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Speed limit reductions in 2011 on South Australian high speed roads

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CASR REPORT SERIES
CASR153
July 2023

Report documentation

REPORT NO.	DATE	PAGES	ISBN	ISSN
CASR153	July 2023	20	978-1-921645-91-4	1449-2237

TITLE

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FUNDING

This research was funded via a deed with the South Australian Government.

AVAILABLE FROM

Centre for Automotive Safety Research
http://casr.adelaide.edu.au/publications/list

ABSTRACT

In 2011 the speed limit on 864 km of South Australian rural roads was lowered from 110 km/h to 100 km/h. This study examined the number of injury and fatal crashes on the affected roads and on all other 110 km/h roads in the five years before the speed limit reduction and the five years after. On the roads where the speed limit was lowered, the raw number of injury crashes decreased by 6.9 per cent and the number of fatal crashes decreased by 20.0 per cent after the speed limit was changed. However, neither of these results was statistically significant. On 110 km/h roads where the speed limit was not changed, crashes over the same two time periods were examined. Injury crashes decreased by 16.4 per cent and fatal crashes increased by 14.6 per cent on these roads. If the changes on these roads are assumed to represent the general background changes on all roads then the net effect of the change in speed limit on the roads where the speed limit was lowered were a 9.5 per cent increase in injury crashes and a 34.6 per cent reduction in fatal crashes. However, neither of these results was statistically significant. More sophisticated modelling of yearly injury and fatal crash numbers for the roads where the speed limit was changed similarly failed to find any statistically significant effect of the speed limit change. Incorporating crash numbers on roads where the speed limit was not changed into these analyses also did not find any statistically significant effect of the speed limit change. These results do not imply that the change in speed limit did not affect the underlying risk of injury and fatal crashes on the roads where the speed limit was lowered. The change in speed limit would certainly have had some effect and the large body of research on the subject suggests that it would likely be to lower the underlying risk. In the current study, there are just too few crashes on the roads where the speed limit was lowered to be able to discern even a large underlying effect of lowering the speed limit on the risk of injury and fatal crashes. It is suggested that this study be repeated once 10 years of pre and post speed limit change crash data is available in 2022 when the 2021 crash data is finalised.

KEYWORDS

Speed limit, Rural area, Arterial road, Accident rate, Data analysis

Summary

In 2011 the speed limit on 864 km of South Australian rural roads was lowered from 110 km/h to 100 km/h. This study examined the number of injury and fatal crashes on the affected roads and on all other 110 km/h roads in the five years before the speed limit reduction and the five years after.

On the roads where the speed limit was lowered, the raw number of injury crashes decreased by 6.9 per cent and the number of fatal crashes decreased by 20.0 per cent after the speed limit was changed. However, neither of these results was statistically significant which means they could easily have occurred by chance alone if there were no change in the underlying risk.

On 110 km/h roads where the speed limit was not changed, crashes over the same two time periods were examined. Injury crashes decreased by 16.4 per cent and fatal crashes increased by 14.6 per cent on these roads. If the changes on these roads are assumed to represent the general background changes on all roads then the net effects of the change in speed limit on the roads where the speed limit was lowered were a 9.5 per cent increase in injury crashes and a 34.6 per cent reduction in fatal crashes. However, neither of these results was statistically significant which means they could easily have occurred by chance alone if there were no difference in the underlying risk between the roads where the speed limit was changed and the roads where it was not.

More sophisticated modelling of yearly injury and fatal crash numbers for the roads where the speed limit was changed similarly failed to find any statistically significant effect of the speed limit change. Incorporating crash numbers on roads where the speed limit was not changed into these analyses also did not find any statistically significant effect of the speed limit change.

These results do not imply that the change in speed limit did not affect the underlying risk of injury and fatal crashes on the roads where the speed limit was lowered. The change in speed limit would certainly have had some effect and the large body of research on the subject suggests that it would likely be to lower the underlying risk. The challenge is to observe an effect given the inherent random variation in crash numbers. This is only possible, in a statistically robust sense, where the effect is relatively large and/or the number of crashes observed is large.

In the current study, there are just too few crashes on the roads where the speed limit was lowered to be able to discern even a large underlying effect of lowering the speed limit on the risk of injury and fatal crashes. The only thing that can be done at this stage is to wait until more crash data accumulates. It is suggested that this study be repeated once 10 years of pre and post speed limit change crash data is available in 2022 when the 2021 crash data is finalised.

Note that the analysis for this study was carried out in 2018 using the data available at that time.

