

THE BIG 5 ROAD SAFETY MEASURES

Jack McLean

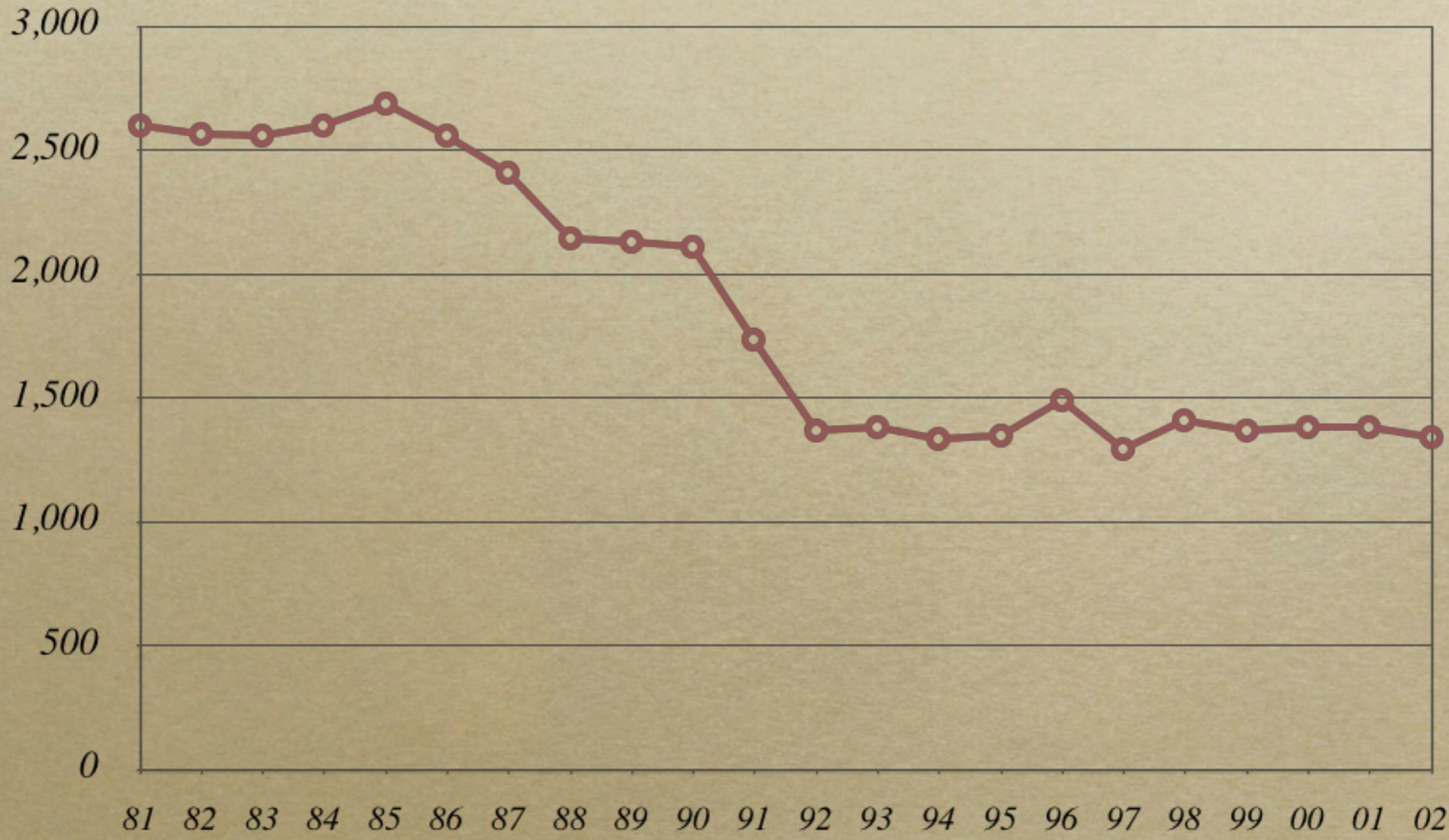
Centre for Automotive Safety Research



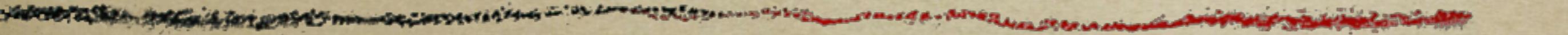
Source Report

- Taken from a draft of the Report “Cost-Effective Road Safety Measures for South Australia”
- Being conducted by CASR for Transport SA
- Looks at safety benefits and costs to Transport SA of countermeasures that can significantly reduce serious casualty crashes in South Australia
- A serious casualty crash involves a hospital admission or fatality

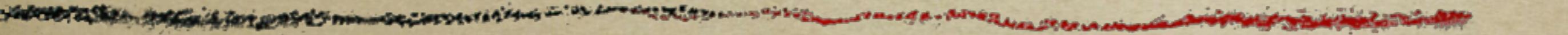
Serious Casualty Crashes in South Australia



The CASR Big 5



1. Speed limit of 50 km/h on main roads in built up areas



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- Speed limits have been lowered in local streets in South Australia
- This is expected to reduce all South Australian serious casualty crashes by up to 3% (RARU Speed Study)

1. Speed limit of 50 km/h on main roads in built up areas

- 8% of serious casualty crashes occur on local streets in South Australia
- 45% of serious casualty crashes occur on main roads with a 60 km/h speed limit in South Australia

Travelling Speed 147 km/h
Impact Speed = 120 km/h
Driver Fatally Injured



Travelling Speed 68 km/h
Impact Speed = 68 km/h
Left Rear Passenger Admitted to Hospital



1. Speed limit of 50 km/h on main roads in built up areas

- 45% of serious casualty crashes occur on main roads with a 60 km/h speed limit in South Australia
- A 2 km/h speed reduction leads to an estimated 13% reduction in serious casualty crashes on these roads (RARU Adelaide Speed Study, MUARC Melbourne study)
- These reductions could be expected in the first year of a 50 km/h speed limit on main roads
- This equates to a reduction of 6% in all serious casualty crashes in South Australia (45% x 13%)

