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## Vehicle speeds in South Australia 2016

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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. More than 100 sites around South Australia have speed measurements taken for a one week period at the same time each year. This Report summarises the data collected in 2016 and makes comparisons with previous surveys and partial surveys dating back to 2002. Vehicle speeds on South Australian 50 km/h roads were essentially unchanged in 2016 compared to 2015 apart from an apparent increase in the proportion of vehicles travelling above 65 km/h on Adelaide local roads. There has been a general downward trend in speeds on those roads since 2002 (although it is more pronounced in Adelaide than in rural areas). Vehicle speeds on Adelaide 60 km/h roads were lower in 2016 compared to 2015 continuing a large historical reduction in speeds on those roads. Vehicle speeds on rural hills 80 km/h roads were essentially unchanged in 2016 compared to 2015 ending a three year downward trend in speeds on those roads starting in 2013. Vehicle speeds on 100 and 110 km/h rural roads were essentially unchanged in 2016 compared to 2015 with both these road types showing very little change since surveys on them began in 2006 (although examination of the upper end speeds suggests that high end speeds are becoming less common on these roads over time).

## 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. The Centre for Automotive Safety Research has analysed each of the yearly surveys.

More than 100 sites around South Australia have speed measurements taken for a one week period at the same time of year each year. Groups of sites, based on road location and speed limit, are analysed for changes in vehicle speeds between surveys (both all vehicles and just free speed vehicles).

This Report summarises vehicle speed changes in 2016 and makes comparisons with previous surveys and partial surveys dating back to 2002. The mean speeds by road type and survey year are shown in the following Table.

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

Year	Adelaide local (50)	Adelaide collector (50)	Adelaide arterial (60)	Rural local (50)	Rural hills arterial (80)	Rural arterial (100)	Rural arterial (110)
2002	46.90	53.83	58.37	44.52	-	-	-
2003	44.76*	51.52*	57.06*	44.34	-	-	-
2005	43.34*	50.23*	56.36*	42.90*	-	-	-
2006	-	-	-	-	-	97.86	102.77
2007	44.24*	50.65	56.76	43.50	78.50	98.06	103.38
2008	43.75*	49.79	55.96*	42.65*	76.59	96.83	103.23
2009	44.10	49.67	55.82	41.87	77.15	96.87	103.38
2010	43.37*	49.46	55.53*	42.15	77.41	96.66	103.02
2011	43.56	49.74	55.43	42.71	-	97.24	103.64*
2012	43.14*	49.11	55.52	42.28	76.87	96.38*	102.09*
2013	42.39*	48.75	54.92*	42.30	74.49*	97.00	102.22
2014	41.68*	48.17*	54.93	41.65*	73.86*	96.94	102.48
2015	41.38	47.88	54.98	41.97	73.51*	96.61	102.29
2016	41.67	47.99	54.55*	41.65	74.04	96.20	101.81

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

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

Vehicle speeds on South Australian 50 km/h roads were essentially unchanged in 2016 compared to 2015 apart from an apparent increase in the proportion of vehicles travelling above 65 km/h on Adelaide local roads. There has been a general downward trend in speeds on those roads since 2002 (although it is more pronounced in Adelaide than in rural areas).

Vehicle speeds on Adelaide 60 km/h roads were lower in 2016 compared to 2015 continuing a large historical reduction in speeds on those roads.

Vehicle speeds on rural hills 80 km/h roads were essentially unchanged in 2016 compared to 2015 ending a three year downward trend in speeds on those roads starting in 2013.

Vehicle speeds on 100 and 110 km/h rural roads were essentially unchanged in 2016 compared to 2015 with both these road types showing very little change since surveys on them began in 2006 (although examination of the upper end speeds suggests that high end speeds are becoming less common on these roads over time).

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# 1 Introduction

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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 of Planning, Transport and Infrastructure has, for a number of years, contracted CASR to oversee and analyse speed data from a selection of sites in South Australia. The first full set of measurements was taken in 2007 and are reported in Kloeden and Woolley (2009). Follow up surveys were conducted in 2008, 2009, 2010, 2011, 2012, 2013, 2014 and 2015 (Kloeden and Woolley, 2010; Kloeden and Woolley, 2012; Kloeden and Woolley, 2012a; Kloeden and Woolley, 2013; Kloeden and Woolley, 2013a; Kloeden and Woolley, 2015; Kloeden and Woolley, 2017).

This Report summarises the data collected in 2016 and compares it with previous surveys and partial surveys dating back to 2002.

Individual site details and measurements are available in an associated spread sheet to this report which can be found at: <http://casr.adelaide.edu.au/publications/list/?id=1719>

## 2 Methodology

### 2.1 Site selection

Table 2.1 shows the number of sites surveyed in each year by road type. Table 2.2 shows the number of site/direction combinations that were successfully surveyed in each year by road type. Individual site details and measurements are available in an associated spread sheet to this report which can be found at: <http://casr.adelaide.edu.au/publications/list/?id=1719>

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

Year	Road type (speed limit)							Total
	Adelaide local (50)*	Adelaide collector (50*)	Adelaide arterial (60)	Rural local (50*)	Rural hills arterial (80)	Rural arterial (100)	Rural arterial (110)	
2002	18	11	10	12	-	-	-	51
2003	18	11	10	12	-	-	-	51
2005	18	11	10	12	-	-	-	51
2006	-	-	-	-	-	5	9	14
2007	18	11	27	13	4	9	36	118
2008	18	10	27	13	6	9	35	118
2009	18	11	27	13	6	10	34	119
2010	18	11	27	12	6	10	35	119
2011	17	11	24	10	-	10	34	106
2012	17	11	21	12	6	13	34	114
2013	18	12	25	13	11	13	34	126
2014	17	12	23	12	11	15	34	124
2015	18	11	24	12	12	10	25	112
2016	18	12	26	12	10	10	27	115

\* these roads were 60 km/h in 2002

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

Year	Road type (speed limit)							Total
	Adelaide local (50)*	Adelaide collector (50*)	Adelaide arterial (60)	Rural local (50*)	Rural hills arterial (80)	Rural arterial (100)	Rural arterial (110)	
2002	35	22	20	23	-	-	-	100
2003	35	22	20	23	-	-	-	100
2005	35	22	20	23	-	-	-	100
2006	-	-	-	-	-	10	18	28
2007	35	22	54	25	8	18	72	234
2008	35	20	54	25	12	18	70	234
2009	34	22	53	25	12	20	68	234
2010	34	22	54	23	12	20	70	235
2011	33	22	47	20	-	20	68	210
2012	33	22	41	24	12	26	68	226
2013	35	24	50	26	22	26	68	251
2014	33	24	46	24	22	30	68	247
2015	35	22	47	24	24	20	50	222
2016	35	24	51	24	20	19	54	227

\* 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 (Kloeden, Woolley and McLean; 2004, 2006). 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 and each year thereafter for a full week mostly in November.

Additional sites were surveyed in 2007 for a full week mostly in August or November (see the associated spread sheet to this report for site sample months). Some of these sites were also sampled for a 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 the associated spread sheet to this report).

Note that there was data collection at six Adelaide arterial 80 km/h sites from 2007 to 2012. However, these sites were dropped completely from 2013 onwards and are not reported here. The data for these sites can be found in a previous report in this series (Kloeden and Woolley, 2013a).