Contents

1 Introduction

In 2011, the South Australian Department of Planning, Transport and Infrastructure (DPTI) assessed 110 km/h speed limit roads within approximately 100 km of Adelaide and on the Yorke Peninsula for possible speed limit reductions. National Highways in the area, namely the Northern Expressway, Port Wakefield Highway, Sturt Highway and the South Eastern Freeway were excluded from consideration.

The roads were assessed based on crash history, risk assessment, national standards and guidelines, and DPTI operational instructions. A total of 52 road sections covering a distance of 864 km were identified as being appropriate to have their speeds limits lowered from 110 km/h to 100 km/h (see Appendix A for details of the road sections changed). Of these road sections, 45 (723 km) were State Government maintained roads and 7 (141 km) were local government roads.

The reduction in speed limit on these roads was announced publicly by the Minister for Road Safety on 8 November 2011.

Speed limit signs were progressively changed over a one month period from mid-November 2011 to mid-December 2011. At the time of the change an additional "speed limit changed" sign was added to the speed limit signs for at least one month as shown in Figure 1.1.

Figure 1.1
Changed speed limit signage

South Australia Police (SAPOL) observed a three-month enforcement grace period following the installation of "speed limit changed" signs before enforcement of the new speed limit commenced.

At the time that this study was carried out (2018), there were five years of available crash data since the speed limit change so an evaluation of the speed limit reductions effect on crash numbers could reasonably be attempted.

A previous study (Mackenzie, Kloeden and Hutchinson, 2015) examined approximately 1,100 km of rural arterial roads in South Australia where the speed limit was reduced from 110 km/h to 100 km/h in July 2003. Using 10 years of before and after crash data, it was found that the number of injury crashes on the subject roads was 27.4 per cent lower than would have been expected if the subject roads had just followed the control roads that remained at 110 km/h. This reduction was found to be statistically significant with 95 per cent confidence limits of +/- 12.4 per cent. While the methodological design of the study was not ideal: the size of the effect, the consistency of the various elements, and agreement with other research provided rather convincing evidence that the lowered speed limits were effective in reducing casualty crashes and injuries by a large amount.

Similar results would be expected in this study although with less power to detect results due to the smaller number of crashes expected in five rather than ten years of pre- and post-crash data (given a similar number of crashes per year on the case roads between the two studies).

Note that the analysis for this study was carried out in 2018 using the data available at that time.

2 Methodology

The primary data source for this project was the Traffic Accident Reporting System (TARS) database of crashes in South Australia. This database is constructed by the South Australian Department of Planning, Transport and Infrastructure (DPTI) by processing police recorded road crashes. DPTI takes the raw police data, matches multiple reports of the same crash, geolocates the crashes and codes additional fields. CASR has direct access to this database.

The basic unit of analysis for this project was an injury crash defined as a crash were at least one person was injured (treated by a doctor, treated at hospital, admitted to hospital or fatally injured) as the result of the crash. Crashes in which at least one person was fatally injured were also examined separately.

Injury crashes were chosen rather than injured persons as crash numbers are less susceptible to variation than injury numbers. Since a single crash can result in multiple injuries, a single event can skew the injury numbers which results in much more variability and potential artefacts compared to just looking at crashes.

TARS does record some non-injury crashes but the criteria for recording such crashes has changed markedly over the time period considered. Since there is no consistent measure of these crashes, they were not examined.

Crashes on the road sections where the speed limit was lowered from 110 km/h to 100 km/h in 2011 were the primary measure and were called case road crashes. In an attempt to control for long term trends in crash numbers, a comparison group of crashes on 110 km/h roads where the speed limit was not changed were defined as detailed below and called control road crashes.

There was insufficient regularly collected speed data on the affected roads to measure vehicle speed changes.

Case road crashes

The South Australian Department of Planning, Transport and Infrastructure (DPTI) identified all injury crashes on the sections of road where the speed limit was lowered in 2011 for the 2006-2010 period and the 2012-2016 period. Crashes in 2011 were not considered as this was the year that the speed limit changed. The crash identification numbers were supplied to CASR which were then matched to the Traffic Accident Reporting System (TARS) data held by CASR to give details of each crash.

The crash identification process could not readily be carried out just using the standard crash data as crash locations can be coded in a number of ways in TARS so some manual checking of crashes is required. The DPTI data was compared to a standard extract using just road number and run distance and the numbers were found to be roughly comparable. Spot checking of some sections was carried out and the DPTI data appeared to be reliable.

Control road crashes

The control road crashes were defined as all injury crashes in South Australia reported as being in a 110 km/h speed limit zone (excluding the case road crashes) for the 2006-2010 period and the 2012-2016 period.