1. Speed limit of 50 km/h on main roads in built up areas

- 45% of serious casualty crashes occur on main roads with a 60 km/h speed limit in South Australia
- A 10 km/h speed reduction leads to an estimated 38% reduction in serious casualty crashes on these roads (RARU speed study)
- This could be expected in the longer term with continuing high level enforcement
- This equates to a reduction of 17% in all serious casualty crashes in South Australia ($45\% \times 38\%$)

1. Speed limit of 50 km/h on main roads in built up areas

- There are approximately 2,000 signs in South Australia that read 60 km/h and would need to be removed or changed
- The cost of this would be approximately \$250,000

Estimated Reductions in Serious Casualty Crashes

Countermeasure	First Year	Long Term	TSA Cost
Speed limit of 50 km/h on main roads in built up areas	6%	17%	\$250,000

2. Maximum speed limit of 100 km/h

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- 19% of serious casualty crashes occur on roads with a 110 km/h speed limit in South Australia
- A 2 km/h speed reduction leads to an estimated 15% reduction in serious casualty crashes on these roads (RARU Rural Speed Study)
- This could be expected in the first year
- This equates to a reduction of 3% in all serious casualty crashes in South Australia (19% x 15%)

2. Maximum speed limit of 100 km/h

- 19% of serious casualty crashes occur on roads with a 110 speed limit in South Australia
- A 10 km/h speed reduction leads to an estimated 46% reduction in serious casualty crashes on those roads (RARU Speed Study)
- This could be expected in the longer term with continuing high level enforcement
- This equates to a reduction of 9% in all serious casualty crashes in South Australia (19% x 46%)