There was also data collection at five rural arterial 60 km/h sites from 2007 to 2014. However, these sites were dropped completely from 2015 onwards and are not reported here. The data for these sites can be found in a previous report in this series (Kloeden and Woolley, 2015).

DPTI also conducted a series of yearly surveys at five 100 km/h rural sites and six 110 km/h rural sites that were included in previous reports. However, these surveys ceased to be conducted regularly in 2015 and are no longer included.

## 2.2 Data collected

The data was collected in most cases using a standard traffic counter box and surface tubes that were set up by either a contractor or DPTI personnel. At some sites, induction loops were used for measurements. The following information was recorded for each vehicle that passed during each 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

Due to individual sites becoming unsuitable or changing speed limits and new sites being added over time, a method had to be developed for tracking year to year changes on a varying number of sites.

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. This methodology was introduced in the analysis of the 2009 survey year data (Kloeden and Woolley, 2012) and is explained in detail in Kloeden and Woolley (2013a).

Essentially, all sites that are successfully sampled in adjacent years are compared for changes in a particular speed measurement. The median of these changes is taken as the best estimate of the change from year to year and a Wilcoxon signed rank test is applied to determine the statistical significance of the change. The changes are applied to baseline median speed measurements from 2007 to give indicative absolute speed measurements for each year.

This method uses all 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).



### 3 Speeds of all vehicles

This Section compares the speeds of all vehicles collected in the various surveys on the different road types. Individual site details and measurements are available in an associated spread sheet to this report which can be found at: <http://casr.adelaide.edu.au/publications/list/?id=1719>

#### 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

Survey year	Mean speed	Median speed	85th percentile speed	% above 50 km/h	% above 55 km/h	% above 60 km/h	% above 65 km/h
2002	46.90	48.55	57.15	34.22	20.30	9.69	3.18
2003	44.76	45.94	54.29	26.22	12.62	5.72	1.93
2005	43.34	44.34	53.05	23.74	11.36	5.01	1.78
2007	44.24	45.40	53.50	24.65	11.95	5.01	1.78
2008	43.75	44.70	52.80	22.47	11.28	4.77	1.72
2009	44.10	45.10	52.80	23.23	11.39	4.75	1.62
2010	43.37	44.35	52.10	21.35	10.49	4.40	1.42
2011	43.56	44.75	52.40	22.88	11.12	4.40	1.45
2012	43.14	44.45	52.00	22.19	10.55	4.27	1.44
2013	42.39	43.85	51.30	20.09	9.35	4.04	1.28
2014	41.68	43.25	50.70	19.98	9.27	3.95	1.21
2015	41.38	42.95	50.30	19.28	9.17	3.92	1.21
2016	41.67	43.21	50.36	20.03	9.28	4.03	1.30

Note: these roads were 60 km/h in 2002

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

Compared years	Mean speed	Median speed	85th percentile speed	% above 50 km/h	% above 55 km/h	% above 60 km/h	% above 65 km/h
2002-2003	-2.14*	-2.61*	-2.86*	-7.99*	-7.68*	-3.97*	-1.25*
2003-2005	-1.42*	-1.60*	-1.24*	-2.48	-1.26	-0.71	-0.15
2005-2007	0.91*	1.06*	0.45	0.91	0.60	0.00	0.00
2007-2008	-0.50*	-0.70	-0.70	-2.18*	-0.68*	-0.24	-0.06
2008-2009	0.35	0.40	0.00	0.76	0.11	-0.02	-0.11*
2009-2010	-0.73*	-0.75*	-0.70*	-1.89*	-0.90*	-0.35*	-0.20*
2010-2011	0.19	0.40	0.30	1.53*	0.64	0.00	0.03
2011-2012	-0.42*	-0.30*	-0.40*	-0.69*	-0.58*	-0.13	-0.01
2012-2013	-0.75*	-0.60	-0.70*	-2.10*	-1.20*	-0.23*	-0.16*
2013-2014	-0.71*	-0.60*	-0.60*	-0.12	-0.08	-0.10*	-0.07*
2014-2015	-0.31	-0.30	-0.40*	-0.70*	-0.10*	-0.03	-0.00
2015-2016	0.30	0.26	0.06	0.75	0.12	0.11	0.09*

\* 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

Survey year	Mean speed	Median speed	85th percentile speed	% above 50 km/h	% above 55 km/h	% above 60 km/h	% above 65 km/h
2002	53.83	54.24	61.06	68.16	43.85	21.60	6.48
2003	51.52	51.51	59.09	58.78	30.00	12.45	4.20
2005	50.23	50.35	57.26	52.48	24.12	8.38	2.86
2007	50.65	50.80	57.90	55.02	25.84	9.21	2.94
2008	49.79	49.95	57.00	49.97	23.04	7.89	2.34
2009	49.67	50.05	56.55	49.99	22.88	7.49	2.32
2010	49.46	50.00	56.50	49.88	22.12	7.32	2.08
2011	49.74	50.30	56.95	52.05	22.97	7.53	2.02
2012	49.11	49.55	56.00	48.07	20.15	6.53	1.68
2013	48.75	49.15	55.50	45.06	18.59	5.72	1.42
2014	48.17	48.80	55.35	43.35	17.93	5.55	1.42
2015	47.88	48.35	54.65	40.87	15.57	4.84	1.21
2016	47.99	48.53	54.88	42.60	16.03	5.08	1.29

Note: these roads were 60 km/h in 2002

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

Compared years	Mean speed	Median speed	85th percentile speed	% above 50 km/h	% above 55 km/h	% above 60 km/h	% above 65 km/h
2002-2003	-2.30*	-2.72*	-1.97*	-9.39*	-13.85*	-9.15*	-2.28*
2003-2005	-1.29*	-1.16*	-1.83*	-6.30*	-5.87*	-4.07*	-1.34*
2005-2007	0.42	0.45	0.64	2.54	1.72	0.83	0.07
2007-2008	-0.87	-0.85	-0.90	-5.05*	-2.80*	-1.32*	-0.59*
2008-2009	-0.12	0.10	-0.45	0.02	-0.17	-0.40	-0.02
2009-2010	-0.21	-0.05	-0.05	-0.10	-0.76	-0.17	-0.24
2010-2011	0.28	0.30	0.45	2.16	0.85	0.21	-0.06
2011-2012	-0.63	-0.75*	-0.95*	-3.98*	-2.82*	-1.00*	-0.34*
2012-2013	-0.37	-0.40	-0.50*	-3.01	-1.57*	-0.81*	-0.26*
2013-2014	-0.57*	-0.35	-0.15	-1.71	-0.66	-0.17	-0.00
2014-2015	-0.29	-0.45	-0.70*	-2.48	-2.36*	-0.71*	-0.21*
2015-2016	0.10	0.18	0.23	1.73	0.46	0.24	0.08