While this is not an ideal control group, it is easily obtainable, provides the greatest number of crashes and gives some idea of the general trend in high speed road crashes in South Australia over time. There were no known large scale speed limit changes on these roads during the study period.

However, it is possible that the long term changes in crash risk on the control roads are different from those for the case roads. In particular, the control group includes national highways, very remote roads and roads not considered appropriate for speed limit reduction, all of which are excluded from the case road group. If the change in underlying risk over time is different for these road types then the control group will not validly reflect the expected changes for the case road group.

The existence and size of any such effect is unknown. The only methodologically robust way of dealing with all of these factors is to identify candidate roads in advance and then randomly allocate them to either a speed limit reduction group or an untreated group and then compare crash rates for the two groups. This method is rarely used in road safety research (and was not used here) as it requires good candidate roads to remain untreated.

A note on crash severity

Crash severity is classified by the most severely injured person involved in the crash based on four levels of severity - treated by a doctor, treated at hospital, admitted to hospital and fatally injured.

From 2008 to 2012, it is believed that the police progressively went to more effort to verify that people were actually admitted to hospital rather than just being treated. This had the effect of fewer people being recorded as admitted to hospital over that time period as the result of this change in practice. Therefore, the observed changes cannot be taken as indicative of a real change in either treated at hospital or admitted to hospital numbers.

There is no reason to think that the definition for treated by doctor changed but these represent a very small proportion of the crashes examined here and add very little to the analysis.

Therefore, only injury crashes as a whole (all severities including fatals) and fatal crashes (where the definition is unchanged) are analysed in this report.

Statistical comparisons

Given that relatively few injury crashes would be expected on the case roads during the five years before and after the speed limit was changed, the statistical analysis will necessarily be limited to considering overall changes in injury crashes with only very large changes likely to produce statistically significant results. Fatal crashes are even more rare but are analysed for completeness.

The gross number of injury and fatal crashes in the five years before (2006-2010) and the five years after (2012-2016) the speed limit change on the case roads will be determined and tested for a statistically significant change. This will be compared to the numbers for the control roads and statistically tested.

An exponential regression model will be fitted to the case road injury crash numbers assuming a constant background proportional change each year and a step effect for the change in speed limit.

A further exponential regression model will be fitted to both the case road and control road injury crash numbers assuming a constant background proportional change each year that is the same for both road types and a step effect for the change in speed limit on the case roads.

3 Results

3.1 Crash numbers

Crashes on the road sections where the speed limit was lowered from 110 km/h to 100 km/h in 2011 (case road crashes) are shown in Table 3.1 by year and severity of crash (2011 is not shown as this was the year the speed limit changed). Note that the treated and admitted numbers are not directly comparable in different years as explained in Section 2.

Table 3.1
Crashes on the road sections where the speed limit was lowered from 110 km/h to 100 km/h in 2011 by year and severity of the crash (case road crashes)

Year	Most severe injury in the crash				Total
	Doctor	Treated	Admitted	Fatal	
2006	4	40	20	2	66
2007	4	30	22	8	64
2008	2	32	11	2	47
2009	2	30	17	7	56
2010	4	26	11	1	42
2012	5	27	19	5	56
2013	8	18	15	4	45
2014	2	28	12	3	45
2015	3	47	7	3	60
2016	4	31	14	1	50

A readily available comparison group is crashes reported as being on 110 km/h roads that were not on road sections that were part of the 2011 speed limit reductions (control road crashes). Crashes on these roads by year and severity of crash are shown in Table 3.2. Note that the treated and admitted numbers are not directly comparable in different years as explained in Section 2.

Table 3.2
Crashes on 110 km/h road sections in South Australia where the speed limit was not lowered in 2011 by year and severity of the crash (control road crashes)

Year	Most severe injury in the crash				Total
	Doctor	Treated	Admitted	Fatal	
2006	7	160	129	13	309
2007	23	186	131	14	354
2008	20	190	145	14	369
2009	23	180	127	23	353
2010	16	183	132	25	356
2012	20	171	84	19	294
2013	22	168	81	14	285
2014	18	172	68	24	282
2015	12	167	79	28	286
2016	11	202	79	17	309

3.2 Changes in before and after crash numbers

The total number of injury and fatal crashes in the before period (2006-2010) and after period (2012-2016) for the case and control roads are shown in Table 3.3 along with the changes (note that injury crash numbers include fatal crashes).