2. Maximum speed limit of 100 km/h

- There are approximately 800 signs in SA that read 110 and would need to be changed
- The cost of this would be approximately \$120,000

Estimated Reductions in Serious Casualty Crashes

Countermeasure	First Year	Long Term	TSA Cost
Speed limit of 50 km/h on main roads in built up areas	6%	17%	\$250,000
Maximum speed limit of 100 km/h	3%	9%	\$120,000

3. 90 km/h speed limit on current 100 km/h roads

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- 15% of serious casualty crashes occur on roads with a 100 km/h speed limit in South Australia
- a 2 km/h speed reduction leads to an estimated 15% reduction in serious casualty crashes on these roads (RARU Rural Speed Study)
- This could be expected in the first year
- This equates to a reduction of 2% in all serious casualty crashes in South Australia (15% x 15%)

3. 90 km/h speed limit on current 100 km/h roads

- 15% of serious casualty crashes occur on roads with a 100 km/h speed limit in South Australia
- A 10 km/h speed reduction leads to an estimated 46% reduction in serious casualty crashes on these roads (RARU Rural Speed Study)
- This could be expected in the longer term with continuing high level enforcement
- This equates to a 7% reduction in all serious casualty crashes in South Australia (15% x 46%)

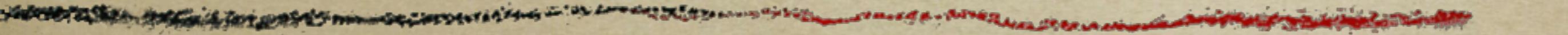
3. 90 km/h speed limit on current 100 km/h roads

- There are approximately 900 signs in South Australia that read 100 and would need to be changed
- The cost of this would be approximately \$130,000

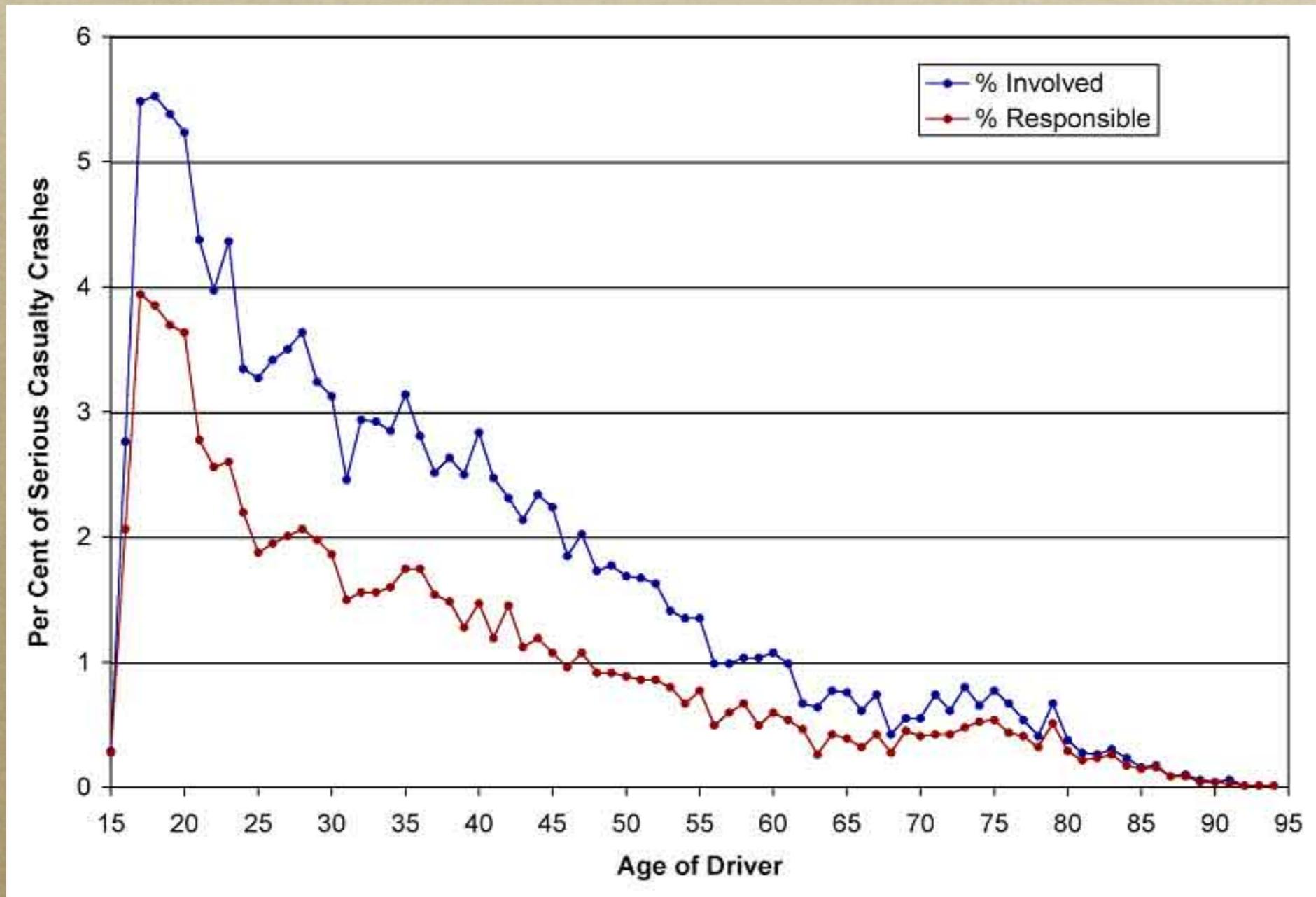
Estimated Reductions in Serious Casualty Crashes