\* 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

Survey year	Mean speed	Median speed	85th percentile speed	% above 60 km/h	% above 65 km/h	% above 70 km/h	% above 75 km/h
2002	58.37	58.74	63.54	37.08	9.55	2.49	1.04
2003	57.06	57.87	62.80	31.24	6.91	1.97	0.84
2005	56.36	57.08	61.81	25.39	4.97	1.29	0.46
2007	56.76	57.45	62.15	27.29	5.64	1.27	0.43
2008	55.96	56.65	61.30	21.82	3.95	0.93	0.34
2009	55.82	56.45	61.00	19.83	3.53	0.83	0.31
2010	55.53	56.15	60.60	17.73	3.05	0.69	0.27
2011	55.43	56.15	60.60	17.87	3.08	0.70	0.26
2012	55.52	56.15	60.40	17.52	2.80	0.60	0.21
2013	54.92	55.35	59.60	12.61	1.92	0.47	0.17
2014	54.93	55.40	59.55	12.21	1.77	0.44	0.16
2015	54.98	55.50	59.85	13.74	2.04	0.50	0.18
2016	54.55	55.12	59.34	12.43	1.78	0.45	0.17

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

Compared years	Mean speed	Median speed	85th percentile speed	% above 60 km/h	% above 65 km/h	% above 70 km/h	% above 75 km/h
2002-2003	-1.31*	-0.88*	-0.74*	-5.85*	-2.64*	-0.51*	-0.20*
2003-2005	-0.70*	-0.79*	-0.99*	-5.85*	-1.93*	-0.68*	-0.38*
2005-2007	0.40	0.38	0.34	1.90	0.66	-0.02	-0.03
2007-2008	-0.80*	-0.80*	-0.85*	-5.47*	-1.69*	-0.34*	-0.09*
2008-2009	-0.14	-0.20	-0.30	-1.99	-0.42*	-0.10*	-0.03*
2009-2010	-0.29*	-0.30*	-0.40*	-2.10*	-0.49*	-0.14*	-0.04*
2010-2011	-0.10	0.00	0.00	0.14	0.04	0.01	-0.01
2011-2012	0.10	-0.00	-0.20	-0.35	-0.28	-0.10	-0.04
2012-2013	-0.60*	-0.80*	-0.80*	-4.92*	-0.88*	-0.13*	-0.05*
2013-2014	0.00	0.05	-0.05	-0.39	-0.15	-0.04	-0.01
2014-2015	0.05	0.10	0.30	1.53	0.27	0.06*	0.02*
2015-2016	-0.42*	-0.38	-0.51*	-1.31	-0.26*	-0.05	-0.01

\* 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 3.7 and the changes from one survey to the next in Table 3.8.

Table 3.7  
Rural 50 km/h local road speed results by survey

Survey year	Mean speed	Median speed	85th percentile speed	% above 50 km/h	% above 55 km/h	% above 60 km/h	% above 65 km/h
2002	44.52	46.42	56.67	37.07	16.08	6.44	2.22
2003	44.34	45.65	55.47	35.68	14.12	5.62	1.79
2005	42.90	44.40	53.63	30.81	12.17	4.47	1.47
2007	43.50	44.70	54.10	31.38	12.17	4.47	1.44
2008	42.65	43.70	53.10	28.66	10.12	3.32	0.92
2009	41.87	43.20	53.00	28.59	10.12	3.32	0.92
2010	42.15	43.50	52.90	29.54	10.46	3.32	0.99
2011	42.71	43.90	52.75	29.66	10.33	3.33	0.99
2012	42.28	43.60	52.15	28.49	9.82	2.83	0.86
2013	42.30	43.75	52.20	28.78	9.46	2.83	0.86
2014	41.65	43.30	51.15	26.79	8.30	2.52	0.79
2015	41.97	43.60	51.40	26.57	8.28	2.56	0.81
2016	41.65	43.21	51.54	26.13	8.38	2.57	0.94

Note: these roads were 60 km/h in 2002

Table 3.8  
Rural 50 km/h local road speed changes between surveys

Compared years	Mean speed	Median speed	85th percentile speed	% above 50 km/h	% above 55 km/h	% above 60 km/h	% above 65 km/h
2002-2003	-0.17	-0.77	-1.20	-1.38	-1.96*	-0.81*	-0.43*
2003-2005	-1.44*	-1.25*	-1.84*	-4.87*	-1.95*	-1.15*	-0.33*
2005-2007	0.60	0.30	0.47	0.57	0.00	0.00	-0.02
2007-2008	-0.85*	-1.00*	-1.00*	-2.72*	-2.04*	-1.15*	-0.52*
2008-2009	-0.78	-0.50	-0.10	-0.07	0.00	0.00	0.00
2009-2010	0.28	0.30	-0.10	0.95	0.34	0.00	0.07*
2010-2011	0.56	0.40	-0.15	0.12	-0.13	0.01	0.00
2011-2012	-0.43	-0.30	-0.60	-1.17*	-0.52	-0.50*	-0.13
2012-2013	0.02	0.15	0.05	0.29	-0.35	0.00	0.00
2013-2014	-0.65*	-0.45*	-1.05*	-1.99*	-1.16	-0.30	-0.06
2014-2015	0.32	0.30	0.25	-0.22	-0.02	0.04	0.02
2015-2016	-0.32	-0.39	0.14	-0.44	0.09	0.01	0.13

\* statistically significant change (p < 0.05)

### 3.6 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 3.9 and the changes from one survey to the next in Table 3.10. Note that there were problems with a new contractor identifying the correct locations for these sites in 2011 meaning that no data is available for 2011 so 2012 data is compared to data from 2010.

Table 3.9  
Rural hills 80 km/h arterial road speed results by survey

Survey year	Mean speed	Median speed	85th percentile speed	% above 80 km/h	% above 85 km/h	% above 90 km/h	% above 95 km/h
2007	78.50	78.30	87.05	40.80	20.59	9.70	4.74
2008	76.59	76.60	84.75	34.41	18.71	8.98	4.15
2009	77.15	77.20	85.30	36.99	19.49	9.80	4.75
2010	77.41	77.35	85.20	37.49	19.54	9.92	4.63
2012	76.87	77.05	84.30	35.68	17.39	8.49	3.16
2013	74.49	74.70	80.75	26.85	11.68	5.37	1.94
2014	73.86	73.80	80.00	24.99	10.27	5.07	1.86
2015	73.51	73.60	79.05	23.74	9.10	4.19	1.48
2016	74.04	73.94	79.42	25.17	9.82	4.46	1.58

Table 3.10  
Rural hills 80 km/h arterial road speed changes between surveys

Compared years	Mean speed	Median speed	85th percentile speed	% above 80 km/h	% above 85 km/h	% above 90 km/h	% above 95 km/h
2007-2008	-1.91	-1.70	-2.30	-6.39	-1.89	-0.72	-0.60
2008-2009	0.56	0.60	0.55	2.59	0.78	0.82	0.60
2009-2010	0.27	0.15	-0.10	0.50	0.05	0.11	-0.12
2010-2012	-0.55	-0.30	-0.90	-1.81	-2.15	-1.43	-1.47*
2012-2013	-2.37*	-2.35*	-3.55*	-8.83*	-5.71*	-3.12*	-1.22*
2013-2014	-0.63*	-0.90*	-0.75*	-1.86	-1.41*	-0.30	-0.09
2014-2015	-0.35*	-0.20	-0.95*	-1.25	-1.17*	-0.88*	-0.38*
2015-2016	0.52	0.34	0.36	1.44	0.72	0.27	0.10

\* statistically significant change ( $p < 0.05$ )

### 3.7 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 3.11 and the changes from one survey to the next in Table 3.12. Note that some incorrectly classified sites from previous years were identified and corrected in the 2011 analysis (Kloeden and Woolley, 2013). This means the historical results presented here differ slightly from those in older reports in this series.