Table 3.3
Before and after changes for injury crashes and fatal crashes on case roads and control roads

Measure	Injury cases	Injury controls	Fatal cases	Fatal controls
2006-2010	275	1,741	20	89
2012-2016	256	1,456	16	102
Change	-19	-285	-4	13
Percentage change	-6.91	-16.37	-20.00	14.61
Chi-square p-value	0.410	0.000	0.505	0.347
Statistically significant	No	Yes	No	No

Injury crashes decreased by 6.91 per cent on the case roads compared to a 16.37 per cent reduction on the control roads. Fatal crashes decreased by 20.00 per cent on the case roads compared to a 14.61 per cent increase on the control roads.

A chi-square test was conducted on the changes for each column. Only the injury controls showed a statistically significant change between the two periods.

A chi-square test was conducted to test if the change in injury crashes on the case roads was different from the change on the control roads. No statistically significant difference was found (p=0.253).

A further chi-square test was conducted to examine if the change in fatal crashes on the case roads was different from the change on the control roads. No statistically significant difference was found (p=0.974).

Given the results of these statistical tests, no conclusions can be drawn about the absolute or relative changes in injury or fatal crash numbers on the case roads. The observed numbers could have easily occurred by chance if in fact there was no change in crash risk on the cases roads between periods or if the change in risk was the same on the case and control roads.

Note that these tests assume a level of variation that is known to underestimate the real variation in crash counts. This can lead to spurious statistically significant results. However, since no relevant statistically significant results were found, this is not an issue here.

3.3 Fitting an exponential regression to case data

A more sophisticated method of analysis of the case road crashes involves fitting an exponential regression to the case data using each year of data and a step function for the lowering of the speed limit. This has the advantage of obtaining the actual variation from the data itself rather than assuming a known to be incorrect level of variation (as in the chi-square test). It does assume that the underlying risk of crashes happening changes by a fixed proportion each year (a constant exponential change).

By constructing this model using the known number of crashes each year, the effect of the change in speed limit can be estimated and statistically tested.

Injury crashes

The results of the analysis for injury crashes are given in Table 3.4 and are shown graphically in Figure 3.1.

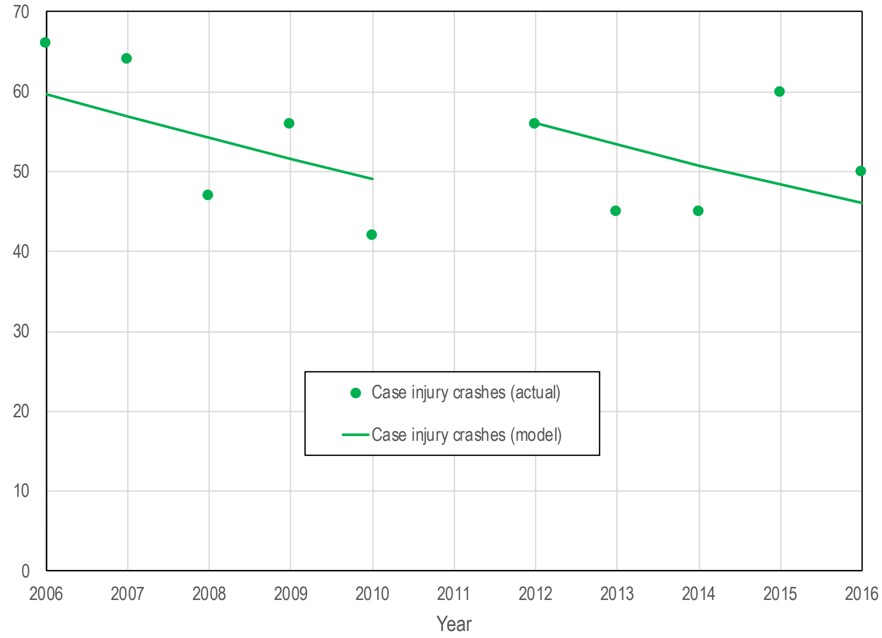
Table 3.4
Percentage changes in injury crash numbers from the fitted model

Factor	Estimate	Lower bound	Upper bound	p-value	Statistically significant
Year	-4.78	-12.37	3.46	0.206	No
Limit change	25.86	-27.39	117.93	0.356	No

The model estimates that the underlying risk of injury crashes went down 4.78 per cent from one year to the next. However, there is considerable uncertainty in this estimate and it is not statistically different from no change.

The model estimates that after the speed limits were lowered, the underlying risk increased by 25.86 per cent. However, there is considerable uncertainty in this estimate and it is not statistically different from no change. The confidence intervals indicate that the underlying risk change could easily be within the range from -27.39 per cent to 117.93 per cent. So no conclusion about the effect of lowering the speed limit on injury crashes can be drawn other than it probably falls within this range.

