
HR02N	1786	1908	2042	2076
HR02S	1869	1889	2054	2105
HR03N	725	478	967	568
HR03S	642	482	927	562
HR04N	5976	6016	5881	6330
HR04S	6168	6254	6075	6593
HR05E	2513	2337	2214	2424
HR05W	2450	2383	2227	2254
HR06N	2198	2219	2103	2384
HR06S	2283	2361	2172	2449
HR07N		2038	2089	2157
HR07S		2218	2331	2355
HR08N		8123	7338	7795
HR08S		8139	7450	7922
HR09N		3082	2983	3082
HR09S		3764	3302	3560
HR10N		6100	5727	6233
HR10S		6012	5742	6139
HR11E		5085	5486	5112
HR11W		5021	5413	4864
HR12N		12294	11938	12657
HR12S		10164	12073	13195
HR13N		4876	4606	5162
HR13S		4974	4706	5233
HR14E		1605	1556	
HR14W		1508	1534	
HR15N		4518	4628	4820
HR15S		4711	4728	4980
HR16N		29805	26943	26580
HR16S		28708	26106	27866
HR17E		3796	3267	3762
HR17W		3749	3262	3688
HR18N		4012	4601	3999
HR18S		4089	4729	4017
HR19N		5089	5117	5004
HR19S		5043	5163	4960
HR20N		11705	11676	12107
HR20S		11832	11628	12367
HR21N		1186	1274	1297
HR21S		1750	1599	1836
HR22N		6125	5300	
HR22S		4375	5385	
HR23E		2354	2466	2338
HR23W		2403	2443	2387
HR24E		8310	7414	7836
HR24W		8442	7508	7994
HR25E		3320	3186	3139
HR25W		3295	3225	3173
HR26N		2906	2609	3474
HR26S		2766	2591	3490
HR27N		24339		
HR27S		24059		
HR28N		7590	7282	8031
HR28S		7692	7395	8126
HR29N		2811	2641	2814
HR29S		2929	2726	2931
HR30N		2231	2081	2324
HR30S		2341	2162	2320
HR31N		2496	2435	
HR31S		2589	2493	
HR32N		2832	2568	2572
HR32S		2755	2585	2633
HR33E		1299	1130	1140
HR33W		1294	1088	1175
HR34N		1182	962	972
HR34S		1188	1000	1046
HR35E		798	736	758
HR35W		812	741	760
HR36N	1804	1939	2112	1725
HR36S	1767	1922	2135	1790
HR37N	1089	1371	1113	1391
HR37S	1086	1293	1202	1325
HR38N				2555
HR38S				2571

Table B.18
Rural 110 km/h arterial road results for each site in each direction of travel - mean speed (km/h)

Location ID	2006 1 week	2007 1 week	2008 1 week	2009 1 week
HR01N	98.369	98.976	98.866	97.726
HR01S	101.909	100.540	100.743	100.418
HR02N	97.850	98.547	99.876	95.800
HR02S	99.135	102.004	97.758	97.589
HR03N	105.540	107.187	110.608	107.977
HR03S	106.341	102.901	106.336	106.850
HR04N	108.215	104.831	105.307	104.211
HR04S	104.710	106.580	104.945	104.670
HR05E	96.696	102.211	103.156	102.472
HR05W	100.853	102.065	101.563	102.727
HR06N	105.204	105.812	103.514	105.327
HR06S	105.321	105.924	106.102	106.713
HR07N		100.683	99.585	99.982
HR07S		102.163	103.124	102.221
HR08N		104.048	107.231	105.310
HR08S		104.554	107.920	108.090
HR09N		99.428	103.037	100.874
HR09S		107.075	104.351	106.211
HR10N		103.751	104.714	106.354
HR10S		107.383	105.997	107.454
HR11E		102.061	101.959	102.141
HR11W		100.266	97.749	100.708
HR12N		106.407	103.458	104.199
HR12S		104.673	102.316	102.495
HR13N		98.905	99.386	99.914
HR13S		99.129	97.485	96.775
HR14E		104.299	103.220	
HR14W		103.893	104.983	
HR15N		107.136	106.515	104.920
HR15S		105.860	105.685	106.509
HR16N		107.141	104.631	105.643
HR16S		107.772	108.682	103.324
HR17E		109.117	108.138	109.214
HR17W		106.595	108.684	107.038
HR18N		102.005	101.821	100.948
HR18S		103.576	101.594	102.423
HR19N		101.751	101.508	103.459
HR19S		102.933	103.643	103.647
HR20N		93.346	93.336	93.715
HR20S		95.921	98.472	97.094
HR21N		104.280	101.654	102.503
HR21S		100.011	100.833	100.785
HR22N		102.468	102.369	
HR22S		106.534	101.572	
HR23E		100.240	102.805	95.951
HR23W		99.766	102.232	100.111
HR24E		107.223	106.259	106.046
HR24W		104.492	104.896	104.468
HR25E		106.001	105.975	105.620
HR25W		106.410	104.799	106.456
HR26N		103.177	100.317	97.027
HR26S		102.680	104.406	96.646
HR27N		92.566		
HR27S		95.310		
HR28N		105.362	104.126	106.371
HR28S		105.513	105.917	104.807
HR29N		97.664	98.385	97.511
HR29S		102.511	102.419	104.457
HR30N		103.699	104.607	102.162
HR30S		100.956	97.027	97.755
HR31N		85.455	85.918	
HR31S		88.457	84.914	
HR32N		96.483	97.520	94.766
HR32S		98.549	97.475	97.835
HR33E		101.245	102.384	101.022
HR33W		104.121	101.067	102.851
HR34N		103.646	100.662	100.359
HR34S		104.153	105.006	107.795
HR35E		95.135	93.694	95.332
HR35W		97.407	94.583	95.463
HR36N	109.773	112.818	104.545	107.069
HR36S	109.561	111.340	107.572	107.782
HR37N	103.745	102.094	102.994	103.116
HR37S	103.088	102.827	100.428	99.929
HR38N				95.666
HR38S				101.815
Summary	102.264	102.917	102.811	102.874
Change	-	0.653	-0.106	0.063
Significance	-	0.274	0.112	0.751