Table 3.11  
Rural 100 km/h arterial road speed results by survey

Survey year	Mean speed	Median speed	85th percentile speed	% above 100 km/h	% above 105 km/h	% above 110 km/h	% above 115 km/h
2006	97.86	98.55	107.85	44.29	23.63	11.19	5.27
2007	98.06	99.15	108.15	46.22	24.02	11.34	5.16
2008	96.83	98.10	106.80	42.29	20.56	9.81	4.63
2009	96.87	98.10	106.35	41.84	20.12	9.49	4.63
2010	96.66	97.75	106.20	41.11	19.54	8.91	4.43
2011	97.24	98.25	106.40	43.76	20.48	9.29	4.55
2012	96.38	97.40	105.45	39.28	16.60	7.59	3.69
2013	97.00	97.95	106.00	42.02	17.88	7.97	3.80
2014	96.94	97.95	105.70	42.25	17.50	7.64	3.69
2015	96.61	97.65	105.20	40.15	16.36	7.22	3.59
2016	96.20	97.45	104.76	37.96	15.99	7.24	3.60

Table 3.12  
Rural 100 km/h arterial road speed changes between surveys

Compared years	Mean speed	Median speed	85th percentile speed	% above 100 km/h	% above 105 km/h	% above 110 km/h	% above 115 km/h
2006-2007	0.19	0.60	0.30	1.94	0.39	0.14	-0.10
2007-2008	-1.23	-1.05*	-1.35*	-3.93*	-3.46*	-1.53*	-0.53*
2008-2009	0.04	0.00	-0.45	-0.45	-0.44	-0.31	0.00
2009-2010	-0.21	-0.35	-0.15	-0.73	-0.59	-0.58	-0.20
2010-2011	0.58	0.50	0.20	2.65	0.95	0.38	0.12
2011-2012	-0.86*	-0.85*	-0.95*	-4.48*	-3.89*	-1.70*	-0.87*
2012-2013	0.62	0.55	0.55	2.74*	1.29	0.38	0.11
2013-2014	-0.06	0.00	-0.30	0.23	-0.38	-0.33	-0.11
2014-2015	-0.33	-0.30	-0.50	-2.10	-1.14	-0.43	-0.09
2015-2016	-0.40	-0.20	-0.44	-2.19	-0.37	0.03	0.00

\* statistically significant change ( $p < 0.05$ )

## 3.8 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 3.13 and the changes from one survey to the next in Table 3.14. Note that some incorrectly classified sites from previous years were identified and corrected in the 2011 analysis (Kloeden and Woolley, 2013). This means the historical results presented here differ slightly from those in older reports in this series.

Table 3.13  
Rural 110 km/h arterial road speed results by survey

Survey year	Mean speed	Median speed	85th percentile speed	% above 110 km/h	% above 115 km/h	% above 120 km/h	% above 125 km/h
2006	102.77	103.85	113.50	26.77	12.39	4.59	1.46
2007	103.38	104.45	114.00	28.05	12.62	4.49	1.75
2008	103.23	104.40	113.70	27.37	11.87	3.96	1.59
2009	103.38	104.55	113.60	27.61	11.92	3.82	1.54
2010	103.02	104.15	113.20	26.16	11.25	3.50	1.44
2011	103.64	104.80	113.50	26.86	11.70	3.79	1.59
2012	102.09	103.30	111.45	20.96	8.64	2.70	1.02
2013	102.22	103.55	111.60	21.83	8.52	2.71	1.02
2014	102.48	103.85	111.50	20.91	8.19	2.59	0.89
2015	102.29	103.60	111.25	19.88	7.83	2.47	0.87
2016	101.81	103.42	110.72	18.46	7.13	2.24	0.74

Table 3.14  
Rural 110 km/h arterial road speed changes between surveys

Compared years	Mean speed	Median speed	85th percentile speed	% above 110 km/h	% above 115 km/h	% above 120 km/h	% above 125 km/h
2006-2007	0.61	0.60	0.50	1.29	0.23	-0.10	0.30
2007-2008	-0.14	-0.05*	-0.30*	-0.69*	-0.75*	-0.53*	-0.16*
2008-2009	0.15	0.15	-0.10	0.24	0.06	-0.13	-0.05
2009-2010	-0.36	-0.40	-0.40*	-1.45	-0.67*	-0.33*	-0.10*
2010-2011	0.62*	0.65*	0.30	0.70	0.44	0.30	0.16
2011-2012	-1.55*	-1.50*	-2.05*	-5.91*	-3.06*	-1.09*	-0.57*
2012-2013	0.13	0.25	0.15	0.88	-0.11	0.01	-0.01
2013-2014	0.26	0.30	-0.10	-0.93	-0.34*	-0.13*	-0.13*
2014-2015	-0.19	-0.25	-0.25	-1.02	-0.36	-0.12	-0.01
2015-2016	-0.48	-0.18	-0.54	-1.42	-0.69	-0.22	-0.13

\* statistically significant change ( $p < 0.05$ )

### 3.9 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 between two adjacent surveys and dashed lines indicating a change that was not statistically significant.

Figure 3.1  
Changes in mean speed for 50 km/h roads (60 km/h in 2002)