Figure 3.1
Actual and modelled case injury crash numbers per year



Fatal crashes

The results of the analysis for fatal crashes are given in Table 3.5 and are shown graphically in Figure 3.2.

Table 3.5
Percentage changes in fatal crash numbers from the fitted model

Factor	Estimate	Lower bound	Upper bound	p-value	Statistically significant
Year	-22.20	-46.42	12.98	0.155	No
Limit change	332.32	-63.58	5031.59	0.204	No

The model estimates that the underlying risk of fatal crashes went down 22.20 per cent from one year to the next. However, there is considerable uncertainty in this estimate and it is not statistically different from no change.

The model estimates that after the speed limits were lowered, the underlying risk increased by 332.32 per cent. However, there is a massive amount of uncertainty in this estimate and it is not statistically different from no change. The confidence intervals indicate that the underlying risk change could easily be within the range from -63.58 per cent to 5031.59 per cent. So no conclusion about the effect of lowering the speed limit on fatal crashes can be drawn other than it probably falls within this range.

Figure 3.2
Actual and modelled case fatal crash numbers per year

3.4 Fitting an exponential regression to case and control data

Another method of analysis involves fitting an exponential regression to both the case and control crash data using each year of data and a step function for the lowering of the speed limit on the case roads. This has the advantage of obtaining the actual variation from the data itself rather than assuming a known to be incorrect level of variation (as in the chi-square tests) and incorporating the control data directly in the analysis. It does assume that the underlying risk of crashes happening changes by a fixed proportion each year (a constant exponential change) and that this is the same for both the case and control roads.

By constructing this model using the known number of crashes each year on case and control road sections, the effect of the change in speed limit on the case road sections can be estimated and statistically tested.

Injury crashes

The results of the analysis for injury crashes are given in Table 3.6 and are shown graphically in Figure 3.3 (note that the use of a logarithmic scale for crash numbers in Figure 3.3 results in straight parallel lines for the model).

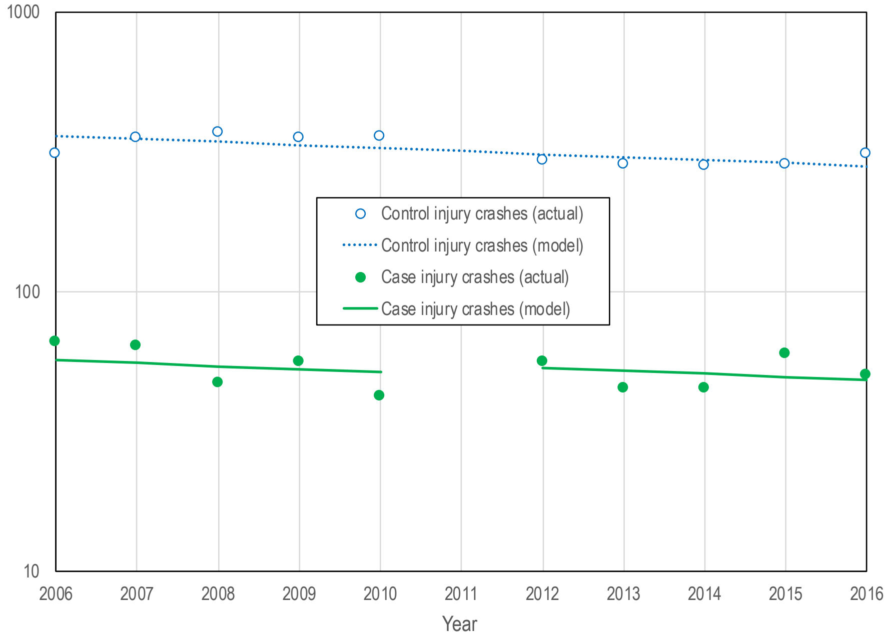
Table 3.6
Percentage changes in injury crash numbers from the fitted model

Factor	Estimate	Lower bound	Upper bound	p-value	Statistically significant
Year	-2.47	-4.69	-0.20	0.033	Yes
Limit change	9.09	-11.93	35.12	0.402	No

The model estimates that the underlying risk of injury crashes goes down 2.47 per cent from one year to the next on both case and control road sections. While there is considerable uncertainty in this estimate it is statistically different from no change.

The model estimates that after the speed limits were lowered, the underlying risk increased by 9.09 per cent on the case road sections. However, there is considerable uncertainty in this estimate and it is not statistically different from no change. The confidence intervals indicate that the underlying risk change could easily be within the range from -11.93 per cent to 35.12 per cent. Also, given the apparent greater variation for case injury crashes, the confidence interval is likely wider than calculated here. So no conclusion about the effect of lowering the speed limit on injury crashes can be drawn.