Countermeasure	First Year	Long Term	TSA Cost
Speed limit of 50 km/h on main roads in built up areas	6%	17%	\$250,000
Maximum speed limit of 100 km/h	3%	9%	\$120,000
90 km/h speed limit on current 100 km/h roads	2%	7%	\$130,000

4. Raise Provisional Licence age to 18



Per Cent of Serious Casualty Crashes Involving and Caused by Drivers of a Given Age



4. Raise Provisional Licence age to 18

- In Victoria, a provisional licence can only be obtained at 18 years of age
- 8% of serious casualty crashes involve at least one 16-17 year old driver in South Australia
- 6% of serious casualty crashes involve a 16-17 year old driver who is judged as being responsible for the crash in South Australia

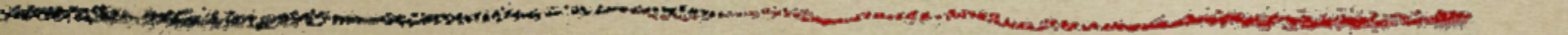
4. Raise Provisional Licence age to 18

- Removing 16-17 year old drivers from the system would be expected to reduce serious casualty crashes by about 5% in the long term
- This would take some time to phase in so the reduction in the first year would be about 2%
- This would involve negligible cost to Transport SA

Estimated Reductions in Serious Casualty Crashes

Countermeasure	First Year	Long Term	TSA Cost
Speed limit of 50 km/h on main roads in built up areas	6%	17%	\$250,000
Maximum speed limit of 100 km/h	3%	9%	\$120,000
90 km/h speed limit on current 100 km/h roads	2%	7%	\$130,000
Raise Provisional Licence age to 18	2%	5%	-