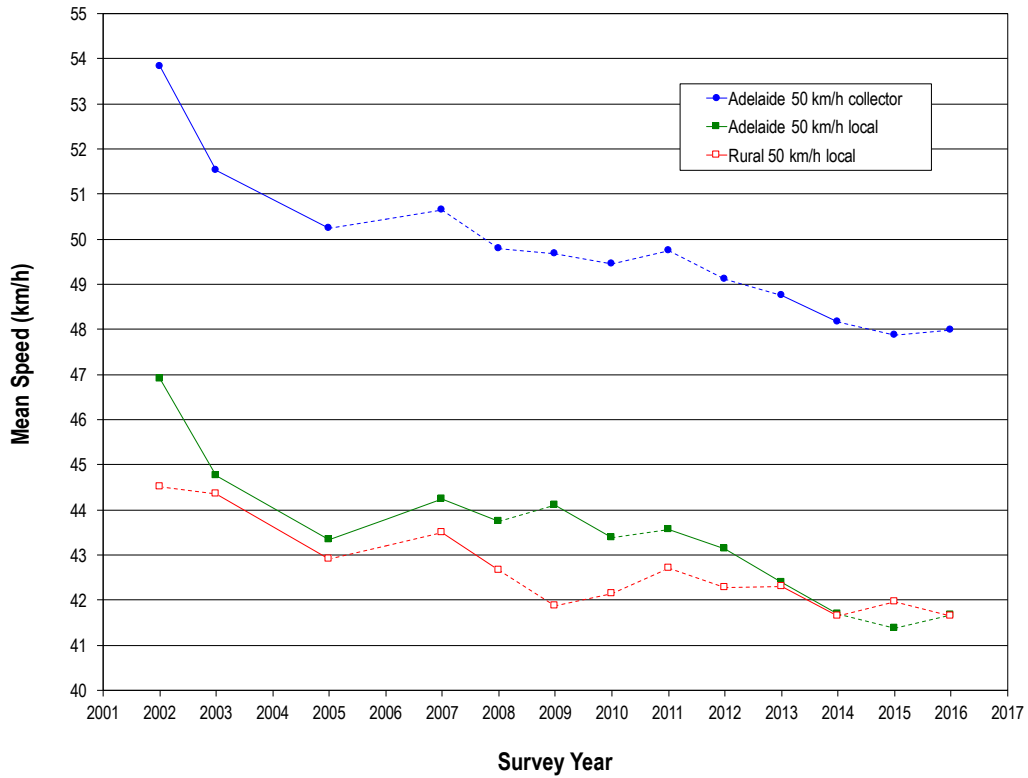




Figure 3.2  
Changes in mean speed for low speed roads

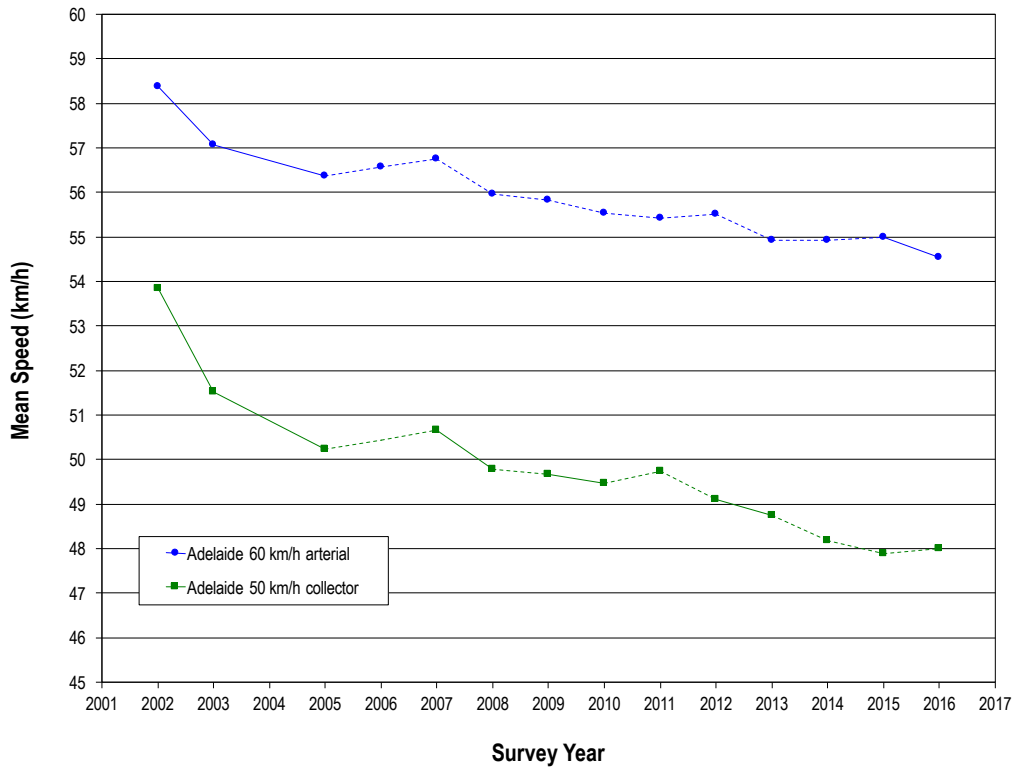


Figure 3.3  
Changes in mean speed for rural 80 km/h roads

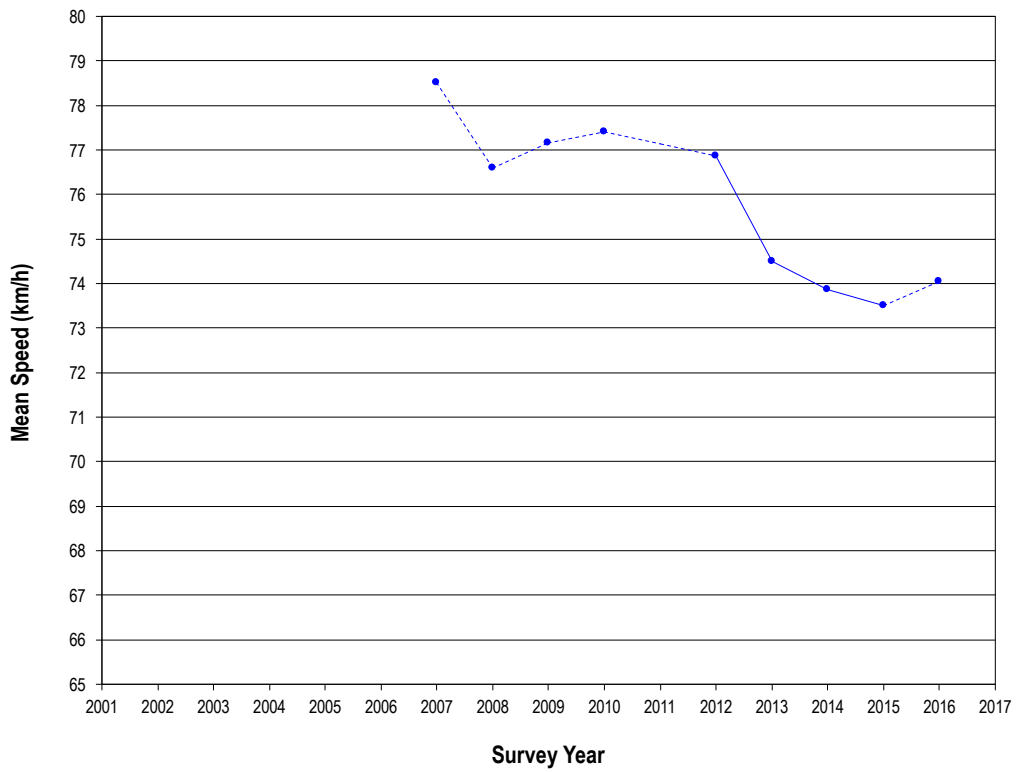
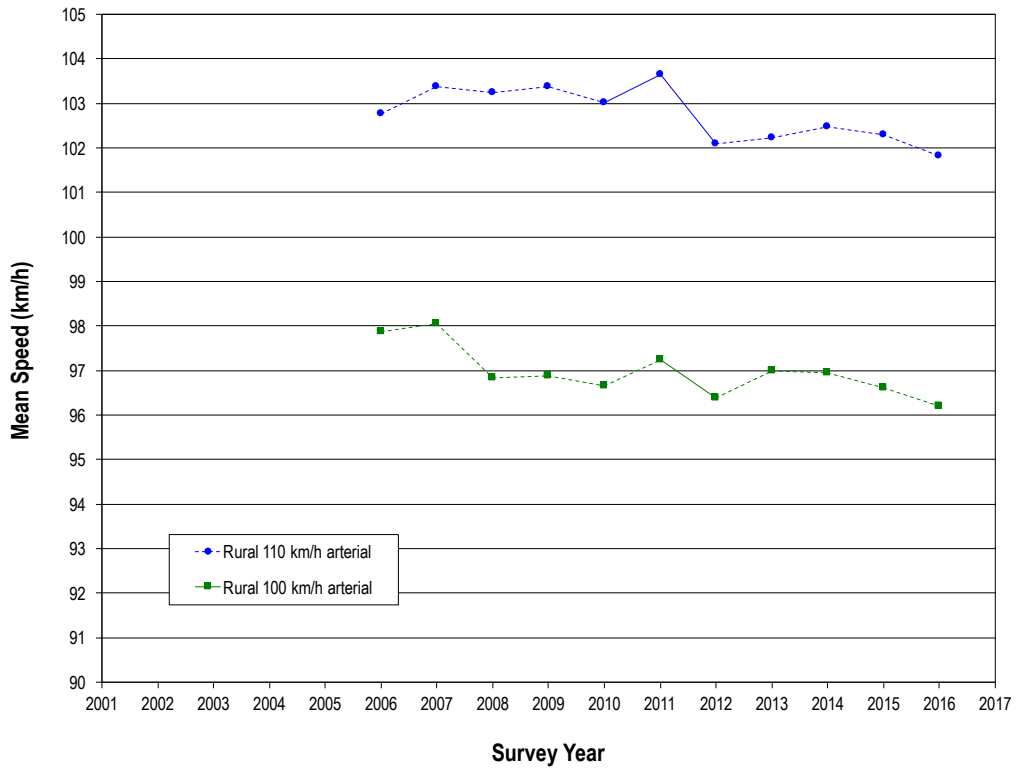