Figure 3.3
Actual and modelled case and control injury crash numbers



Fatal crashes

The results of the analysis for fatal crashes are given in Table 3.7 and are shown graphically in Figure 3.4 (note that the use of a logarithmic scale for crash numbers in Figure 3.4 results in straight parallel lines for the model).

Table 3.7
Percentage changes in fatal crash numbers from the fitted model

Factor	Estimate	Lower bound	Upper bound	p-value	Statistically significant
Year	-0.40	-10.68	11.07	0.934	No
Limit change	-1.78	-64.62	172.92	0.971	No

The model estimates that the underlying risk of fatal crashes goes down 0.40 per cent from one year to the next on both case and control road sections. However, there is considerable uncertainty in this estimate and it is not statistically different from no change.

The model estimates that after the speed limits were lowered, the underlying risk went down by 1.78 per cent on the case road sections. However, there is considerable uncertainty in this estimate and it is not statistically different from no change. The confidence intervals indicate that the underlying risk change could easily be within the range from -64.62 per cent to 172.92 per cent. Also, given the apparent greater variation for case fatal crashes, the confidence interval is likely wider than calculated here. So no conclusion about the effect of lowering the speed limit on fatal crashes can be drawn.

Figure 3.4
Actual and modelled case and control fatal crash numbers

4 Discussion

In 2011 the speed limit on 864 km of South Australian rural roads was lowered from 110 km/h to 100 km/h. Based on previous experience with speed limit reductions in South Australia and around the world, it would be expected that: vehicle speeds would go down; injury crashes would go down; and fatal crashes would go down after the speed limit reduction. This study examined the number of injury and fatal crashes on the affected roads and on all other 110 km/h roads in the five years before the speed limit reduction and the five years after.

On the roads where the speed limit was lowered, the raw number of injury crashes decreased by 6.9 per cent and the number of fatal crashes decreased by 20.0 per cent after the speed limit was changed. However, neither of these results was statistically significant which means they could easily have occurred by chance alone if there were no change in the underlying risk.

On 110 km/h roads where the speed limit was not changed, crashes over the same two time periods were examined. Injury crashes decreased by 16.4 per cent and fatal crashes increased by 14.6 per cent on these roads. If the changes on these roads are assumed to represent the general background changes on all roads then the net effects of the change in speed limit on the roads where the speed limit was lowered were a 9.5 per cent increase in injury crashes and a 34.6 per cent reduction in fatal crashes. However, neither of these results was statistically significant which means they could easily have occurred by chance alone if there were no difference in the underlying risk between the roads where the speed limit was changed and the roads where it was not.

More sophisticated modelling of yearly injury and fatal crash numbers for the roads where the speed limit was changed failed to find any statistically significant effect of the speed limit change. Incorporating crash numbers on roads where the speed limit was not changed into these analyses also did not find any statistically significant effect of the speed limit change.

These results do not imply that the change in speed limit did not affect the underlying risk of injury and fatal crashes on the roads where the speed limit was lowered. The change in speed limit would certainly have had some effect and the large body of research on the subject suggests that it would likely be to lower the underlying risk. The challenge is to observe an effect given the inherent random variation in crash numbers. This is only possible, in a statistically robust sense, where the effect is relatively large and/or the number of crashes observed is large.

In the current study, there are just too few crashes on the roads where the speed limit was lowered to be able to discern even a large underlying effect of lowering the speed limit on the risk of injury and fatal crashes. The only thing that can be done at this stage is to wait until more crash data accumulates. It is suggested that this study be repeated once 10 years of pre and post speed limit change crash data is available in 2022 when the 2021 crash data is finalised.

Acknowledgements

This research was funded via a deed with the South Australian Government.

The views expressed in this report are those of the author and do not necessarily represent those of the University of Adelaide or the funding organisations.