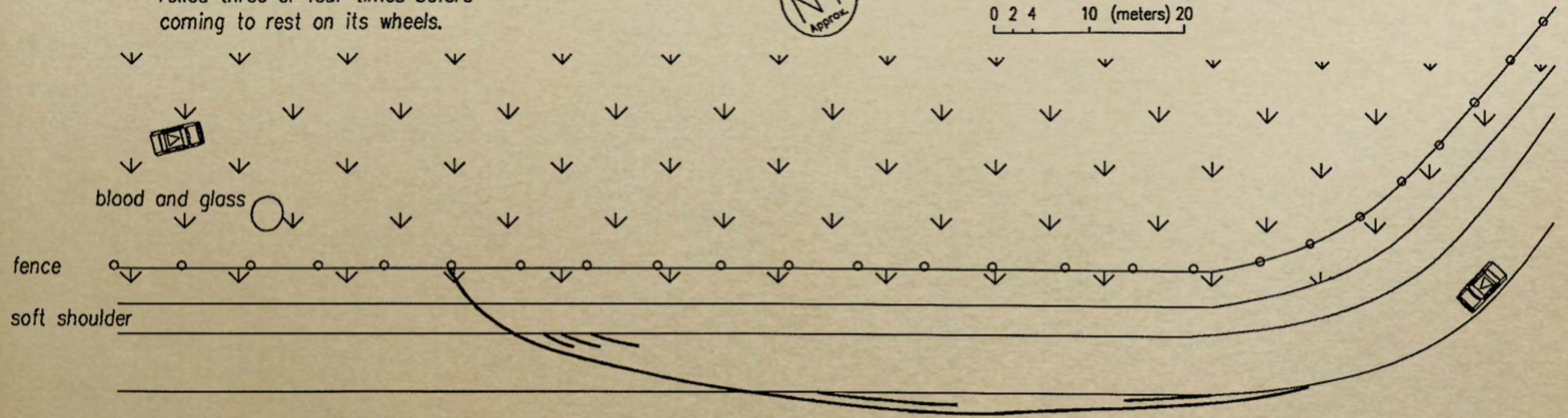
5. Seal shoulders on outside of bends



Car tripped on grass verge and rolled three or four times before coming to rest on its wheels.



0 2 4 10 (meters) 20













5. Seal shoulders on outside of bends

- 24% of serious casualty crashes occur on rural sealed roads with a 100/110 km/h speed limit in South Australia
- 32% of such crashes typically involve dropping a wheel off on to an unsealed shoulder and losing control turning back on to the road (RARU)
- 64% of these were on the outside of bends in the road (RARU)

5. Seal shoulders on outside of bends

- Assuming an 80% effectiveness for sealed shoulders in preventing these crashes
- Sealing all the shoulders of all Transport SA controlled 100/110 km/h roads (not just on bends) would reduce serious casualty crashes by 6% in South Australia ($24\% \times 32\% \times 80\%$)
- However, it would cost \$800,000,000

5. Seal shoulders on outside of bends

- Just sealing the shoulders on the outside of bends of all Transport SA controlled 100/110 km/h roads would reduce serious casualty crashes by 4% in South Australia (24% x 32% x 64% x 80%)
- This would cost \$20,000,000
- Assuming a 10 year life of the seal this amounts to \$37,000 per serious casualty crash prevented