Figure 3.4  
Changes in mean speed for high speed roads



## 4 Speeds of free speed vehicles

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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. However, this is not the same as the speeds that all drivers would choose if they could do so as the preferred speeds of drivers behind other vehicles cannot be known. This method also tends to bias measured speeds to those times when traffic volumes are low. Our preference is for using all vehicle speeds as these are not subject to the same biases as free speeds and they represent the total speed behaviour of all vehicles. However, since free speeds are commonly used, they are calculated and presented below.

## 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

Survey year	Mean speed	Median speed	85th percentile speed	% above 50 km/h	% above 55 km/h	% above 60 km/h	% above 65 km/h
2002	47.40	48.58	58.10	35.11	21.17	10.37	3.05
2003	45.09	45.97	55.00	27.07	13.97	5.90	1.87
2005	43.75	44.37	53.76	25.11	12.78	5.35	1.82
2007	44.65	45.50	54.20	26.00	13.27	5.36	1.82
2008	44.23	44.90	53.80	23.69	12.69	5.12	1.76
2009	44.54	45.15	53.80	24.28	12.75	5.08	1.63
2010	43.88	44.35	53.15	22.39	11.78	4.68	1.48
2011	43.98	44.75	53.45	23.72	12.27	4.58	1.57
2012	43.55	44.55	53.15	23.11	11.79	4.45	1.56
2013	42.77	43.95	52.55	20.66	10.62	4.21	1.37
2014	42.04	43.35	51.95	20.55	10.48	4.11	1.30
2015	41.73	43.05	51.65	19.85	10.39	4.08	1.30
2016	42.08	43.22	51.68	20.82	10.52	4.21	1.38

Note: these roads were 60 km/h in 2002

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

Compared years	Mean speed	Median speed	85th percentile speed	% above 50 km/h	% above 55 km/h	% above 60 km/h	% above 65 km/h
2002-2003	-2.31*	-2.61*	-3.10*	-8.04*	-7.20*	-4.47*	-1.17*
2003-2005	-1.33*	-1.60*	-1.24*	-1.97	-1.19	-0.54	-0.06
2005-2007	0.90*	1.13*	0.44	0.90	0.48	0.01	0.00
2007-2008	-0.43*	-0.60*	-0.40	-2.32*	-0.57*	-0.24	-0.06
2008-2009	0.32	0.25	0.00	0.59	0.05	-0.04	-0.13*
2009-2010	-0.66*	-0.80*	-0.65*	-1.88*	-0.97*	-0.40*	-0.15*
2010-2011	0.10	0.40	0.30	1.33*	0.49	-0.10	0.09
2011-2012	-0.42*	-0.20*	-0.30*	-0.61*	-0.48*	-0.14	-0.01
2012-2013	-0.78*	-0.60	-0.60*	-2.46*	-1.17*	-0.23*	-0.20*
2013-2014	-0.73*	-0.60*	-0.60*	-0.11	-0.14	-0.10*	-0.07*
2014-2015	-0.31	-0.30	-0.30*	-0.70*	-0.09*	-0.04	-0.01
2015-2016	0.35	0.17	0.03	0.97	0.12	0.13	0.09*

\* 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

Survey year	Mean speed	Median speed	85th percentile speed	% above 50 km/h	% above 55 km/h	% above 60 km/h	% above 65 km/h
2002	54.11	54.31	60.96	69.10	43.60	22.29	6.75
2003	51.83	51.70	58.83	59.89	30.66	12.89	4.47
2005	50.49	50.60	57.19	53.54	24.29	8.49	3.05
2007	50.82	50.90	57.95	55.48	26.21	9.37	3.05
2008	49.94	50.10	57.15	50.48	23.19	8.01	2.43
2009	49.84	50.10	56.70	50.67	22.94	7.59	2.43
2010	49.65	50.05	56.50	50.63	22.29	7.46	2.18
2011	49.94	50.30	56.90	52.71	23.10	7.64	2.11
2012	49.34	49.55	56.00	48.62	20.17	6.50	1.75
2013	48.93	49.15	55.40	45.61	18.96	5.73	1.46
2014	48.32	48.90	55.25	44.38	18.43	5.53	1.46
2015	48.02	48.45	54.55	42.05	15.83	4.87	1.25
2016	48.18	48.66	54.83	44.26	16.42	5.16	1.36

Note: these roads were 60 km/h in 2002

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

Compared years	Mean speed	Median speed	85th percentile speed	% above 50 km/h	% above 55 km/h	% above 60 km/h	% above 65 km/h
2002-2003	-2.28*	-2.62*	-2.14*	-9.21*	-12.94*	-9.39*	-2.27*
2003-2005	-1.34*	-1.09*	-1.64*	-6.35*	-6.37*	-4.40*	-1.43*
2005-2007	0.32	0.30	0.77	1.94	1.92	0.88	0.01
2007-2008	-0.88	-0.80	-0.80	-5.00*	-3.02*	-1.36*	-0.63*
2008-2009	-0.10	0.00	-0.45	0.19	-0.25	-0.42	0.00
2009-2010	-0.19	-0.05	-0.20	-0.04	-0.65	-0.13	-0.25
2010-2011	0.28	0.25	0.40	2.08	0.81	0.18	-0.07
2011-2012	-0.60	-0.75*	-0.90*	-4.09*	-2.93*	-1.14*	-0.36*
2012-2013	-0.41	-0.40	-0.60*	-3.02	-1.20*	-0.77*	-0.29*
2013-2014	-0.60*	-0.25	-0.15	-1.23	-0.53	-0.19	0.00
2014-2015	-0.30	-0.45	-0.70*	-2.33	-2.60*	-0.66*	-0.21*
2015-2016	0.16	0.21	0.28	2.21	0.59	0.28	0.10