References

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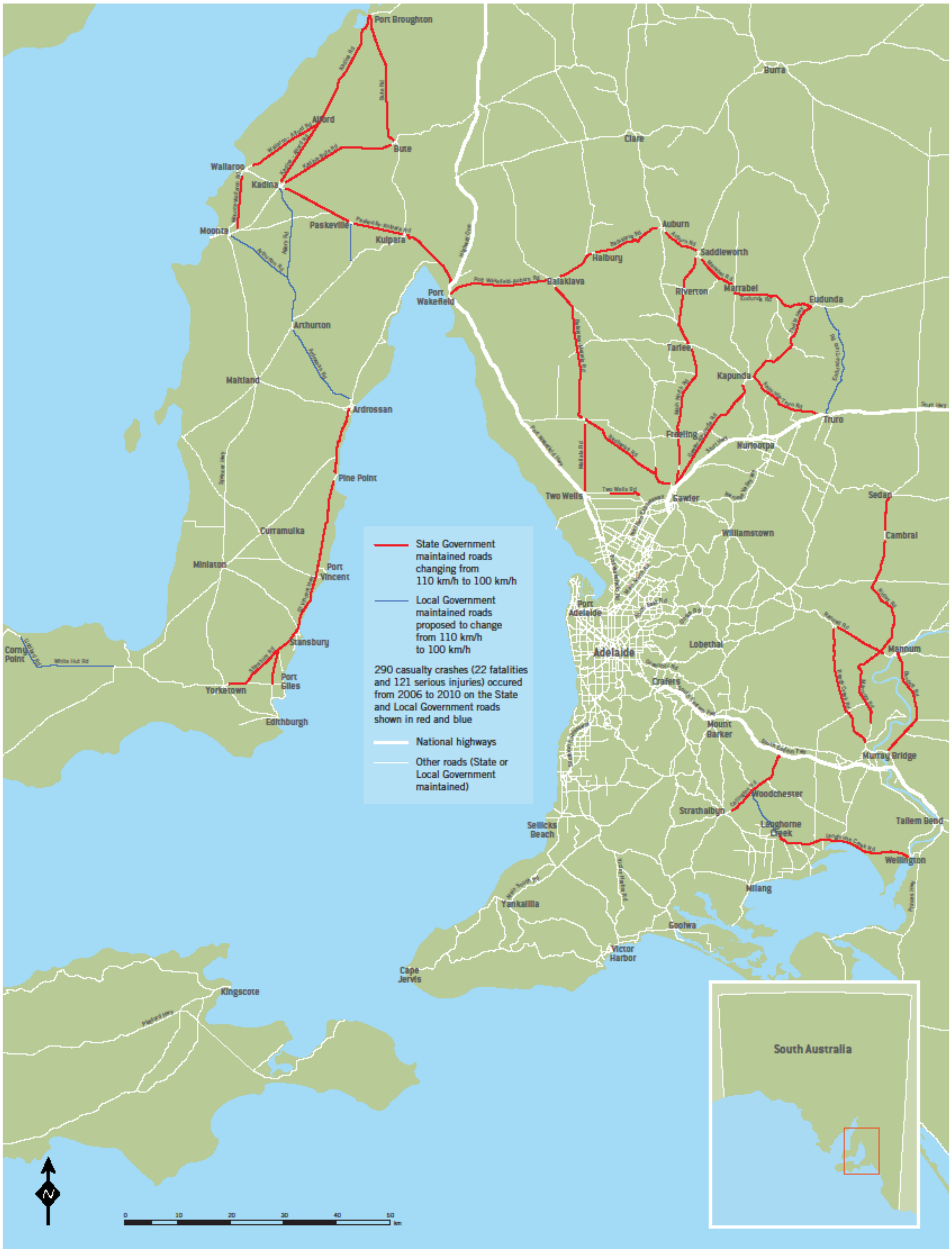
Appendix A – Details of roads with changed speed limits

The locations of the road segments that had their speed limit reduced from 110 km/h to 100 km/h in 2011 are shown in the following figure and table.

NOW 100 THE SPEED LIMIT ON MORE RURAL ROADS

Changed speed limits on rural roads within approximately 100 km of Adelaide and on the Yorke Peninsula