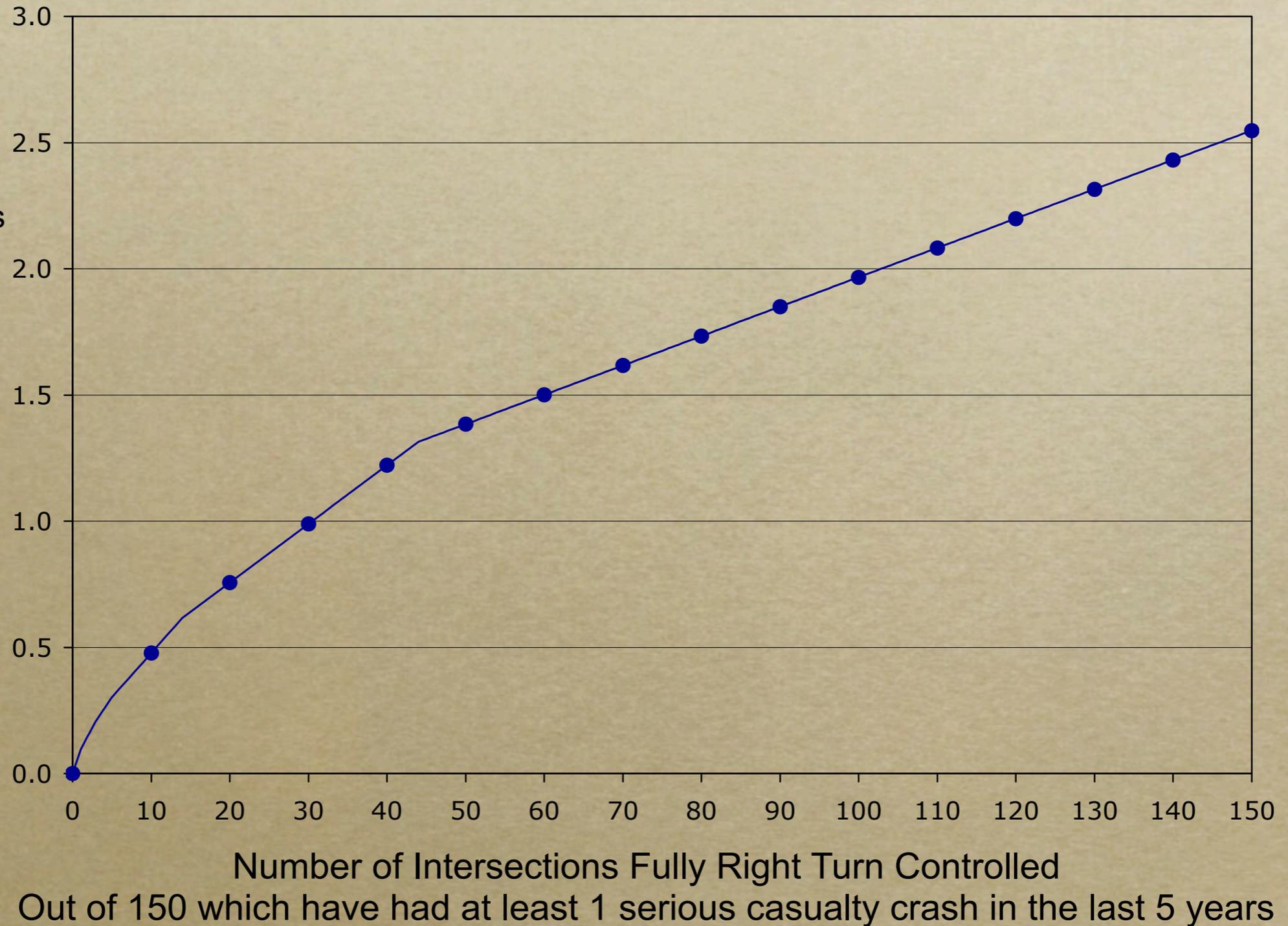
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90 km/h speed limit on current 100 km/h roads	2%	7%	\$130,000
Raise Provisional Licence age to 18	2%	5%	-
Seal shoulders on outside of bends	-	4%	\$20,000,000

Honourable Mention

Fully Controlling Right Turns at Signalised Intersections

Estimated Per Cent Reduction in Serious Casualty Crashes in South Australia



THE CASR BIG 5

Estimated Reductions in Serious Casualty Crashes

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90 km/h speed limit on current 100 km/h roads	2%	7%	\$130,000
Raise Provisional Licence age to 18	2%	5%	-
Seal shoulders on outside of bends	-	4%	\$20,000,000

Each 1% reduction = 12 Serious Casualty Crashes and 1.4 Fatal Crashes / Year = \$8,000,000 / Year

Source: Bureau of Transport Economics