\* 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

Survey year	Mean speed	Median speed	85th percentile speed	% above 60 km/h	% above 65 km/h	% above 70 km/h	% above 75 km/h
2002	58.55	58.96	64.45	41.02	13.48	4.05	1.79
2003	57.59	58.12	63.55	35.01	10.17	3.10	1.42
2005	56.92	57.52	62.53	30.83	7.28	2.01	0.68
2007	57.35	57.90	63.00	33.20	8.26	2.06	0.75
2008	56.61	57.15	62.20	28.77	6.29	1.56	0.60
2009	56.40	56.95	61.90	26.47	5.46	1.40	0.53
2010	56.08	56.55	61.50	24.20	4.78	1.18	0.45
2011	56.14	56.55	61.60	24.48	4.67	1.18	0.42
2012	56.24	56.55	61.60	24.49	4.40	1.02	0.35
2013	55.57	55.75	60.80	18.70	3.08	0.74	0.26
2014	55.56	55.80	60.70	18.19	2.91	0.68	0.24
2015	55.76	55.90	60.90	20.27	3.35	0.81	0.28
2016	55.31	55.55	60.40	18.71	2.97	0.76	0.27

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

Compared years	Mean speed	Median speed	85th percentile speed	% above 60 km/h	% above 65 km/h	% above 70 km/h	% above 75 km/h
2002-2003	-0.96*	-0.84*	-0.90*	-6.01*	-3.31*	-0.94*	-0.37*
2003-2005	-0.66*	-0.61*	-1.02*	-4.18*	-2.89*	-1.09*	-0.74*
2005-2007	0.42	0.38	0.46	2.37	0.98	0.05	0.07
2007-2008	-0.74*	-0.75*	-0.80*	-4.44*	-1.97*	-0.51*	-0.15*
2008-2009	-0.21	-0.20	-0.30	-2.30	-0.83*	-0.16*	-0.07*
2009-2010	-0.32*	-0.40*	-0.40*	-2.26*	-0.67*	-0.22*	-0.08*
2010-2011	0.05	0.00	0.10	0.28	-0.12	-0.01	-0.03
2011-2012	0.10	0.00	0.00	0.01	-0.27	-0.16	-0.07
2012-2013	-0.67*	-0.80*	-0.80*	-5.79*	-1.32*	-0.28*	-0.09*
2013-2014	-0.01	0.05	-0.10	-0.51	-0.18	-0.06	-0.01
2014-2015	0.20	0.10	0.20	2.08	0.44	0.13*	0.04*
2015-2016	-0.44	-0.35	-0.50*	-1.55	-0.38*	-0.05	-0.01

\* 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 4.7 and the changes from one survey to the next in Table 4.8.

Table 4.7  
Rural 50 km/h local road free speed results by survey

Survey year	Mean speed	Median speed	85th percentile speed	% above 50 km/h	% above 55 km/h	% above 60 km/h	% above 65 km/h
2002	44.07	46.16	56.75	37.38	16.69	6.54	2.31
2003	44.41	45.61	55.67	36.17	14.66	5.70	1.86
2005	42.97	44.50	53.81	31.36	12.49	4.62	1.54
2007	43.51	44.80	54.30	31.41	12.49	4.62	1.53
2008	42.67	43.90	53.30	28.69	10.57	3.26	0.89
2009	42.02	43.40	53.20	28.69	10.57	3.26	0.89
2010	42.25	43.70	53.20	29.42	10.91	3.26	0.94
2011	42.59	43.95	53.10	29.53	10.73	3.26	0.94
2012	42.35	43.80	52.70	28.32	10.21	2.78	0.81
2013	42.31	43.95	52.80	28.55	9.80	2.78	0.81
2014	41.71	43.35	51.70	26.33	8.61	2.48	0.72
2015	42.10	43.65	52.00	26.20	8.59	2.53	0.75
2016	41.81	43.26	52.20	25.75	8.69	2.53	0.88

Note: these roads were 60 km/h in 2002

Table 4.8  
Rural 50 km/h local road free speed changes between surveys

Compared years	Mean speed	Median speed	85th percentile speed	% above 50 km/h	% above 55 km/h	% above 60 km/h	% above 65 km/h
2002-2003	0.34	-0.55	-1.08	-1.22	-2.04*	-0.85*	-0.45*
2003-2005	-1.44*	-1.11*	-1.86*	-4.81*	-2.17*	-1.07*	-0.32*
2005-2007	0.54	0.30	0.49	0.05	0.00	0.00	-0.01
2007-2008	-0.84*	-0.90*	-1.00*	-2.72*	-1.92*	-1.37*	-0.64*
2008-2009	-0.65	-0.50	-0.10	0.00	0.00	0.00	0.00
2009-2010	0.23	0.30	0.00	0.73	0.34	0.00	0.05
2010-2011	0.34	0.25	-0.10	0.12	-0.18	0.00	0.00
2011-2012	-0.24	-0.15	-0.40	-1.22*	-0.52	-0.48*	-0.14
2012-2013	-0.04	0.15	0.10	0.24	-0.41	0.00	0.00
2013-2014	-0.59*	-0.60*	-1.10*	-2.22*	-1.19	-0.30	-0.09
2014-2015	0.39	0.30	0.30	-0.13	-0.02	0.04	0.03
2015-2016	-0.30	-0.38	0.21	-0.45	0.09	0.00	0.13

\* statistically significant change ( $p < 0.05$ )

## 4.6 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 4.9 and the changes from one survey to the next in Table 4.10. Note that there were problems with a new contractor identifying the correct locations for these sites in 2011 meaning that no data is available for 2011 so 2012 data is compared to data from 2010.

Table 4.9  
Rural hills 80 km/h arterial road free speed results by survey

Survey year	Mean speed	Median speed	85th percentile speed	% above 80 km/h	% above 85 km/h	% above 90 km/h	% above 95 km/h
2007	79.53	79.15	88.10	45.06	23.69	11.46	5.73
2008	77.69	77.40	85.85	38.24	21.38	10.55	5.02
2009	78.40	78.00	86.35	40.83	22.25	11.67	5.85
2010	78.72	78.05	86.05	41.06	21.87	11.60	5.71
2012	78.10	78.00	85.05	40.39	19.79	10.05	4.57
2013	75.68	75.65	81.40	31.63	13.25	6.63	3.21
2014	74.85	74.85	80.25	29.55	11.83	6.25	3.12
2015	74.54	74.65	79.35	29.01	10.64	5.38	2.67
2016	75.01	74.91	79.57	29.99	11.16	5.62	2.83

Table 4.10  
Rural hills 80 km/h arterial road free speed changes between surveys

Compared years	Mean speed	Median speed	85th percentile speed	% above 80 km/h	% above 85 km/h	% above 90 km/h	% above 95 km/h
2007-2008	-1.84	-1.75	-2.25	-6.82	-2.32	-0.91	-0.71
2008-2009	0.71	0.60	0.50	2.59	0.87	1.12	0.83
2009-2010	0.32	0.05	-0.30	0.23	-0.38	-0.07	-0.14
2010-2012	-0.62	-0.05	-1.00	-0.68	-2.07	-1.55	-1.14*
2012-2013	-2.42*	-2.35*	-3.65*	-8.75*	-6.54*	-3.42*	-1.36*
2013-2014	-0.82*	-0.80*	-1.15*	-2.08	-1.42*	-0.38	-0.08
2014-2015	-0.31*	-0.20	-0.90*	-0.54	-1.20*	-0.87*	-0.46*
2015-2016	0.47	0.26	0.23	0.99	0.52	0.23	0.16

\* statistically significant change ( $p < 0.05$ )



## 4.7 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 4.11 and the changes from one survey to the next in Table 4.12. Note that some incorrectly classified sites from previous years were identified and corrected in the 2011 analysis (Kloeden and Woolley, 2013). This means the historical results presented here differ slightly from those in older reports in this series.