Road Section	Local Government Area	Agency	Length of road (km)
Southeast of Adelaide			
Callington – Goolwa (Callington Road) [NE of Strathalbyn]	Alexandrina Council	DPTI	6.74
Callington – Goolwa [SW of the South Eastern Freeway]	Alexandrina Council / Rural City of Murray Bridge	DPTI	11.55
Strathalbyn – Wellington	Alexandrina Council / Rural City of Murray Bridge	DPTI	30.95
Woodchester – Langhorne Creek (Meechi Road)	Alexandrina Council	LGA	11.20
East of Adelaide			
Purnong – Murray Bridge (Bowhill Road) [North of Murray Bridge]	Rural City of Murray Bridge	DPTI	4.36
Loxton – Murray Bridge [North of Murray Bridge]	Rural City of Murray Bridge	DPTI	3.36
Mannum – Burdett (Burdett Road)	Rural City of Murray Bridge / Mid Murray Council	DPTI	17.27
Palmer – Murray Bridge	Rural City of Murray Bridge / Mid Murray Council	DPTI	29.09
Mannum – Murray Bridge (Mannum Road)	Rural City of Murray Bridge / Mid Murray Council	DPTI	20.49
Tea Tree Gully – Mannum	Mid Murray Council	DPTI	12.44
Sedan – Sanderston [south of Cambrai]	Mid Murray Council	DPTI	9.79
Sedan – Sanderston [north of Cambrai]	Mid Murray Council	DPTI	7.74
Sanderston – Mannum	Mid Murray Council	DPTI	20.08
North of Adelaide			
Hamley Bridge – Kangaroo Flat	Light Regional Council	DPTI	1.16
Mallala – Gawler (Mallala Road)	Light Regional Council	DPTI	4.77
Kapunda – Gawler	Light Regional Council	DPTI	29.09
Kapunda – Truro	Light Regional Council	DPTI	18.61
Eudunda – Truro	Regional Council of Goyder and Mid Murray Council	LGA	24.90
Kapunda – Morgan [SW of Eudunda]	Light Regional Council / Regional Council of Goyder	DPTI	23.20
Main North Road [South of Roseworthy]	Light Regional Council	DPTI	3.72
Main North Road [South of Templers]	Light Regional Council	DPTI	5.78
Main North Road [South of Tarlee]	Clare and Gilbert Valleys Council	DPTI	21.75
Main North Road [South of Barrier Highway]	Clare and Gilbert Valleys Council	DPTI	4.84
Barrier Highway [south of Riverton]	Clare and Gilbert Valleys Council	DPTI	6.96
Barrier Highway [north of Riverton]	Clare and Gilbert Valleys Council	DPTI	7.57
Auburn – Saddleworth	Clare and Gilbert Valleys Council	DPTI	8.62
Saddleworth – Eudunda [east of Marrabel]	Clare and Gilbert Valleys Council	DPTI	19.68
Saddleworth – Eudunda [NW of Marrabel]	Clare and Gilbert Valleys Council	DPTI	9.34
Mallala – Gawler (Gawler Road)	District Council of Mallala	DPTI	21.13
Two Wells – Gawler	District Council of Mallala	DPTI	13.15
Mallala Road, Mallala – Two Wells	District Council of Mallala	DPTI	15.35
Balaklava – Mallala [South of Balaklava]	Wakefield Regional Council / District Council of Mallala	DPTI	32.46
Port Wakefield – Auburn [SW of Auburn]	Wakefield Regional Council / Clare and Gilbert Valleys Council	DPTI	16.14
Port Wakefield – Auburn [West of Balaklava]	Wakefield Regional Council	DPTI	23.11
Port Wakefield – Auburn [NE of Balaklava]	Wakefield Regional Council	DPTI	8.91
Northern Yorke Peninsula			
Wallaroo – Port Wakefield (Copper Coast Hwy) [SE of Kulpara]	District Council of Barunga West / Wakefield Regional Council	DPTI	16.22
Wallaroo – Port Wakefield (Copper Coast Hwy) [NW of Kulpara]	District Council of the Copper Coast / District Council of Barunga West	DPTI	11.43
Wallaroo – Port Wakefield (Copper Coast Hwy) [SE of Kadina]	District Council of the Copper Coast	DPTI	16.63
Kadina – Bute	District Council of the Copper Coast / District Council of Barunga West	DPTI	27.34
Port Broughton – Bute (Bute Road)	District Council of Barunga West	DPTI	28.15
Port Broughton – Alford (Kadina Road)	District Council of Barunga West	DPTI	24.31
Alford – Kadina	District Council of Barunga West	DPTI	17.11
Wallaroo- Alford	District Council of the Copper Coast	DPTI	18.54
Wallaroo – Moonta	District Council of the Copper Coast	DPTI	12.13
Moonta – Arthurton	District Council of Yorke Peninsula and District Council of the Copper Cost	LGA	27.48
Kadina – Agery Road	District Council of Yorke Peninsula and District Council of the Copper Cost	LGA	21.82
Arthurton – Ardrossan	District Council of Yorke Peninsula	LGA	21.70
Paskeville – Kainton	District Council of Yorke Peninsula and District Council of the Copper Cost	LGA	8.30
Yorke Peninsula			
Stansbury – Edithburgh (St Vincent Hwy)	District Council of Yorke Peninsula	DPTI	8.19
Port Wakefield – Yorketown (St Vincent Hwy) [South of Ardrossan]	District Council of Yorke Peninsula	DPTI	15.83
Port Wakefield – Yorketown (St Vincent Hwy) [North of Yorketown]	District Council of Yorke Peninsula	DPTI	58.17
Corney Point – Yorketown	District Council of Yorke Peninsula	LGA	25.91