Table 4.11  
Rural 100 km/h arterial road free speed results by survey

Survey year	Mean speed	Median speed	85th percentile speed	% above 100 km/h	% above 105 km/h	% above 110 km/h	% above 115 km/h
2006	98.18	98.95	108.15	45.42	24.47	11.74	5.56
2007	98.41	99.55	108.55	47.53	24.89	11.98	5.55
2008	97.21	98.55	107.10	42.90	20.99	10.36	4.86
2009	97.30	98.55	106.65	42.38	20.56	10.01	4.86
2010	97.05	98.30	106.55	41.47	20.16	9.36	4.59
2011	97.64	98.75	106.70	43.87	21.28	9.76	4.76
2012	96.80	98.00	105.75	39.43	17.50	8.20	3.80
2013	97.42	98.55	106.30	42.52	18.99	8.71	4.00
2014	97.33	98.50	105.95	42.62	18.31	8.28	3.89
2015	96.98	98.15	105.35	40.36	16.83	7.74	3.73
2016	96.55	97.77	104.89	38.15	16.54	7.82	3.74

Table 4.12  
Rural 100 km/h arterial road free speed changes between surveys

Compared years	Mean speed	Median speed	85th percentile speed	% above 100 km/h	% above 105 km/h	% above 110 km/h	% above 115 km/h
2006-2007	0.23	0.60	0.40	2.11	0.42	0.24	-0.01
2007-2008	-1.20	-1.00*	-1.45*	-4.63*	-3.90*	-1.62*	-0.70
2008-2009	0.10	0.00	-0.45	-0.51	-0.44	-0.35	0.01
2009-2010	-0.26	-0.25	-0.10	-0.91	-0.40	-0.65	-0.27
2010-2011	0.59	0.45	0.15	2.40	1.12	0.40	0.16
2011-2012	-0.84*	-0.75*	-0.95*	-4.44*	-3.79*	-1.57*	-0.95*
2012-2013	0.62	0.55	0.55	3.09	1.49	0.51	0.20
2013-2014	-0.09	-0.05	-0.35	0.09	-0.68	-0.43	-0.11
2014-2015	-0.35	-0.35	-0.60	-2.26	-1.47	-0.54	-0.16
2015-2016	-0.44	-0.38	-0.46	-2.20	-0.29	0.08	0.01

\* statistically significant change ( $p < 0.05$ )

## 4.8 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 4.13 and the changes from one survey to the next in Table 4.14. Note that some incorrectly classified sites from previous years were identified and corrected in the 2011 analysis (Kloeden and Woolley, 2013). This means the historical results presented here differ slightly from those in older reports in this series.

Table 4.13  
Rural 110 km/h arterial road free speed results by survey

Survey year	Mean speed	Median speed	85th percentile speed	% above 110 km/h	% above 115 km/h	% above 120 km/h	% above 125 km/h
2006	103.19	104.30	113.90	28.67	12.82	4.99	1.54
2007	103.82	104.95	114.30	29.83	13.15	4.89	1.87
2008	103.55	104.70	113.75	28.74	12.20	4.29	1.71
2009	103.55	104.75	113.65	28.78	12.17	4.11	1.64
2010	103.22	104.30	113.35	27.55	11.51	3.82	1.51
2011	103.79	104.90	113.55	28.11	11.90	4.05	1.67
2012	102.22	103.45	111.55	21.63	8.60	2.93	1.06
2013	102.35	103.60	111.70	22.71	8.48	2.94	1.07
2014	102.61	103.90	111.55	21.94	8.16	2.78	0.94
2015	102.44	103.55	111.25	20.78	7.75	2.71	0.95
2016	101.99	103.33	110.87	19.37	6.89	2.52	0.82

Table 4.14  
Rural 110 km/h arterial road free speed changes between surveys

Compared years	Mean speed	Median speed	85th percentile speed	% above 110 km/h	% above 115 km/h	% above 120 km/h	% above 125 km/h
2006-2007	0.63	0.65	0.40	1.15	0.32	-0.10	0.33
2007-2008	-0.27	-0.25*	-0.55*	-1.09*	-0.95*	-0.60*	-0.16*
2008-2009	-0.00	0.05	-0.10	0.04	-0.03	-0.18	-0.06
2009-2010	-0.33	-0.45	-0.30*	-1.23	-0.67*	-0.29*	-0.13*
2010-2011	0.57*	0.60*	0.20	0.56	0.39	0.24	0.15
2011-2012	-1.56*	-1.45*	-2.00*	-6.48*	-3.30*	-1.13*	-0.60*
2012-2013	0.13	0.15	0.15	1.08	-0.12	0.01	0.01
2013-2014	0.26	0.30	-0.15	-0.77	-0.31*	-0.16*	-0.14*
2014-2015	-0.18	-0.35	-0.30	-1.16	-0.41	-0.07	0.01
2015-2016	-0.45	-0.21	-0.38	-1.40	-0.86	-0.19	-0.13

\* statistically significant change ( $p < 0.05$ )

## 5 Discussion

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### 5.1 Changes in vehicle speeds

Vehicle speeds on South Australian 50 km/h roads were essentially unchanged in 2016 compared to 2015 apart from an apparent increase in the proportion of vehicles travelling above 65 km/h on Adelaide local roads. There has been a general downward trend in speeds on those roads since 2002 (although it is more pronounced in Adelaide than in rural areas).

Vehicle speeds on Adelaide 60 km/h roads were lower in 2016 compared to 2015 continuing a large historical reduction in speeds on those roads.

Vehicle speeds on rural hills 80 km/h roads were essentially unchanged in 2016 compared to 2015 ending a three year downward trend in speeds on those roads starting in 2013.

Vehicle speeds on 100 and 110 km/h rural roads were essentially unchanged in 2016 compared to 2015 with both these road types showing very little change since surveys on them began in 2006 (although examination of the upper end speeds suggests that high end speeds are becoming less common on these roads over time).

### 5.2 Changes in vehicle free speeds

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 all speed measurements (as would be expected) the changes were very similar and the sets of changes that were statistically significant were almost identical.

Preference is given in this report for reporting the speeds of all vehicles rather than just free speed vehicles as it is felt that this better represents the total speed burden of all traffic. Free speeds are said to better capture driver intention changes. However, this is not strictly the case as only a biased proportion of drivers can be measured. It is conceivable that an increase in congestion in daytime traffic which does lower overall vehicle speeds could lead to an artefactual increase in free speeds due to faster night time traffic forming a larger part of the free speed vehicle category.

However, summary free speed vehicle tables are presented for comparison purposes and for use by those who require them.

### 5.3 Conclusions

The current set of surveys provide useful information on trends in vehicle speeds in South Australia. A larger number of sites would allow more precise estimates to be made of speed changes but would entail considerable expense.

Speeds on low speed roads have shown considerable reductions since 2002 suggesting that the legislative, enforcement and media regimes of the last 14 years have slowly been pushing vehicle speeds in the right direction. Recent positive effects on rural hills 80 km/h roads appear to have stalled.

Vehicle speeds on 100 and 110 km/h rural roads have remained relatively stable although there are some indications of reductions in high level speeds.

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